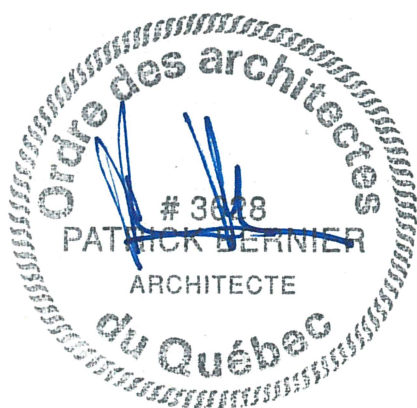


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**PARKS CANADA -**  
**Maintenance garage and fence rehabilitation**  
Project #1534

**ARCHITECTURAL SPECIFICATIONS**  
ISSUED FOR : TENDER

PCAU-01-02



February 8<sup>th</sup> 2019

<b>DIVISIONS</b>	<b>SECTIONS</b>	<b>TITLES</b>
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**ARCHITECTURAL SPECIFICATIONS**

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**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

**PCAU-01-02****Section 00 01 10**  
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## **PART 1 - GENERAL**

### **1.1 Work covered by contract documents**

- .1 Work of this Contract comprises Maintenance Garage and Fence Rehabilitation located at Pangnirtung, Nunavut. The Work includes, but not limited:
  - .1 Modifications and repairs to the Maintenance Garage;
  - .2 Rehabilitation of the fence at the Maintenance Garage compound;
  - .3 Replacements of boilers in the Visitor Center and the White House.

### **1.2 Work schedule**

- .1 Prior to preconstruction meeting, prepare and submit work schedule in GANTT format using Critical Path Method.
- .2 Work schedule must show consideration for the following constraints and illustrate related activities:
  - .1 Shop drawing approval, per product, and ordering of material.
  - .2 Sealifts to jobsite.
  - .3 Replacement of boilers in the Visitor Center and the White House in periods where heating is not required or provided heating by Contractor.
  - .4 Periods when no activities on site are scheduled.
  - .5 End of project on October 1 2020.
  - .6 Perform the civil work during hot season.
  - .7 Provide snow removal during period of Work.

### **1.3 Contractor use of premises**

- .1 Unrestricted use of site until Substantial Performance for the Maintenance Garage and adjacent compound.
- .2 Limit use of premises for Work, storage and for access, to allow:
  - .1 Partial owner occupancy of the Visitor Center and White House.
  - .2 Public usage of the Visitor Center.
- .3 Co-ordinate use of premises under direction of Departmental Representative.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .5 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .6 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

#### **1.4 Owner occupancy**

- .1 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage of the buildings. The following constraints must be taken into account in the planning of the work:
  - .1 Visitor Center to be under continuous operation during regular business hours.
  - .2 White House to be used as residence for Owner's staff on continuous basis.
  - .3 Maintenance Garage to be made functional during prolonged interruption of construction activities on site.

#### **1.5 Alterations, additions or repairs to existing building**

- .1 Execute work with least possible interference or disturbance to occupants and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

#### **1.6 Existing services**

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .4 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .5 Provide temporary services to maintain critical building systems.
- .6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .7 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .8 Record locations of maintained, re-routed and abandoned service lines.
- .9 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

#### **1.7 Documents required**

- .1 Maintain at job site, one copy each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.
  - .9 Copy of Approved Work Schedule.
  - .10 Health and Safety Plan and Other Safety Related Documents.
  - .11 Other documents as specified.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

PCAU-01-02

**Section 01 11 00  
SUMMARY OF WORK**

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**1.8 Building smoking environment**

- .1 Comply with smoking restrictions. Smoking is not permitted.

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Related requirements**

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under sections as follows:
  - .1 03 30 00 – Cast in place concrete
  - .2 31 23 33.01 – Excavating Trenching and Backfilling
  - .3 32 11 16.01 – Granular Sub-base
  - .4 32 11 23 – Aggregate Base Courses

### **1.2 Appointment and payment**

- .1 Departmental Representative will appoint and pay for services of testing laboratory except follows:
  - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
  - .2 Inspection and testing performed exclusively for Contractor's convenience.
  - .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
  - .4 Mill tests and certificates of compliance.
  - .5 Tests specified to be carried out by Contractor under supervision of Departmental Representative.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

### **1.3 Contractor's responsibilities**

- .1 Provide labour, equipment and facilities to:
  - .1 Provide access to Work for inspection and testing.
  - .2 Facilitate inspections and tests.
  - .3 Make good Work disturbed by inspection and test.
  - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

### **1.4 Not used**

- .1 Not Used.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

PCAU-01-02

**Section 01 29 83**

**PAYMENT PROCEDURES FOR TESTING LABORATORY  
SERVICES**

February 8th 2019

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**PART 2 - EXECUTION**

**2.1 Not used**

.1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Administrative**

- .1 Schedule and administer project meetings throughout the progress of the Work at the call of Departmental Representative.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative and other meeting participants.
- .4 Provide physical space and teleconference support and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and Departmental Representative.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

### **1.2 Preconstruction meeting**

- .1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of Departmental Representative, Consultant, Contractor, major Subcontractors and field inspectors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
  - .1 Appointment of official representative of participants in the Work.
  - .2 Schedule of Work
  - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .4 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
  - .5 Delivery schedule of specified equipment.
  - .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
  - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
  - .8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
  - .9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
  - .10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.

- .11 Monthly progress claims, administrative procedures, photographs, hold backs.
- .12 Appointment of inspection and testing agencies or firms.
- .13 Insurances, transcript of policies.

**1.3 Progress meetings**

- .1 During course of Work, schedule progress meetings weekly during periods of construction activities on site or as required by Departmental Representative.
- .2 Contractor, major Subcontractors involved in Work, Departmental Representative and Consultant are to be in attendance.
- .3 Notify parties minimum 4 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within three days after meeting.
- .5 Agenda to include the following:
  - .1 Review, approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, conflicts.
  - .4 Problems which impede construction schedule.
  - .5 Review of off-site fabrication delivery schedules.
  - .6 Corrective measures and procedures to regain projected schedule.
  - .7 Revision to construction schedule.
  - .8 Progress schedule, during succeeding work period.
  - .9 Review submittal schedules: expedite as required.
  - .10 Maintenance of quality standards.
  - .11 Review proposed changes for affect on construction schedule and on completion date.
  - .12 Other business.

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Administrative**

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

### **1.2 Shop drawings and product data**

- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Territory of Canada.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .3 Allow ten days for Departmental Representative's review of each submission.
- .4 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .5 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .6 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.

- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.
- .7 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .8 After Departmental Representative's review, distribute copies.
- .9 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .10 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .11 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .12 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .13 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.

- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .14 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .15 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, electronic copy will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted electronic copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
  - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

**1.3 Samples**

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

**1.4 Mock-ups**

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

**1.5 Photographic documentation**

- .1 Submit digital photography in jpg format, standard resolution monthly with progress statement as directed by Departmental Representative.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 8 locations.
  - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: weekly as directed by Departmental Representative.
  - .1 Upon completion of: excavation, framing and services before concealment, as directed by Departmental Representative.

**1.6 Certificates and transcripts**

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

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Fire department briefing**

- .1 Departmental Representative will co-ordinate arrangements for Contractor for briefing on Fire Safety at pre-work conference by Fire Chief before work is commenced.

### **1.2 Reporting fires**

- .1 Know location of nearest fire alarm box and telephone, including emergency phone number.
- .2 Report immediately fire incidents to Fire Department as follows:
  - .1 Activate nearest fire alarm box; or
  - .2 Telephone.
- .3 When reporting fire by telephone, give location of fire, name or number of building and be prepared to verify location.

### **1.3 Interior and exterior fire protection and alarm systems**

- .1 Fire protection and alarm system will not be:
  - .1 Obstructed;
  - .2 Shut-off; and
  - .3 Left inactive at end of working day or shift without authorization from Fire Chief.

### **1.4 Fire extinguishers**

- .1 Supply fire extinguishers, as scaled by Fire Chief, necessary to protect work in progress and Contractor's physical plant on site.

### **1.5 Blockage of roadways**

- .1 Advise Fire Chief of work that would impede fire apparatus response. This includes erecting of barricades and digging of trenches.

### **1.6 Smoking precautions**

- .1 Observe smoking regulations.

### **1.7 Rubbish and waste materials**

- .1 Keep rubbish and waste materials at minimum quantities.
- .2 Burning of rubbish is prohibited.
- .3 Removal:
  - .1 Remove rubbish from work site at end of work day or shift or as directed.
- .4 Storage:
  - .1 Store oily waste in approved receptacles to ensure maximum cleanliness and safety.
  - .2 Deposit greasy or oily rags and materials subject to spontaneous combustion in approved receptacles and remove specified.

**1.8 Flammable and combustible liquids**

- .1 Handling, storage and use of flammable and combustible liquids governed by current National Fire Code of Canada.
- .2 Keep flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing Underwriters' Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires permission of Fire Chief.
- .3 Transfer of flammable and combustible liquids is prohibited within buildings or jetties.
- .4 Transfer of flammable and combustible liquids will not be carried out in vicinity of open flames or any type of heat-producing devices.
- .5 Do not use flammable liquids having flash point below 38 degrees C such as naphtha or gasoline as solvents or cleaning agents.
- .6 Store flammable and combustible waste liquids, for disposal, in approved containers located in safe ventilated area. Keep quantities minimum and Fire Department is to be notified when disposal is required.

**1.9 Hazardous substances**

- .1 Work entailing use of toxic or hazardous materials, chemicals and/or explosives, or otherwise creating hazard to life, safety or health, in accordance with National Fire Code of Canada.
- .2 Obtain from Fire Chief a "Hot Work" permit for work involving welding, burning or use of blowtorches and salamanders, in buildings or facilities.
- .3 When Work is carried out in dangerous or hazardous areas involving use of heat, provide fire watchers equipped with sufficient fire extinguishers. Determination of dangerous or hazardous areas along with level of protection necessary for Fire Watch is at discretion of Fire Chief. Contractors are responsible for providing fire watch service for work on scale established and in conjunction with Fire Chief at pre-work conference.
- .4 Provide ventilation where flammable liquids, such as lacquers or urethanes are used, eliminate sources of ignition. Inform Fire Chief prior to and at cessation of such work.

**1.10 Questions and/or clarification**

- .1 Direct questions or clarification on Fire Safety in addition to above requirements to Fire Chief.

**1.11 Fire inspection**

- .1 Co-ordinate site inspections by Fire Chief through Departmental Representative.
- .2 Allow Fire Chief unrestricted access to work site.
- .3 Co-operate with Fire Chief during routine fire safety inspection of work site.
- .4 Immediately remedy unsafe fire situations observed by Fire Chief.

**PART 2 - PRODUCTS****2.1 Not used**

- .1 Not Used.



**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

PCAU-01-02

**Section 01 35 35**

**FIRE SAFETY REQUIREMENTS**

February 8th 2019

Issued for tender

**PART 3 - EXECUTION**

**3.1 Not used**

.1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Definitions:
  - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
  - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.
- .2 Reference Standards:
  - .1 Canada Green Building Council (CaGBC)
    - .1 LEED Canada 2009 for Design and Construction-[2010], LEED Canada 2009 for Design and Construction Leadership in Energy and Environmental Design Green Building Rating System Reference Guide
  - .2 U.S. Environmental Protection Agency (EPA)/Office of Water
    - .1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit electronic copy of WHMIS MSD, manufacturer's instructions, printed product literature and data sheets, including product characteristics, performance criteria, physical size, finish and limitations for:
    - .1 Paints
    - .2 Floor finish systems
    - .3 Fire stopping products
    - .4 Joint sealing products
    - .5 Adhesives
- .3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review by Departmental Representative.
- .4 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .5 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .6 Include in Environmental Protection Plan:
  - .1 Name of person responsible for ensuring adherence to Environmental Protection Plan.
  - .2 Name and qualifications of person responsible for manifesting hazardous waste to be removed from site.
  - .3 Name and qualifications of person responsible for training site personnel.
  - .4 Descriptions of environmental protection personnel training program.

- .5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations and EPA 832/R-92-005, Chapter 3.
- .6 Drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
- .7 Traffic Control Plans including measures to reduce erosion by construction traffic, especially during wet weather.
  - .1 Plans to include measures to minimize runoff.
- .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
  - .1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .9 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .12 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .13 Waste Water Management Plan identifying methods and procedures for management of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
- .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
- .15 Pesticide treatment plan to be included and updated, as required.

**1.3 Fires**

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

**1.4 Drainage**

- .1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations, EPA 832/R-92-005, Chapter 3.
- .2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sediment control plan.
- .3 Provide temporary drainage and pumping required to keep excavations and site free from water.

- .4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

**1.5 Site clearing and plant protection**

- .1 Protect plants on site and adjacent properties.
- .2 Minimize stripping of topsoil and vegetation.

**1.6 Pollution control**

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

**1.7 Notification**

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
  - .1 Take action only after receipt of written approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **References and codes**

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of territorial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
  - .1 Contract documents.
  - .2 Specified standards, codes and referenced documents.

### **Hazardous material discovery**

- .3 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.
- .4 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .5 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

### **Building smoking environment**

- .6 Comply with smoking restrictions and municipal by-laws.

### **National parks act**

- .7 Perform Work in accordance with National Parks Act when projects are located within boundaries of National Park.

## **PART 2 - PRODUCTS**

### **Not used**

- .1 Not Used.

## **PART 3 - EXECUTION**

### **Not used**

- .1 Not Used.

### **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Inspection**

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

### **1.2 Access to work**

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

### **1.3 Rejected work**

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the difference in value between Work performed and that called for by Contract Documents will be deducted from Contract Price, amount of which will be determined by Departmental Representative.

### **1.4 Reports**

- .1 Submit electronic copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested and to manufacturer or fabricator of material being inspected or tested.

### **1.5 Tests and mix designs**

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative.

**1.6 Mock-ups**

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

**1.7 Mill tests**

- .1 Submit mill test certificates as required of specification Sections.

**1.8 Equipment and systems**

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Canada Green Building Council (CaGBC)
  - .1 LEED Canada 2009 for Design and Construction-[2010], LEED Canada 2009 for Design and Construction Leadership in Energy and Environmental Design Green Building Rating System Reference Guide
- .2 U.S. Environmental Protection Agency (EPA)/Office of Water
  - .1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.

### **1.2 Action and informational submittals**

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

### **1.3 Installation and removal**

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

### **1.4 Dewatering**

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

### **1.5 Water supply**

- .1 Provide potable water for construction use.

### **1.6 Temporary heating and ventilation**

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
  - .1 Facilitate progress of Work.
  - .2 Protect Work and products against dampness and cold.
  - .3 Prevent moisture condensation on surfaces.
  - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
  - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .5 Ventilating:
  - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.



- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .6 Permanent heating system of building, to be used when available. Be responsible for damage to heating system if use is permitted.
- .7 On completion of Work for which permanent heating system is used, replace filters.
- .8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Departmental Representative.
- .9 Pay costs for maintaining temporary heat.
- .10 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1 Conform with applicable codes and standards.
  - .2 Enforce safe practices.
  - .3 Prevent abuse of services.
  - .4 Prevent damage to finishes.
  - .5 Vent direct-fired combustion units to outside.
- .11 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

**1.7 Temporary power and light**

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.
- .2 Pay costs for installation, maintenance and removal of temporary connection to existing facilities.
- .3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- .4 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

**PART 2 - PRODUCTS****2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Temporary erosion and sedimentation control**

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties, according to sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Action and informational submittals**

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

### **1.2 Installation and removal**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

### **1.3 Scaffolding**

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ladders, platforms and temporary stairs.

### **1.4 Site storage/loading**

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

### **1.5 Offices**

- .1 Contractor to set up a job site office for its own purpose and to keep copies of documents listed in Section 01 11 00 – Summary of Work.
- .2 Provide marked and fully stocked first-aid case in a readily available location.

### **1.6 Equipment, tool and materials storage**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

### **1.7 Sanitary facilities**

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

### **1.8 Protection and maintenance of traffic**

- .1 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

- .2 Construct access and haul roads necessary.
- .3 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .4 Dust control: adequate to ensure safe operation at all times.
- .5 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .6 Provide snow removal during period of Work.
- .7 Remove, upon completion of work, haul roads.

**1.9 Clean-up**

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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**PART 1 - GENERAL****1.1 References**

- .1 Canadian Standards Association (CSA International)
- .1 CSA-O121-M1978(R2003), Douglas Fir Plywood.

**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 Guard rails and barricades**

- .1 Provide secure, rigid guard rails and barricades around open shafts, open stair wells and open edges of floors.
- .2 Provide as required by governing authorities.

**1.4 Weather enclosures**

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

**1.5 Dust tight screens**

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work.
- .2 Maintain and relocate protection until such work is complete.

**1.6 Access to site**

- .1 Provide and maintain access roads, ramps and construction runways as may be required for access to Work.

**1.7 Fire routes**

- .1 Maintain access to property for use by emergency response vehicles.

**1.8 Protection for off-site and public property**

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

**1.9 Protection of building finishes**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

PCAU-01-02

**Section 01 56 00**

**TEMPORARY BARRIERS AND ENCLOSURES**

February 8th 2019

Issued for tender

.3 Be responsible for damage incurred due to lack of or improper protection.

**PART 2 - PRODUCTS**

**2.1 Not used**

.1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

.1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

### **1.2 Quality**

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

### **1.3 Availability**

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

### **1.4 Storage, handling and protection**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

**1.5 Transportation**

- .1 Pay costs of transportation of products required in performance of Work.

**1.6 Manufacturer's instructions**

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

**1.7 Quality of work**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

**1.8 Co-ordination**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.



**1.9 Concealment**

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

**1.10 Remedial work**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

**1.11 Location of fixtures**

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

**1.12 Fastenings**

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

**1.13 Fastenings - equipment**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

**1.14 Protection of work in progress**

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

**1.15 Existing utilities**

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

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Drawing MG-ST100 -Site Plan prepared by SNC-Lavallin.

### **1.2 Qualifications of surveyor**

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

### **1.3 Survey requirements**

- .1 New fence to be implemented in same location as existing to be removed. Stake location of existing fence prior to demolition, to allow for orderly demolition and construction work. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading and fill.
- .4 Stake slopes.

### **1.4 Existing services**

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
- .2 Remove abandoned service lines. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

### **1.5 Location of equipment and fixtures**

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

### **1.6 Records**

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

### **1.7 Action and informational submittals**

- .1 Submit name and address of Surveyor to Departmental Representative.
- .2 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.

- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform with Contract Documents.

**1.8 Subsurface conditions**

- .1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Action and informational submittals**

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
  - .1 Structural integrity of elements of project.
  - .2 Integrity of weather-exposed or moisture-resistant elements.
  - .3 Efficiency, maintenance, or safety of operational elements.
  - .4 Visual qualities of sight-exposed elements.
  - .5 Work of Owner or separate contractor.
- .3 Include in request:
  - .1 Identification of project.
  - .2 Location and description of affected Work.
  - .3 Statement on necessity for cutting or alteration.
  - .4 Description of proposed Work, and products to be used.
  - .5 Alternatives to cutting and patching.
  - .6 Effect on Work of Owner or separate contractor.
  - .7 Written permission of affected separate contractor.
  - .8 Date and time work will be executed.

### **1.2 Preparation**

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

### **1.3 Execution**

- .1 Execute cutting, fitting, and patching to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.
- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.
- .13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

## **PART 2 - PRODUCTS**

### **2.1 Not used**

- .1 Not Used.

## **PART 3 - EXECUTION**

### **3.1 Not used**

- .1 Not Used.

## **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Project cleanliness**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Clear snow and ice from access to building.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

### **1.2 Final cleaning**

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .8 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fittings, walls and floors.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

- .11 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .12 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .13 Remove dirt and other disfiguration from exterior surfaces.
- .14 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .15 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .16 Remove snow and ice from access to building.

**1.3 Waste management and disposal**

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

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Use of site and facilities**

- .1 Execute Work with minimal interference and disturbance to normal use of premises.
- .2 Maintain security measures established by facility provide temporary security measures approved by Departmental Representative.

### **1.2 Waste management and recycling**

- .1 Contractor is responsible to research and locate waste management facilities and to transport waste to disposal facilities. In co-ordination with Departmental Representative, make surplus material and reusable cut-outs available for salvage and reuse.

### **1.3 Storage, handling and protection**

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified otherwise, materials for removal do not become Contractor's property.
- .3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .4 Protect structural components not removed and salvaged materials from movement or damage.
- .5 Protect surface drainage, mechanical and electrical from damage and blockage.
- .6 Provide on-site facilities and containers for collection and storage of reusable and recyclable materials.
- .7 Separate and store materials produced during project in designated areas.

### **1.4 Disposal of wastes**

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil or paint thinner into waterways.
- .3 Remove materials on-site as Work progresses.

### **1.5 Scheduling**

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

## **PART 2 - PRODUCTS**

### **2.1 Not used**

- .1 Not Used.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

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**Section 01 74 21**  
**CONSTRUCTION DEMOLITION WASTE MANAGEMENT**  
**AND DISPOSAL**

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**PART 3 - EXECUTION**

**3.1 Not used**

.1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Administrative requirements**

- .1 Acceptance of Work Procedures:
  - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
    - .2 Request Departmental Representative inspection.
  - .2 Departmental Representative Inspection:
    - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
    - .2 Contractor to correct Work as directed.
  - .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
    - .1 Work: completed and inspected for compliance with Contract Documents.
    - .2 Defects: corrected and deficiencies completed.
    - .3 Equipment and systems: tested, adjusted, balanced and fully operational.
    - .4 Certificates required by Nunavut Boiler Inspection submitted.
    - .5 Operation of systems: demonstrated to Owner's personnel.
    - .6 Commissioning of mechanical systems: completed.
    - .7 Work: complete and ready for final inspection.
  - .4 Final Inspection:
    - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
    - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
  - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
  - .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
  - .7 Final Payment:
    - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

### **1.2 Final cleaning**

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

**PCAU-01-02****Section 01 77 00  
CLOSEOUT PROCEDURES**

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- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**PART 2 - PRODUCTS****2.1 Not used**

- .1 Not Used.

**PART 3 - EXECUTION****3.1 Not used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Administrative requirements**

- .1 Pre-warranty Meeting:
  - .1 Convene meeting one week prior to contract completion with Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:
    - .1 Verify Project requirements.
    - .2 Review warranty requirements and manufacturer's installation instructions.
  - .2 Departmental Representative to establish communication procedures for:
    - .1 Notifying construction warranty defects.
    - .2 Determine priorities for type of defects.
    - .3 Determine reasonable response time.
  - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
  - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

### **1.2 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, final copy of operating and maintenance manuals in English.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

### **1.3 Format**

- .1 Organize data as instructional manual in a printed and electronic (PDF) version on CD. The printed version must include :
  - .1 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets
  - .2 When multiple binders are used correlate data into related consistent groupings
    - .1 Identify contents of each binder on spine.
  - .3 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents
  - .4 Arrange content by systems, under Section numbers and sequence of Table of Contents.
  - .5 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
  - .6 Text: manufacturer's printed data, or typewritten data.
  - .7 Drawings: provide with reinforced punched binder tab.
  - .8 Bind in with text; fold larger drawings to size of text pages.
- .2 Provide 1:1 scaled CAD files in dwg format on CD.

#### **1.4 Contents - project record documents**

- .1 Table of Contents for Each Volume: provide title of project;
  - .1 Date of submission; names.
  - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
  - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
  - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .6 Training: refer to Section 01 79 00 - Demonstration and Training.

#### **1.5 As -built documents and samples**

- .1 Maintain, at site for Departmental Representative one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
  - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
  - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
  - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

#### **1.6 Recording information on project record documents**

- .1 Record information on set of blue line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.

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

**1.7 Final survey**

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

**1.8 Equipment and systems**

- .1 For each item of equipment and each system include description of unit or system, and component parts.
  - .1 Give function, normal operation characteristics and limiting conditions.
  - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
  - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
  - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.

**1.9 Materials and finishes**

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
  - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

**1.10 Maintenance materials**

- .1 Spare Parts:
  - .1 Provide spare parts, in quantities specified in individual specification sections.
  - .2 Provide items of same manufacture and quality as items in Work.
  - .3 Deliver to site; place and store.
  - .4 Receive and catalogue items.
    - .1 Submit inventory listing to Departmental Representative.
    - .2 Include approved listings in Maintenance Manual.
  - .5 Obtain receipt for delivered products and submit prior to final payment.
- .2 Extra Stock Materials:
  - .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
  - .2 Provide items of same manufacture and quality as items in Work.
  - .3 Deliver to site; place and store.
  - .4 Receive and catalogue items.
    - .1 Submit inventory listing to Departmental Representative.
    - .2 Include approved listings in Maintenance Manual.
  - .5 Obtain receipt for delivered products and submit prior to final payment.
- .3 Special Tools:



- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items.
  - .1 Submit inventory listing to Departmental Representative.
  - .2 Include approved listings in Maintenance Manual.

**1.11 Delivery, storage and handling**

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

**1.12 Warranties and bonds**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within [ten] days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

- .2 Listing and status of delivery of Certificates of Warranty for extended warranty items.
- .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
  - .1 Name of item.
  - .2 Model and serial numbers.
  - .3 Location where installed.
  - .4 Name and phone numbers of manufacturers or suppliers.
  - .5 Names, addresses and telephone numbers of sources of spare parts.
  - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
  - .7 Cross-reference to warranty certificates as applicable.
  - .8 Starting point and duration of warranty period.
  - .9 Summary of maintenance procedures required to continue warranty in force.
  - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
  - .11 Organization, names and phone numbers of persons to call for warranty service.
  - .12 Typical response time and repair time expected for various warranted equipment.
- .4 Procedure and status of tagging of equipment covered by extended warranties.
- .5 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification to follow oral instructions.
  - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

**1.13 Warranty tags**

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
  - .1 Type of product/material.
  - .2 Model number.
  - .3 Serial number.
  - .4 Contract number.
  - .5 Warranty period.
  - .6 Inspector's signature.
  - .7 Construction Contractor.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

PCAU-01-02

**Section 01 78 00  
CLOSEOUT SUBMITTALS**

February 8th 2019

Issued for tender

**PART 2 - PRODUCTS**

**2.1 Not used**

.1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not used**

.1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Administrative requirements**

- .1 Demonstrate operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of substantial performance.
- .2 Owner: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.
- .3 Preparation:
  - .1 Verify conditions for demonstration and instructions comply with requirements.
  - .2 Verify designated personnel are present.
  - .3 Ensure equipment has been inspected and put into operation.
- .4 Demonstration and Instructions:
  - .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at scheduled times, at the equipment location.
  - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
  - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
  - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

### **1.2 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.
- .5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

### **1.3 Quality assurance**

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
  - .1 Instruct Owner's personnel.
  - .2 Provide written report that demonstration and instructions have been completed.

## **PART 2 - PRODUCTS**

### **2.1 Not used**

- .1 Not Used.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

**PCAU-01-02**

**Section 01 79 00**

**DEMONSTRATION AND TRAINING**

February 8th 2019

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**PART 3 - EXECUTION**

**3.1 Not used**

.1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Summary**

- .1 Section Includes:
  - .1 This section is limited to portions of the Building Management Manual (BMM) provided to Departmental Representative by Contractor.
- .2 Acronyms:
  - .1 BMM - Building Management Manual.
  - .2 Cx - Commissioning.
  - .3 HVAC - Heating, Ventilation and Air Conditioning.
  - .4 PI - Product Information.
  - .5 PV - Performance Verification.
  - .6 TAB - Testing, Adjusting and Balancing.
  - .7 WHMIS - Workplace Hazardous Materials Information System.

### **1.2 General requirements**

- .1 Standard letter size paper 216 mm x 279 mm.
- .2 Methodology used to facilitate updating.
- .3 Drawings, diagrams and schematics to be professionally developed.
- .4 Electronic copy of data to be in a format accepted and approved by Departmental Representative.

### **1.3 Approvals**

- .1 Prior to commencement, co-ordinate requirements for preparation, submission and approval with Departmental Representative.

### **1.4 General information**

- .1 Provide Departmental Representative the following for insertion into appropriate Part and Section of BMM:
  - .1 Complete list of names, addresses, telephone and fax numbers of contractor, sub-contractors that participated in delivery of project - as indicated in Section 1.2 of BMM.
  - .2 Summary of architectural, structural, fire protection, mechanical and electrical systems installed and commissioned
    - .1 Including sequence of operation as finalized after commissioning is complete.
  - .3 Information on operation and maintenance of architectural systems and equipment installed and commissioned.
  - .4 Information on operation and maintenance of fire protection and life safety systems and equipment installed and commissioned.
  - .5 Information on operation and maintenance of mechanical systems and equipment installed and commissioned.
  - .6 Operating and maintenance manual.
  - .7 Completed commissioning checklists.

- .8 Commissioning test procedures employed.
- .9 Completed Product Information (PI) and Performance Verification (PV) report forms, approved and accepted by Departmental Representative.
- .10 Commissioning reports.

**1.5 Contents of operating and maintenance manual**

- .1 For detailed requirements refer to Section 01 78 00 - Closeout Submittals.
- .2 Departmental Representative to review and approve format and organization within 12 weeks of award of contract.
- .3 Include original manufactures brochures and written information on products and equipment installed on this project.
- .4 Record and organize for easy access and retrieval of information contained in BMM.
- .5 Include completed PI report forms, data and information from other sources as required.
- .6 Inventory directory relating to information on installed systems, equipment and components.
- .7 Approved project shop-drawings, product and maintenance data.
- .8 Manufacturer's data and recommendations relating: manufacturing process, installation, commissioning, start-up, O M, shutdown and training materials.
- .9 Inventory and location of spare parts, special tools and maintenance materials.
- .10 Warranty information.
- .11 Inspection certificates with expiration dates, which require on-going re-certification inspections.
- .12 Maintenance program supporting information including:
  - .1 Recommended maintenance procedures and schedule.
  - .2 Information to removal and replacement of equipment including, required equipment, points of lift and means of entry and egress.

**1.6 Supporting documentation for insertion into supporting appendices**

- .1 Provide Departmental Representative supporting documentation relating to installed equipment and system, including:
  - .1 General:
    - .1 Finalized commissioning plan.
    - .2 WHMIS information manual.
    - .3 Approved "as-built" drawings and specifications.
    - .4 Procedures used during commissioning.
    - .5 Cross-Reference to specification sections.
  - .2 Architectural and structural:
    - .1 Inspection certificates, construction permits.
    - .2 PV reports.
  - .3 Fire prevention :
    - .1 Test reports.
    - .2 Smoke test reports.
    - .3 PV reports.

- .4 Mechanical:
  - .1 Installation permits, inspection certificates.
  - .2 Piping pressure test certificates.
  - .3 Ducting leakage test reports.
  - .4 TAB and PV reports.
  - .5 Charts of valves.
  - .6 Copies of posted instructions.
- .5 Electrical:
  - .1 Installation permits, inspection certificates.
  - .2 TAB and PV reports.
  - .3 Electrical work log book.
  - .4 Charts and schedules.
  - .5 Locations of cables and components.
  - .6 Copies of posted instructions.
- .2 Assist Departmental Representative with preparation of BMM.

**1.7 Use of current technology**

- .1 Use current technology for production of documentation. Emphasis on ease of accessibility at all times, maintain in up-to-date state, compatibility with user's requirements.
- .2 Obtain Departmental Representative's approval before starting Work.

**PART 2 - PRODUCTS**

**2.1 Not used**

- .1 Not used.

**PART 3 - EXECUTION**

**3.1 Not used**

- .1 Not used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 CSA International
  - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.
- .2 U.S. Environmental Protection Agency (EPA)/Office of Water
  - .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

### **1.2 Site conditions**

- .1 Review "Designated Substance Report" and take precautions to protect environment.
- .2 If material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
  - .1 Proceed only after receipt of written instructions have been received from Departmental Representative.
- .3 Notify Departmental Representative before disrupting buildings access or services.

## **PART 2 - PRODUCTS**

### **2.1 Not used**

- .1 Not used.

## **PART 3 - EXECUTION**

### **3.1 Examination**

- .1 Inspect building and site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Notify and obtain approval of utility companies before starting demolition.
- .4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.
  - .1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
  - .2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

### **3.2 Preparation**

- .1 Protection of In-Place Conditions:
  - .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features and parts of building to remain in place. Provide bracing and shoring required.
  - .2 Keep noise, dust, and inconvenience to occupants to minimum.
  - .3 Protect building systems, services and equipment.
  - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .2 Demolition/Removal:
  - .1 Remove items as indicated.
  - .2 Remove parts of existing building to permit new construction.
  - .3 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

### **3.3 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

### **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Work included**

- .1 Provide labour, materials, tools and equipment required to prepare the surface and install the materials specified in this section.

### **1.2 References**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-25.20-95, Surface Sealer for Floors.
- .2 South Coast Air Quality Management District (SCAQMD), California State
  - .1 SCAQMD Rule 1168-A2005(June 2006), Adhesives and Sealants Applications.
- .3 American Society for Testing and Materials (ASTM)
  - .1 ASTM E 1907: Standard Practices for Determining Moisture-Related Acceptability of Concrete Floors to Receive Moisture-Sensitive Finishes
  - .2 ASTM D 4263: Indicating Moisture in Concrete by Plastic Sheet Method
  - .3 ASTM F 1869: Measuring Moisture Vapour Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chlorides
  - .4 ASTM D 4414: Measurement of Wet Film Thickness by Notch gages
  - .5 ASTM C 1583: Standard Test of Method for Tensile Strength of Concrete Surfaces and the Bond Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)
- .4 International Concrete Repair Institute (I.C.R.I.)
  - .1 Number 03732: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays

### **1.3 Action and informational submittals**

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Provide manufacturer's printed product literature and data sheets for concrete finishes and include product characteristics, performance criteria, physical size, finish and limitations.
    - .1 Provide electronic copy of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures. WHMIS MSDS acceptable to Labour Canada and Health and Welfare Canada for concrete floor treatment materials. Indicate VOC content in g/L.
  - .2 Include application instructions for concrete floor treatments.

### **1.4 Environmental requirements**

- .1 Temporary lighting:
  - .1 Minimum 1200 W light source, placed 2.5 m above floor surface, for each 40 sq m of floor being treated.
- .2 Electrical power:

- .1 Provide sufficient electrical power to operate equipment normally used during construction.
- .3 Work area:
  - .1 Make work area water tight protected against rain and detrimental weather conditions.
  - .2 Erect suitable barriers and post legible signs at points of entry to prevent traffic and trades from entering the work area during application and cure period of the floor.
- .4 Temperature:
  - .1 Maintain room temperature at 20°C (68°F) for 48 hours before, during 48 hours after installation, or until cured.
  - .2 At the time of application ensure minimum substrate temperature is above 10°C (50°F) and the substrate temperature is 3°C (5.5°F) above the measured dew point.
- .5 Moisture:
  - .1 Ensure concrete substrate is within moisture limits prescribed by flooring manufacturer.
- .6 Safety:
  - .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
- .7 Ventilation:
  - .1 Ventilate area of work as directed by Departmental Representative and flooring manufacturer by use of approved portable supply and exhaust fans.
  - .2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
  - .3 Provide continuous ventilation during and after coating application.

**1.5 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.
- .2 Store materials indoors in original undamaged condition at a temperature range of 16°C-30°C (60°F-85°F) in a dry location.
- .3 Delivery and Acceptance Requirements:
  - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.
  - .2 Materials shall be delivered to the project in unopened containers, bearing the manufacturers name, product identification and colour. The applicator must record and retain for future reference the batch numbers of all materials used.

**1.6 Warranty**

- .1 The general contractor shall warrant the work of this section against defects in materials and workmanship for a period of one year from the date of installation.

## **PART 2 - PRODUCTS**

### **2.1 Performance requirements**

- .1 Product quality and quality of work in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Submit written declaration that components used are compatible and will not adversely affect finished flooring products and their installation adhesives.

### **2.2 Epoxy Resin-Based Primer (Ep01)**

- .1 Consisting of a prime coat : Sikafloor® 1610<sup>CA</sup> at (10 mils), or equivalent.
- .2 Viscosity: 900 cps
- .3 Shore D Hardness (7 days) ASTM D2240: 78-82
- .4 Pull-off Strength ASTM D4541: 2.7 MPa (>400 psi) 100% concrete failure
- .5 Permeability ASTM E96: 0.2 perms @ 16 mils w.f.t/d.f.t
- .6 Water Absorption ASTM D570: 0.14 g/h – m<sup>2</sup>
- .7 VOC Content ASTM D2369 : ≤ 50 g/L
- .8 One coat is required when the concrete substrate moisture is < 5%. Two coats is required when the concrete substrate moisture is ≥ 5% to < 6%. Note: these coverage figures do not allow for substrate porosity, surface profile or wastage.
- .9 Mix ratio: A:B (Resin: Hardener) 2:1 by volume.
- .10 Follow manufacturer's written instructions for drying times and product yields to obtain the specified finishes and thicknesses.

### **2.3 Epoxy based floor coating (Ep01)**

- .1 Consisting of a broadcast floor coating system: Sikafloor® Morritex Broadcast System (Formerly Sikafloor® 261<sup>CA</sup> System 3), or equivalent.
- .2 Solid colour, high gloss, textured, resin-rich aggregated-filled, seamless, epoxy-based floor coating.
- .3 Viscosity: 550 cps
- .4 Compressive Strength ASTM C579: 56 MPa (8122 psi)
- .5 Tensile Strength ASTM C307: 11 MPa (1595 psi)
- .6 % Elongation: 3.1%
- .7 Bond Strength CSA/CAN23.2-6B: >2 MPa (290 psi) (substrate failure)
- .8 Thermal Compatibility ASTM C884: Passes
- .9 Flexural Strength ASTM C580: 5 MPa (725 psi)
- .10 Mod. of elasticity : 3.3 GPa (478 625 psi)
- .11 Indentation Mil-prF-24613: 4.0%
- .12 Impact resistance ASTM D2794: 2.03 joules (1.49 ft lbf)
- .13 Mix Ratio: A:B = 2:1 by volume
- .14 Colour: RAL 7038 Agate Grey

## **2.4 Material compatibility**

- .1 All materials must come from the same system to ensure compatibility. All materials should be recommended the manufacturer.

## **2.5 Additional materials**

- .1 Fill all joints, cracks, depressions or any other surface irregularities using additional materials recommended by the manufacturer of the specified product.
- .2 Fill all non-moving cracks, control joints, pockmarks, depression or rough concrete with an epoxy filler, use Everset Type II or Sikadur® 43 Patch Pak manufactured by Sika Canada Inc. or equivalent.

# **PART 3 - EXECUTION**

## **3.1 Examination**

- .1 Verify that slab surfaces are ready to receive work and elevations are as recommended by manufacturer's written instructions and indicated on shop drawings.
- .2 Prior to commencing work of this section, the applicator shall inspect and test all concrete surfaces and immediately advise in writing to the Departmental Representative and the manufacturer any unsatisfactory conditions which will adversely affect the successful installation of the flooring.
- .3 When the surface preparation is complete and before the application of the flooring begins, complete the following test procedures to confirm the suitability of the concrete.
- .4 Determine is the surface texture of the concrete is comparable to I.C.R.I. Texture CSP 3-5.
- .5 Determine the tensile bond strength of the concrete before coating application begins in accordance with ASTM C 1583. Minimum acceptable test result is 1.5 MPa (210 psi).
- .6 Determine the Moisture Vapour Transmission properties of the concrete in accordance with ASTM D 4263. After 16-24 hours there should be no visible moisture on the plastic sheet. If moisture is found conduct quantitative anhydrous calcium chloride testing in accordance with ASTM F 1869. Maximum acceptable test result is 3 pounds per 1,000 ft².
- .7 Determine the surface moisture content by using an impedance moisture meter designed for use on concrete as detailed in ASTM E 1907. Acceptable test results shall be 4% by mass or less.
- .8 Determine the Dew Point of the surface to be coated before application. The Dew Point must be monitor during the application and initial cure. The surface must be a least 3°C (5.5°F) above the measured Dew Point at all times during application and cure.

## **3.2 Preparation of existing slab**

- .1 The concrete surface must be dry clean and sound. Remove dust, laitance, grease, oil, dirt, curing agents, impregnations, wax, foreign matters, coatings and disintegrated materials from the surface by an appropriate mechanical means, i.e. steel shot blasting, sand blasting or any other method approved by the manufacturer. Surface texture I.C.R.I. CSP 3-5.
- .2 Use protective clothing, eye protection and respiratory equipment during stripping of chlorinated rubber or existing surface coatings
- .3 Remove all projections and other conditions, which affect the installation of the flooring.

- .4 Protect adjacent surfaces, fixtures and equipment with a drop cloth of adequately cover to prevent damage from splatter, spillage or any other damage resulting from work of this trade.
- .5 Fill all non-moving cracks, control joints, pockmarks, depression or rough concrete with an epoxy filler, use Everset Type II or Sikadur® 43 Patch Pak manufactured by Sika Canada Inc. or equivalent.
- .6 Moving cracks and expansion joints must be extended across the flooring system and filled with a flexible product; use : Sikaflex® 2c NS EZ Mix, Sikaflex® 2c SL or Sikaflex® Self-Leveling Sealant manufactured by Sika Canada In. or equivalent.
- .7 All outside edges that do not terminate against a wall or curb must be "keyed" to avoid feathered edges. All through floor penetrations such as drains and trenches require a keyed edge that maintains a uniform 3 mm (1/8") thickness.

### **3.3 Application**

- .1 Apply materials in accordance with the manufacturer's instructions for a three-coat application. Consisting of a prime coat of Sikafloor® 261<sup>CA</sup> at (8 mils) or equivalent, a neat resin coat at 45 mils / broadcast to rejection with selected sand and a topcoat of Sikafloor® 261<sup>CA</sup> at (10-20 mils) or equivalent. Texture to be selected by the Departmental Representative. Minimum thickness 3mm (1/8").
- .2 During application check the wet film thickness of the materials in compliance with ASTM D 4414 test method "Measurement of Wet Film Thickness by Notch Gages".
- .3 Finished work shall match approved samples, be uniform in thickness, sheen, colour, and texture. The finished surface must be free from defects detrimental to appearance or performance of the product.
- .4 Provide adequate temporary protection until flooring is fully cured.
- .5 Clean over spray. Clean sealant from adjacent surfaces.

### **3.4 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Remove masking and covering used to protect adjacent surfaces.
- .4 Remove remaining materials and debris from job site and dispose of them in according with local rules and regulations. Leave area in clean condition.

### **3.5 Protection**

- .1 Protect completed work from contact with water until cured, approximately 24 hours at 20°C (68°F).
- .2 Protect completed flooring from chemical exposure until fully cured, approximately 7 days at 20°C (68°F).

## **END OF SECTION**

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## **PART 1- GENERAL**

### **1.1 References**

- .1 ASTM International
  - .1 ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.
  - .3 ASTM D1761-06, Standard Test Methods for Mechanical Fasteners in Wood.
- .2 CSA International
  - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
  - .2 CSA O112.9-10, Evaluation of Adhesives for Structural Wood Products (Exterior Exposure).
  - .3 CSA O121-08, Douglas Fir Plywood.
  - .4 CSA O141-05(R2009), Softwood Lumber.
  - .5 CSA O151-09, Canadian Softwood Plywood.
  - .6 CSA O325-07, Construction Sheathing.
- .3 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2010.

### **1.2 Action and Informational Submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories and include product characteristics, performance criteria, physical size, finish and limitations.

### **1.3 Quality assurance**

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

### **1.4 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect wood from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.



## **PART 2- PRODUCTS**

### **2.1 Framing structural and panel materials**

- .1 Lumber: softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
  - .1 CSA O141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Framing and board lumber: in accordance with NBC.
- .3 Furring, blocking, nailing strips, grounds, rough bucks, [cants,] curbs, fascia backing and sleepers:
  - .1 Board sizes: "Standard" or better grade.
  - .2 Dimension sizes: "Standard" light framing or better grade.
  - .3 Post and timbers sizes: "Standard" or better grade.
- .4 Plywood panels for stair landing extension (**Pw03**):
  - .1 Select grade Douglas Fir plywood panels;
  - .2 Jointed tongue and groove assembly;
  - .3 19mm thickness;
- .5 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .6 Canadian softwood plywood (CSP): to CSA O151, standard construction.

### **2.2 Accessories**

- .1 Nails, spikes and staples: to CSA B111.
- .2 Floor wood screws.
- .3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .4 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.
- .5 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, fibre, formed to prevent dishing. Bell or cup shapes not acceptable.
- .6 Fastener Finishes:
  - .1 Galvanizing: to ASTM A653, use galvanized fasteners for exterior work, interior highly humid areas, pressure-preservative, fire-retardant and treated lumber.

## **PART 3- EXECUTION**

### **3.1 Installation**

- .1 Install members true to line, levels and elevations, square and plumb.
- .2 Construct continuous members from pieces of longest practical length.
- .3 Install spanning members with "crown-edge" up.
- .4 Install flooring with panel end-joints located on solid bearing, staggered at least 800 mm.
  - .1 In addition to mechanical fasteners, floor panels secure floor subflooring to floor joists using screws. Place continuous adhesive bead in accordance with manufacturer's instructions, single-bead on each joist and double-bead on joists where panel ends butt.

- .5 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding, electrical equipment mounting boards, and other work as required.
- .6 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .7 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners.
- .8 Install sleepers as indicated.
- .9 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.
- .10 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .11 Countersink bolts where necessary to provide clearance for other work.
- .12 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

### **3.2 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

### **3.3 Protection**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by rough carpentry installation.

## **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
  - .1 Architectural Woodwork Quality Standards, 1st edition, 2009.
- .2 ASTM International
  - .1 ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .3 CSA International
  - .1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
  - .2 CSA O121-08, Douglas Fir Plywood.
  - .3 CSA O141-05(R2009), Softwood Lumber.
  - .4 CSA O151-09, Canadian Softwood Plywood.
- .4 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber [2010].
- .5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
  - .1 SCAQMD Rule 1168-[A2005], Adhesives and Sealants Applications.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for plywood and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Shop Drawings:
  - .1 Indicate details of construction, profiles, jointing, fastening and other related details.
  - .2 Indicate materials, thicknesses, finishes and hardware.
- .4 Certifications: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.

### **1.3 Quality assurance**

- .1 Lumber by grade stamp of agency certified by Canadian Lumber Standards Accreditation Board (CLSAB).

**1.4 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect wood products from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

**PART 2 - PRODUCTS****2.1 Materials**

- .1 Softwood lumber: S4S (whitened on four (4) sides), maximum moisture content of 19% in accordance with following standards:
  - .1 CAN/CSA O141.
  - .2 CAN/CSA-Z809 or FSC or SFI certified.
  - .3 NLGA Standard Grading Rules for Canadian Lumber.
  - .4 AWMAC "Custom" or "Premium" grade, moisture content as specified.
  - .5 Machine stress-rated lumber is acceptable.
- .2 Plywood panels for fixes storage, shelves and cabinets (**Pw01**):
  - .1 Select grade spruce plywood panels;
  - .2 16mm thickness;
  - .3 For dimensions and arrangements refer to drawings issued for construction;
- .3 Plywood panels guardrail and wall coverings (**Pw02**):
  - .1 Select grade spruce plywood panels;
  - .2 12.7mm thickness;
  - .3 For dimensions and arrangements refer to drawings issued for construction;
- .4 Furs, spacers, nailing strips, nailing and anchor bottoms and false frames, perimeter blocking:
  - .1 Unless otherwise specified, use S4S finish wood finish (whitened on four (4) sides).
  - .2 Wood element (dimension shown on drawings): Eastern Spruce Spruce, standard or superior category.
- .5 Interior door frames: jointed pine, 12mm x 68mm to paint.
- .6 Baseboards and moldings: light jointed pine, 8mm x 105mm to be painted.
- .7 Keys: wood, plastic or metal.
- .8 The manufacturing process must comply with Life Cycle Assessment (LCA) rules as set out in ISO LCA 14040/14041 (1998) and CSA LCA Z760-94.
- .9 Panel Material:

**2.2 Interior staircase**

- .1 Stringers:
  - .1 Softwood: unless otherwise specified, S4S finish wood (4-side bleached), moisture content not exceeding 19% and in accordance with the following standards and rules: .1 CAN / CSA O141;
  - .2 Classification rules for lumber published by the National Lumber Grading Commission (NLGA);
  - .3 AWMAC rules: "custom" (premium) or "premium" grade wood, having the prescribed moisture content.
- .2 Dimensions: 38mm x 293mm x needed length;
- .3 Wood Stairs:
  - .1 Softwood: unless otherwise specified, S4S finish wood (4-side bleached), moisture content not exceeding 19% and in accordance with the following standards and rules: .1 CAN / CSA O141;
  - .2 Classification rules for lumber published by the National Lumber Grading Commission (NLGA);
  - .3 AWMAC rules: "custom" (premium) or "premium" grade wood, having the prescribed moisture content.
  - .4 Dimensions: 38mm x 270mm;
  - .5 Stair nosing radius: 6mm;
  - .6 Contrasting strips on stair nosing:
    - .1 Non-slip adhesive strips of coarse texture, mineral surface material for heavy traffic;
    - .2 Contrasting color (black, red or safety yellow;
    - .3 Interior / exterior grade;
- .4 Handrails:
  - .1 54mm x 60mm handrail with round profile and flat bottom, oak essence;
  - .2 Installation brackets for handrails 108mm x 64mm x 50mm, nickel-plated metal;
  - .3 Spacing according to the manufacturer's recommendations in sufficient quantities for the lengths of installed sections;

**2.3 Accessories**

- .1 Nails and staples: to CSA B111; galvanized to ASTM A123/A123M for exterior work, interior humid areas and for treated lumber; [plain] [copper] [stainless steel] finish elsewhere.
- .2 Wood screws: [plain] [electroplated] [copper] [brass] [stainless steel] [steel], type and size to suit application.
- .3 Splines: [wood] [plastic] [metal].
- .4 Adhesive and Sealants: in accordance with Section 07 92 00 - Joint Sealants.

**PART 3 - EXECUTION****3.1 Installation**

- .1 Do finish carpentry to Quality Standards of (AWMAC).

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

### **3.2 Construction**

- .1 Fastening:
  - .1 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.
  - .2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
  - .3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.
  - .4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.
- .2 Standing and running trim:
  - .1 Butt and cope internal joints of baseboards to make snug, tight, joint. Cut right angle joints of casing and base with mitred joints.
  - .2 Fit backs of baseboards and casing snugly to wall surfaces to eliminate cracks at junction of base and casing with walls.
  - .3 Make joints in baseboard, where necessary using a [45] degrees scarf type joint.
  - .4 Install door and window trim in single lengths without splicing.
- .3 Interior and exterior frames:
  - .1 Set frames with plumb sides, level heads and secure.
- .4 Panelling:
  - .1 Secure panelling and perimeter trim using adhesive recommended for purpose by manufacturer. Fill nail holes caused by temporary fixing with filler matching wood in colour.
  - .2 Secure panelling and perimeter trim using concealed fasteners.
  - .3 Secure panelling and perimeter trim using counter sunk screws plugged with matching wood plugs.
- .5 Stairs:
  - .1 Install stairs to location and details as indicated.
- .6 Handrails, wall rails and bumper rails.
  - .1 Install handrails, wall rails and bumper rails in locations indicated.
  - .2 Make joints hair line, dowelled and glued.
  - .3 Install support brackets [as indicated].
  - .4 Install brackets at ends and at 1200 mm on centre minimum at intermediate spacings.
  - .5 Install metal backing plates between studs at bracket locations to ensure proper support for brackets and bolts or self-tapping screws.
  - .6 Secure using counter sunk screws plugged with matching wood plugs.
- .7 Fixed storage:

- .1 Secure panelling and perimeter trim using adhesive recommended for purpose by manufacturer. Fill nail holes caused by temporary fixing with filler matching wood in colour.
- .2 Secure panelling and perimeter trim using concealed fasteners.
- .3 Secure panelling and perimeter trim using counter sunk screws plugged with matching wood plugs.
- .8 Standing and running trim:
  - .1 As indicated on drawings.
  - .2 Fill nail holes.
- .9 Door frames
  - .1 As per AWMAC Design standard and as indicated on drawings.

**3.3 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**3.4 Protection**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by finish carpentry installation.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 ASTM International
  - .1 ASTM C612-14, Standard Specification for Mineral Fiber Block and Board Thermal Insulation
- .2 CSA Group
  - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for blanket insulation and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Certificates:
  - .1 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

### **1.3 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.

## **PART 2 - PRODUCTS**

### **2.1 Insulation**

- .1 Batt and blanket mineral fibre (**Is01**): to ASTM C612.
  - .1 Semi-rigid mineral fiber insulation
  - .2 Density: of 6.2 lbs/ft<sup>3</sup> (100 kgs/m<sup>3</sup>) for external layer and 4.1 lbs/ft<sup>3</sup> (65 kgs/m<sup>3</sup>) for internal layer
  - .3 Thickness: full depth of cavity, as indicated on drawings, Rsi of 4.1 min.
  - .4 Reference product: Cavityrock by Rockwool or equivalent

### **2.2 Accessories**

- .1 Insulation clips:



- .1 Impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.
- .2 Nails: galvanized steel, length to suit insulation, to CSA B111.

### **PART 3 - EXECUTION**

#### **3.1 Examination**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for blanket insulation application in accordance with manufacturer's written instructions.

#### **3.2 Insulation installation**

- .1 Install insulation to maintain continuity of thermal protection to building elements and spaces.
- .2 Install insulation clip to substrate.
- .3 Install insulation as recommended by manufacturer.
- .4 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- .5 Do not compress insulation to fit into spaces.
- .6 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

#### **3.3 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

### **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 American Society of Mechanical Engineers (ASME)
  - .1 ASME B18.6.3-2011, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).
- .2 ASTM International
  - .1 ASTM A924/A924M, Specification for General Requirements for Steel Sheet, Zinc-Coated Galvanized) by the Hot-Dip Process.
- .3 CSA International
  - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for metal siding and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces and related work.

### **1.3 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations.
  - .2 Store and protect metal siding from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## **PART 2 - PRODUCTS**

### **2.1 Steel cladding and components**

- .1 Metal Cladding (**Pm01**)
  - .1 Finish coating: prefinished polyvinyl chloride paint.
  - .2 Colour: selected by Departmental Representative from manufacturers standard colors.
  - .3 Thickness: .91 mm base metal thickness.
  - .4 Gauge: 24

- .5
- .6 Profile: 35 mm x 1015 mm with preformed interlocking joints;
- .7 Reference product: CL-435 by Vicwest or equivalent.
- .2 Metal Cladding (**Pm03**)
  - .1 Finish coating: prefinished polyvinyl chloride paint.
  - .2 Colour: selected by Departmental Representative from manufacturers standard colors.
  - .3 Thickness: .91 mm base metal thickness.
  - .4 Gauge: 24
  - .5 Profile: 70mm x 850mm with preformed interlocking joints;
  - .6 Reference product: CL-470 by Vicwest or equivalent.

**2.2 Fasteners**

- .1 Stainless steel metal screws with matching color head and waterproof gasket.

**2.3 Caulking**

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

**2.4 Accessories**

- .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour as cladding, with fastener holes pre-punched.

**PART 3 - EXECUTION****3.1 Manufacturer's instructions**

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

**3.2 Installation**

- .1 Install cladding in accordance manufacturer's written instructions.
- .2 Install outside corners, fillers and closure strips with carefully formed and profiled work.
- .3 Install cladding as indicated.
- .4 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .5 Attach components in manner not restricting thermal movement.
- .6 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

**3.3 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**PARKS CANADA**

Project 1534

MAINTENANCE GARAGE AND FENCE REHABILITATION

**PCAU-01-02****Section 07 46 13****PREFORMED METAL SIDING**

February 8th 2019

Issued for tender

- .3 Clean exposed panel surfaces in accordance with manufacturer's instruction.
- .4 Replace damaged panels and components that, in opinion of the Departmental Representative, cannot be satisfactorily repaired.

**3.4 Protection**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by preformed metal siding installation.

**END OF SECTION**

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**PART 1 - GENERAL****1.1 References**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A240/A240M-07e1, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
  - .2 ASTM A653/A653M-07, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .3 ASTM D523-89(1999), Standard Test Method for Specular Gloss.
  - .4 ASTM D822-01(2006), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .2 Canadian Roofing Contractors Association (CRCA)
  - .1 Roofing Specifications Manual 1997.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .4 Canadian Standards Association (CSA International)
  - .1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
  - .2 AAMA/WDMA/CSA 101/I.S.2/A440-2008, Standard/Specification for Windows, Doors, and Unit Skylights.
  - .3 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .5 South Coast Air Quality Management District (SCAQMD), California State
  - .1 SCAQMD Rule #1113-[04], Architectural Coatings.
  - .2 SCAQMD Rule #1168-[05], Adhesives and Sealants.

**1.2 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Mock-up:
  - .1 Prepare on site mock-up using 2 full length sections. Prepare one mock-up per condition.
  - .2 Mock-up can be incorporated into final work.

**1.3 Delivery, storage and handling**

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

**PART 2 - PRODUCTS****2.1 Sheet metal materials**

- .1 Steel sheet (**Sm01, Sm02, and Sm03**): to ASTM A924/A924M, Gauge 24 (.61 mm), and commercial grade hot-dip galvanized sheet steel.
- .2 Fastening system: concealed fasteners.
- .3 Finish: prefinished.
- .4 Colour: to be confirmed by Departmental Representative from manufacturer's standard colors.

**2.2 Accessories**

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5.
- .3 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.
- .4 Fasteners: of same material as sheet metal, to CSA B111, prefinished metal screws.
- .5 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .6 Touch-up paint: as recommended by prefinished material manufacturer.

**2.3 Fabrication**

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details or as indicated.
- .2 Form pieces in 2400 mm maximum lengths.
  - .1 Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 12 mm.
  - .1 Mitre and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

**2.4 Metal flashings**

- .1 Form flashings, copings and fascias to profiles indicated of Gauge 24 (.61 mm) thick prefinished steel.

**PART 3 - EXECUTION****3.1 Manufacturer's instructions**

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

**3.2 Installation**

- .1 Install sheet metal work in accordance with CRCA FL series details or as detailed.
- .2 Use concealed fastenings except where approved before installation.

- .3 Provide underlay under sheet metal.
  - .1 Secure in place and lap joints 100 mm.
- .4 Lock end joints and caulk with sealant.
- .5 Install surface mounted reglets true and level, and caulk top of reglet with sealant.
- .6 Insert metal flashing into reglets to form weather tight junction.
- .7 Caulk flashing at reglet with sealant.

**3.3 Cleaning**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 Underwriter's Laboratories of Canada (ULC)
  - .1 ULC-S115-1995, Fire Tests of Fire stop Systems.

### **1.2 Definitions**

- .1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.
- .2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.
- .3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.
- .4 Tightly Fitted; (ref: NBC Part 3.1.9.1.1 and 9.10.9.6.1): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.
  - .1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

### **1.3 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit electronic copy of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Shop Drawings:
  - .1 Submit shop drawings to show location, proposed material, reinforcement, anchorage, fastenings and method of installation.
  - .2 Construction details should accurately reflect actual job conditions.
- .4 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
  - .1 Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.
    - .1 Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.



- .2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

#### **1.4 Quality assurance**

- .1 Qualifications:
  - .1 Installer: person specializing in fire stopping installations approved by manufacturer.

#### **1.5 Delivery, storage and handling**

- .1 Packing, shipping, handling and unloading:
  - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
  - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
  - .3 Deliver materials to the site in undamaged condition and in original unopened containers.
- .2 Storage and Protection:
  - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.
- .3 Waste Management and Disposal:
  - .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### **PART 2 - PRODUCTS**

#### **2.1 Materials**

- .1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.
  - .1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULC-S115 and not to exceed opening sizes for which they are intended.
  - .2 Heat resistance compatible for installation with chimney
  - .3 Fire stop system rating: 1 hour.
- .2 Service penetration assemblies: systems tested to CAN-ULC-S115.
- .3 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.
- .4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
- .5 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
- .6 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .7 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

- .8 Sealants for vertical joints: non-sagging.

### **PART 3 - EXECUTION**

#### **3.1 Manufacturer's instructions**

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

#### **3.2 Preparation**

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.
  - .1 Ensure that substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
- .3 Maintain insulation around pipes and ducts penetrating fire separation.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

#### **3.3 Installation**

- .1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.
- .2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
- .3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
- .4 Tool or trowel exposed surfaces to neat finish.
- .5 Remove excess compound promptly as work progresses and upon completion.

#### **3.4 Sequences of operation**

- .1 Proceed with installation only when submittals have been reviewed by Departmental Representative.
- .2 Install floor fire stopping before interior partition erections.

#### **3.5 Field quality control**

- .1 Inspections: notify Departmental Representative when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

#### **3.6 Cleaning**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Remove temporary dams after initial set of fire stopping and smoke seal materials.

**3.7 Schedule**

- .1 Fire stop and smoke seal at:
  - .1 Penetrations through partitions separating mechanical room from remainder of floor area in White House: 1 hour.
  - .2 Penetrations through floors and ceilings in White House: 1 hour.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
  - .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Manufacturer's product to describe:
    - .1 Caulking compound.
    - .2 Primers.
    - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
  - .3 Submit electronic copy of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Manufacturer's Instructions:
  - .1 Submit instructions to include installation instructions for each product used.

### **1.3 Closeout submittals**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

### **1.4 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements] [with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect [joint sealants] from [nicks, scratches, and blemishes].
  - .3 Replace defective or damaged materials with new.

### **1.5 Site conditions**

- .1 Ambient Conditions:

- .1 Proceed with installation of joint sealants only when:
  - .1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.
  - .2 Joint substrates are dry.
  - .3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .2 Joint-Width Conditions:
  - .1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
  - .1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

#### **1.6 Environmental requirements**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Health Canada.

## **PART 2 - PRODUCTS**

### **2.1 Sealant materials**

- .1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .2 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.
- .3 Where sealants are qualified with primers use only these primers.

### **2.2 Sealant material designations**

- .1 Type 1: Silicones one part, to CAN/CGSB-19.13, with 50 % movement capacity as per DC 795 by Dow Corning, Silpruf by GE or equivalent.
- .2 Type 2: Silicones one part, to CAN/CGSB-19.22, humidity resistant, as per Tremsil 200 by Tremco, Sanitary 1700 by GE or equivalent.
- .3 Preformed compressible and non-compressible back-up materials:
  - .1 High density foam:
    - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m<sup>3</sup> density, or neoprene foam backer, size as recommended by manufacturer.

### **2.3 Sealant selection**

- .1 Type 1 :exterior joints, vertical and horizontal, not accessible to traffic, at the perimeter of doors frames, windows, roof openings on metal roof, penetration of electrical and

mechanical conduits and equipment, to complete waterproofing of preformed metal siding and similar applications.

- .2 Type 2: interior joints, at the perimeter of sanitary equipment, showers and bathtubs and similar applications.

#### **2.4 Joint cleaner**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant in accordance with sealant manufacturer's written recommendations.
- .2 Primer: in accordance with sealant manufacturer's written recommendations.

### **PART 3 - EXECUTION**

#### **3.1 Examination**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for joint sealants installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

#### **3.2 Surface preparation**

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

#### **3.3 Priming**

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

#### **3.4 Backup material**

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

**3.5 Application**

- .1 Sealant:
  - .1 Apply sealant in accordance with manufacturer's written instructions.
  - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  - .3 Apply sealant in continuous beads.
  - .4 Apply sealant using gun with proper size nozzle.
  - .5 Use sufficient pressure to fill voids and joints solid.
  - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
  - .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing:
  - .1 Cure sealants in accordance with sealant manufacturer's instructions.
  - .2 Do not cover up sealants until proper curing has taken place.

**3.6 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Clean adjacent surfaces immediately.
  - .3 Remove excess and droppings, using recommended cleaners as work progresses.
  - .4 Remove masking tape after initial set of sealant.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**3.7 Protection**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by joint sealants installation.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A653/A653M-[06a], Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM B749-03, Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
  - .1 CSA-G40.20-04/G40.21-[04], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
- .5 South Coast Air Quality Management District (SCAQMD), California State
  - .1 SCAQMD Rule 1113-04, Architectural Coatings.
  - .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

### **1.2 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, arrangement of hardware and finishes.
  - .2 Indicate each type frame material, core thickness, reinforcements, location of anchors and exposed fastenings, reinforcing and finishes.
  - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

### **1.3 Delivery, storage and handling**

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

## **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: 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.

**2.3 Adhesives**

- .1 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.
- .2 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

**2.4 Primer**

- .1 Touch-up prime CAN/CGSB-1.181.

**2.5 Paint**

- .1 Field paint steel doors and frames in accordance with Section 09 91 13 - Exterior Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

**2.6 Accessories**

- .1 Exterior top and bottom caps: steel.
- .2 Metallic paste filler: to manufacturer's standard.

**2.7 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 type construction.
- .4 Blank, reinforce, drill and tap frames for mortised, templated hardware, [electronic hardware] using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .5 Protect mortised cutouts with steel guard boxes.
- .6 Manufacturer's nameplates on frames and screens are not permitted.
- .7 Conceal fastenings except where exposed fastenings are indicated.
- .8 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- .9 Insulate exterior frame components with polyurethane insulation.

**2.8 Frame anchorage**

- .1 Provide appropriate anchorage to floor and wall construction.
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
- .4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

**2.9 Frames: welded type**

- .1 Welding in accordance with CSA W59.
- .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
- .3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
- .4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
- .5 Securely attach floor anchors to inside of each jamb profile.
- .6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

**2.10 Door fabrication general**

- .1 Doors: swing type, flush.
- .2 Exterior doors: welded, insulated steel construction.
- .3 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
- .4 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .5 Reinforce doors where required, for surface mounted hardware.
- .6 Provide flush steel top caps to exterior doors.
- .7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .8 Manufacturer's nameplates on doors are not permitted.

**PART 3 - EXECUTION****3.1 Manufacturer's instructions**

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

**3.2 Installation general**

- .1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.
- .2 Install doors and frames to CSDMA Installation Guide.

**3.3 Frame installation**

- .1 Set frames plumb, square, level and at correct elevation.
- .2 Secure anchorages and connections to adjacent construction.
- .3 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
- .4 Caulk perimeter of frames between frame and adjacent material.

- .5 Maintain continuity of air barrier and vapour retarder.

### **3.4 Door installation**

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.
- .2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
  - .1 Hinge side: 1.0 mm.
  - .2 Latchside and head: 1.5 mm.
  - .3 Finished floor, and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.

### **3.5 Finish repairs**

- .1 Touch up with primer finishes damaged during installation.
- .2 Fill exposed frame anchors [surfaces with imperfections] with metallic paste filler and sand to a uniform smooth finish.

### **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
  - .1 Quality Standards for Architectural Woodwork [1998].
- .2 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-71.19-[M88], Adhesive, Contact, Sprayable.
  - .2 CAN/CGSB-71.20-[M88], Adhesive, Contact, Brushable.
- .3 Canadian Standards Association (CSA International).
  - .1 CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.

### **1.2 Action and informational 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 Submit electronic copy of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 001 35 43 – Environmental Procedures.
- .2 Shop Drawings:
  - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Indicate door types, sizes, core construction.

### **1.3 Delivery, storage, and handling**

- .1 Storage and Protection:
  - .1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.
  - .2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.
  - .3 Protect doors from scratches, handling marks and other damage.

## **PART 2 - PRODUCTS**

### **2.1 Wood flush door**

- .1 Hollow core: to CAN/CSA-O132.2.2.
  - .1 Construction: mesh or cellular core with lock blocks, 7-ply construction.
- .2 Face Panels:
  - .1 Hardboard face panels: composition face.

### **2.2 Fabrication**

- .1 Vertical edge strips: solid wood.
- .2 Prepare doors for hardware.

- .3 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.

### **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.

#### **3.2 Installation**

- .1 Unwrap and protect doors in accordance with CAN/CSA-O132.2 Series, Appendix A.
- .2 Install doors and hardware in accordance with manufacturer's printed instructions
- .3 Adjust hardware for correct function.

#### **3.3 Adjustment**

- .1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

#### **3.4 Cleaning**

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Remove traces of primer, caulking; clean doors and frames.
- .3 Clean glass and glazing materials with approved non-abrasive cleaner.
- .4 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

### **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
  - .1 ANSI/BHMA A156.1-2000, American National Standard for Butts and Hinges.
  - .2 ANSI/BHMA A156.4-2000, Door Controls - Closers.
  - .3 ANSI/BHMA A156.8-2005, Door Controls - Overhead Stops and Holders.
  - .4 ANSI/BHMA A156.13-2002, Mortise Locks and Latches Series 1000.
  - .5 ANSI/BHMA A156.16-2002, Auxiliary Hardware.
  - .6 ANSI/BHMA A156.18-2006, Materials and Finishes.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for door hardware and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Hardware List:
  - .1 Submit contract hardware list.
  - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .4 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .5 Manufacturer's Instructions: submit manufacturer's installation instructions.

### **1.3 Closeout submittals**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for door hardware for incorporation into manual.

### **1.4 Maintenance materials submittals**

- .1 Extra Stock Materials:
  - .1 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
  - .2 Tools:
    - .1 Supply 2 sets of wrenches for door closers and locksets.

### **1.5 Delivery, storage and handling**

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

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
- .4 Storage and Handling Requirements:
  - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect door hardware from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

**PART 2 - PRODUCTS****2.1 Hardware items**

- .1 Use one manufacturer's products only for similar items.

**2.2 Door hardware**

- .1 Locks and latches:
  - .1 Mortise locks and latches: to ANSI/BHMA A156.13, series 1000 mortise lock, grade 1, designed for function and keyed as stated in Hardware Schedule.
  - .2 Normal strikes: box type, lip projection not beyond jamb.
  - .3 Cylinders: key into keying system to be co-ordinated with Departmental Representative.
- .2 Butts and hinges:
  - .1 Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.
- .3 Door Closers and Accessories:
  - .1 Door controls (closers): to ANSI/BHMA A156.4, designated by letter C and numeral identifiers listed in Hardware Schedule.
  - .2 Closer/holder release devices: to ANSI/BHMA A156.15, designated by letter C and numeral identifiers listed in hardware schedule.
- .4 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.
- .5 Thresholds: full width of door opening, extruded aluminum, mill finish.
- .6 Weatherstripping:
  - .1 Head and jamb seal:
    - .1 Extruded aluminum frame and solid closed cell neoprene insert, clear anodized finish.
  - .2 Door bottom seal:
    - .1 Extruded aluminum frame and solid closed cell neoprene insert, clear anodized finish.
- .7 Astragal: overlapping, extruded aluminum frame with vinyl insert.

**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 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
- .5 Use fasteners compatible with material through which they pass.

**2.4 Keying**

- .1 Supply keys in duplicate for every lock in this Contract.
- .2 Co-ordinate keying with Departmental Representative.
- .3 Hand over permanent cores and keys to Departmental Representative.

**PART 3 - EXECUTION****3.1 Installation**

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Supply manufacturers' instructions for proper installation of each hardware component.
- .4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .5 Use only manufacturer's supplied fasteners.
  - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .6 Remove construction cores when directed by Departmental Representative.
  - .1 Install permanent cores and ensure locks operate correctly.

**3.2 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 ensure tight fit at contact points with frames.

**3.3 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 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 where present.
  - .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.



### 3.4 Demonstration

- .1 Maintenance Staff Briefing:
  - .1 Brief maintenance staff regarding:
    - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
    - .2 Description, use, handling, and storage of keys.
    - .3 Use, application and storage of wrenches for door closers locksets.
- .2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

### 3.5 Protection

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by door hardware installation.

### 3.6 Schedule

- .1 Hardware set: 01  
Door(s): EXT-103

QTY	DESCRIPTION	PRODUCT NUMBER	FINISH	MFR
8	HW SECURITY HINGES	5BB1HW SH 114 X 101 NRP	630	IVE
2	SURFACE BOLT	SB360 12"	604	IVE
1	STOREROOM W/DEADBOLT LESS OUTSIDE TRIM	L9480P LLL 06B L283-150 L583-363	630	SCH
1	PERMANENT CYLINDER	PER OWNER STANDARDS		
1	VANDAL RESISTANT TRIM	VR904 LLP	US32D	IVE
2	OH STOP & HOLDER	100H SERIES	630	GLY
2	SURFACE CLOSER	4040XP EDA MC ST-1944	689	LCN
2	KICK PLATE	8400 405MM X B-CS X REQ. WIDTH	630	IVE
1	RAIN DRIP	142AA X FRAME WIDTH	AA	ZER
2	GASKETING	188SBK PSA X 1/HEAD & 1/ASTRAGAL	BK	ZER
2	GASKETING	270A X 2/JAMBS	A	ZER
1	GASKETING	429AA-S X 1/HEAD	AA	ZER
1	WELDED ASTRAGAL	BY DOOR MFR.		
2	DOOR SWEEP	8197AA X DOOR WIDTH	AA	ZER
1	THERMAL BREAK THRESHOLD	526A-223 X REQ. WIDTH	A	ZER

- .2 Hardware set: 02  
Door(s): EXT-106, EXT-107

QTY	DESCRIPTION	PRODUCT NUMBER	FINISH	MFR
3	HW HINGES	5BB1HW 114 X 101 NRP	630	IVE
1	PASSAGE SET	L9010 06B	630	SCH
1	OH STOP	100S SERIES	630	GLY
1	SURFACE CLOSER	4040XP REG MC ST-2795 TBTRX X ST-1630	689	LCN
1	MOUNTING PLATE	4040XP-18TJ	689	LCN
2	GASKETING	270A X 2/JAMBS	A	ZER
1	GASKETING	429AA-S X 1/HEAD	AA	ZER
1	DOOR SWEEP	8197AA X DOOR WIDTH	AA	ZER
1	THERMAL BREAK THRESHOLD	626A-223 X REQ. WIDTH	A	ZER

.3 Hardware set: 03

Door(s): EXT-101

<u>QTY</u>	<u>DESCRIPTION</u>	<u>PRODUCT NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
4	HW SECURITY HINGES	5BB1HW SH 114 X 101 NRP	630	IVE
1	STOREROOM W/DEADBOLT LESS OUTSIDE TRIM	L9480P LLL 06B L283-150 L583-363	630	SCH
1	PERMANENT CYLINDER	PER OWNER STANDARDS		
1	VANDAL RESISTANT TRIM	VR904	630	IVE
1	SURFACE CLOSER	4040XP SHCUSH MC ST-1595	689	LCN
1	KICK PLATE	8400 405MM X B-CS X REQ. WIDTH	630	IVE
1	RAIN DRIP	142AA X FRAME WIDTH	AA	ZER
1	GASKETING	270A X 2/JAMBS	A	ZER
1	GASKETING	429AA-S X 1/HEAD	AA	ZER
1	DOOR SWEEP	8197AA X DOOR WIDTH	AA	ZER
1	THERMAL BREAK THRESHOLD	626A-223 X REQ. WIDTH	A	ZER

.4 Hardware set: 04

Door(s): INT-108

<u>QTY</u>	<u>DESCRIPTION</u>	<u>PRODUCT NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	HINGES	5BB1 114 X 101 NRP	630	IVE
1	PRIVACY LOCK	ND40S RHO	626	SCH
1	WALL STOP	WS406/407CCV	626	IVE

.5 All product are referenced for purpose of quality and to set functionality. All reference to manufacturer to be read as "or equivalent".

## END OF SECTION

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 ASTM International
  - .1 ASTM C475-02(2007), Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
  - .2 ASTM C514-04(2009e1), Standard Specification for Nails for the Application of Gypsum Board.
  - .3 ASTM C557-03(2009)e1, Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
  - .4 ASTM C840-08, Standard Specification for Application and Finishing of Gypsum Board.
  - .5 ASTM C954-07, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
  - .6 ASTM C1002-[07], Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
  - .7 ASTM C1047-09, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
  - .8 ASTM C1280-99, Standard Specification for Application of Gypsum Sheathing.
  - .9 ASTM C1177/C1177M-08, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
  - .10 ASTM C1178/C1178M-08, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.
  - .11 ASTM C1396/C1396M-09a, Standard Specification for Gypsum Wallboard.
- .2 Association of the Wall and Ceilings Industries International (AWCI)
  - .1 AWCI Levels of Gypsum Board Finish-97.
- .3 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-07, Standard Method of Test of Surface Burning Characteristics of Building Materials and Assemblies.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum board assemblies and include product characteristics, performance criteria, physical size, finish and limitations.

### **1.3 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Storage and Handling Requirements:
  - .1 Store gypsum board assemblies materials level indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect gypsum board assemblies from nicks, scratches, and blemishes.
  - .3 Protect from weather, elements and damage from construction operations.
  - .4 Handle gypsum boards to prevent damage to edges, ends or surfaces.
  - .5 Replace defective or damaged materials with new.

**1.4 Ambient conditions**

- .1 Maintain temperature 10 degrees C minimum, 21 degrees C maximum for 48 hours prior to and during application of gypsum boards and joint treatment, and for 48 hours minimum after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.
- .3 Ventilation: ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

**PART 2 - PRODUCTS****2.1 Materials**

- .1 Standard board: to ASTM C1396/C1396M regular, 12,7 mm thick and Type X, 16 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges bevelled.
- .2 Water-resistant board: to ASTM C1396/C1396M regular, 16 mm thick, 1200 mm wide x maximum practical length.
- .3 Metal furring runners, hangers, tie wires, inserts and anchors.
- .4 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .5 Nails: to ASTM C514.
- .6 Steel drill screws: to ASTM C1002.
- .7 Joint compound: to ASTM C475, asbestos-free.

**2.2 Finishes**

- .1 Texture finish: asbestos-free standard white and primer-sealer, recommended by gypsum board manufacturer.

**PART 3 - EXECUTION****3.1 Examination**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for gypsum board assemblies installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

**3.2 Erection**

- .1 Do application and finishing of gypsum board to ASTM C840 except where specified otherwise.
- .2 Do application of gypsum sheathing to ASTM C1280.
- .3 Install work level to tolerance of 1:1200.
- .4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers and grilles.
- .5 Furr openings and around built-in equipment, cabinets and access panels on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

**3.3 Application**

- .1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work have been approved.
- .2 Apply single layer gypsum board to wood furring or framing using nails or screw fasteners. Maximum spacing of screws 300 mm on centre.
  - .1 Single-Layer Application:
    - .1 Apply gypsum board on ceilings prior to application of walls to ASTM C840.
    - .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
- .3 Apply water-resistant gypsum board adjacent to showers. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads.

**3.4 Installation**

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure [using contact adhesive for full length] [at [150] mm on centre].
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. [Seal joints with sealant.]
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Install shadow mould at gypsum board/ceiling juncture [as indicated]. Minimize joints; use corner pieces and splicers.
- .6 Construct control joints of [preformed units] [two back-to-back casing beads] set in gypsum board facing and supported independently on both sides of joint.
- .7 Provide continuous polyethylene dust barrier behind and across control joints.

**3.5 Finish**

- .1 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with AWCI Levels of Gypsum Board Finish:

- .1 Levels of finish:
  - .1 Level 0: no tapping, finishing or accessories required.
  - .2 Level 1: embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.
  - .3 Level 2: embed tape for joints and interior angles in joint compound and apply one separate coat of joint compound over joints, angles, fastener heads and accessories; surfaces free of excess joint compound; tool marks and ridges are acceptable.
  - .4 Level 3: embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
  - .5 Level 4: embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
- .2 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .3 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .4 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .5 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

**3.6 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .2 Protect installed products and components from damage during construction.
- .3 Repair damage to adjacent materials caused by gypsum board assemblies installation.

**END OF SECTION**

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**PART 1 - GENERAL****1.1 References**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 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.
- .3 National Fire Code of Canada.
- .4 Society for Protective Coatings (SSPC)
  - .1 Systems and Specifications, SSPC Painting Manual 2005.

**1.2 Quality assurance**

- .1 Conform to latest MPI requirements for exterior painting work including preparation and priming.
- .2 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.
- .3 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.
- .4 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
- .5 Standard of Acceptance:
  - .1 Doors: No defects visible from a distance of 1000 mm at 90 degrees to surface.
  - .2 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

**1.3 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 43 - Environmental Procedures.
- .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).

**1.4 Maintenance**

- .1 Extra Materials:
  - .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit one litre can of each type and colour of finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

**1.5 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented 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 Departmental Representative. After completion of operations, return areas to clean condition to approval of Departmental Representative.
  - .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 and/or 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 Nunavut authorities.
  - .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 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
- .6 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

**1.6 Ambient conditions**

- .1 Ventilate enclosed spaces.
  - .2 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.
  - .3 Where required, provide continuous ventilation for seven days after completion of application of paint.
  - .4 Co-ordinate use of existing ventilation system with DCC Representative and ensure its operation during and after application of paint as required.
  - .5 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
  - .6 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted.
- .2 Temperature and Humidity:
    - .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 temperatures.
      - .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
  - .3 Surface and Environmental Conditions:

- .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
- .2 Apply paint 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 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.
- .5 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
- .6 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.
- .7 Paint occupied facilities in accordance with approved schedule only. Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

## **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.

### **2.2 Colours**

- .1 Departmental Representative to confirm colors after Contract award.
- .2 Colour schedule will be based upon selection of 2 base colours for exterior work.
- .3 Selection of colours will be from manufacturers full range of colours.
- .4 Where specific products are available in restricted range of colours, selection will be based on limited range.

### **2.3 Mixing and tinting**

- .1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Departmental Representative's.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Add thinner to paint manufacturer's recommendations. Do not use kerosene or organic solvents to thin water-based paints.
- .4 Thin paint for spraying according in accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Departmental Representative.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

**2.4 Gloss/sheen ratings**

- .1 Paint gloss: defined as sheen rating of applied paint, in accordance with following values:

Gloss Level Category/	Units @ 60 Degrees/	Units @ 85 Degrees/
G1 - matte finish	0 to 5	max. 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	85	

- .2 Gloss level ratings of painted surfaces G4.

**2.5 Exterior painting systems**

- .1 Galvanized Metal: not chromate passivated
- .1 EXT 5.3C - Epoxy finish for use in high contact/high traffic areas.

**PART 3 - EXECUTION****3.1 Manufacturer's instructions**

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

**3.2 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:
- .1 Remove dust, dirt, and surface debris by wiping with dry, clean cloths.
- .2 Wash surfaces with a biodegradable detergent, clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
- .4 Allow surfaces to drain completely and allow to dry thoroughly. Allow sufficient drying time and test surfaces using electronic moisture meter before commencing work.
- .5 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.
- .6 Many water-based paints cannot be removed with water once dried. Minimize use of kerosene or such organic solvents to clean up water-based paints.
- .4 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such contaminants from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.

- .5 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 pretreatment as soon as possible after cleaning and before deterioration occurs.
- .6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

**3.3 Protection**

- .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Departmental Representative.
- .2 Protect factory finished products and equipment.
- .3 Protect [passing pedestrians], [building occupants] [and general public] in and about building.
- .4 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.

**3.4 Application**

- .1 Conform to manufacturer's application instructions unless specified otherwise.
- .2 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 [Departmental Representative] [DCC Representative] [Consultant].
  - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Apply coats of paint as continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .4 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .5 Sand and dust between coats to remove visible defects.
- .6 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.
- .7 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

**3.5 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.

**3.6 Restoration**

- .1 Clean and re-install hardware items removed before undertaken painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Summary**

- .1 Section Includes:
  - .1 Material and installation of site applied paint finishes to new interior surfaces, including site painting of shop primed surfaces.

### **1.2 References**

- .1 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 Master Painters Institute (MPI)
  - .1 MPI Architectural Painting Specifications Manual, [2004].
- .3 National Fire Code of Canada - [1995]
- .4 Society for Protective Coatings (SSPC)
  - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

### **1.3 Quality assurance**

- .1 Conform to latest MPI requirements for exterior painting work including preparation and priming.
- .2 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.
- .3 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.
- .4 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
- .5 Standard of Acceptance:
  - .1 Doors: No defects visible from a distance of 1000 mm at 90 degrees to surface.
  - .2 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

### **1.4 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 43 - Environmental Procedures.
- .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).

**1.5 Maintenance**

- .1 Extra Materials:
  - .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit one litre can of each type and colour of finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

**1.6 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented 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 Departmental Representative. After completion of operations, return areas to clean condition to approval of Departmental Representative.
  - .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 and/or 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 Nunavut authorities.
- .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 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
- .6 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

**1.7 Site conditions**

- .1 Heating, Ventilation and Lighting:
  - .1 Ventilate enclosed spaces.
  - .2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
  - .3 Provide continuous ventilation for seven days after completion of application of paint.
  - .4 Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
  - .5 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
  - .6 Provide minimum lighting level of 323 Lux on surfaces to be painted.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
  - .1 Unless pre-approved written approval by product manufacturer, perform no painting when:
    - .1 Ambient air and substrate temperatures are below 10 degrees C.
    - .2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.
    - .3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.



- .4 The relative humidity is under 85% or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
- .5 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.
- .2 Perform painting work when maximum moisture content of the substrate is below:
  - .1 12% for plaster and gypsum board.
- .3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".
- .4 Test plaster surfaces for alkalinity as required.
- .3 Surface and Environmental Conditions:
  - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
  - .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
  - .3 Apply paint when previous coat of paint is dry or adequately cured.
- .4 Additional interior application requirements:
  - .1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.
  - .2 Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

## **PART 2 - PRODUCTS**

### **2.1 Materials**

- .1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
  - .1 Water-based.
  - .2 Non-flammable.
- .4 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.

### **2.2 Colours**

- .1 SPEC NOTE Departmental Representative to confirm colors after Contract award.
- .2 Colour schedule will be based upon selection of 6 base colours for interior work.
- .3 Selection of colours from manufacturers full range of colours.

- .4 Where specific products are available in restricted range of colours, selection based on limited range.

### **2.3 Mixing and tinting**

- .1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Departmental Representative for tinting of painting materials.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
- .4 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

### **2.4 Gloss/sheen ratings**

- .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

- .2 Gloss level ratings of painted surfaces :
  - .1 Gypsum board – ceiling: Gloss Level 1
  - .2 Gypsum board – wall: Gloss Level 2
  - .3 Wood finish – finish carpentry: Gloss Level 4
  - .4 Wood finish – floor : Gloss Level 6

### **2.5 Interior painting systems**

- .1 Galvanized metal: doors, frames, railings, misc. steel, pipes, overhead decking, and ducts.
  - .1 INT 5.3D - Epoxy finish (over epoxy primer).
- .2 Dressed lumber: including doors, door frames and mouldings:
  - .1 INT 6.3A - High performance architectural latex finish.
- .3 Wood paneling and casework: partitions, panels, shelving, millwork:
  - .1 INT 6.3A - High performance architectural latex finish.
- .4 Wood floors and stairs: including hardwood flooring:
  - .1 INT 6.5K - Moisture cured polyurethane gloss finish.
- .5 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:
  - .1 INT 9.2B - High performance architectural latex finish.

## **2.6 Source quality control**

- .1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.
  - .1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
  - .2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
  - .3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

## **PART 3 - EXECUTION**

### **3.1 Manufacturer's instructions**

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

### **3.2 General**

- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.

### **3.3 Examination**

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
  - .1 Gypsum board: 12%.
  - .2 Wood: 15%.

### **3.4 Preparation**

- .1 Protection:
  - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
  - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
  - .3 Protect factory finished products and equipment.
- .2 Surface Preparation:

- .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
- .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
- .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.
- .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
  - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths.
  - .2 Wash surfaces with a biodegradable detergent and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
  - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
  - .4 Allow surfaces to drain completely and allow to dry thoroughly.
  - .5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
  - .6 Use trigger operated spray nozzles for water hoses.
  - .7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
  - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
  - .2 Apply wood filler to nail holes and cracks.
  - .3 Tint filler to match stains for stained woodwork.
- .6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- .7 Touch up of shop primers with primer as specified.
- .8 Do not apply paint until prepared surfaces have been accepted by Departmental Representative

### **3.5 Application**

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush and roller. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
  - .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
  - .2 Work paint into cracks, crevices and corners.

- .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
- .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
- .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .4 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .6 Sand and dust between coats to remove visible defects.
- .7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .8 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .9 Finish closets and alcoves as specified for adjoining rooms.
- .10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

**3.6 Site tolerances**

- .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
- .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
- .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

**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 Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 ASTM International
  - .1 ASTM A123/A123M-13, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM A653/A653M-13, Standard Specification for Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
- .2 CSA Group
  - .1 CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
- .3 Green Seal (GS)
  - .1 GS-11-2013, Standard for Paints and Coatings.
- .4 Master Painters Institute (MPI)
  - .1 Architectural Painting Specification Manual - [current edition].
    - .1 MPI #47, Alkyd, Interior, Semi-Gloss.
    - .2 MPI #76, Quick Dry Alkyd Metal Primer.
    - .3 MPI #81, Machinery Enamel.
    - .4 MPI #96, Quick Dry Enamel Gloss.

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for wire mesh partitions and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Indicate partition panel modules and types, materials, gauges, finishes, door and other openings, hardware, fastening methods to adjacent structure, ceiling details, and assembly methods.

### **1.3 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect specified materials from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

**PART 2 - PRODUCTS****2.1 Materials**

- .1 Partition mesh: galvanized.
  - .1 Welded steel wire fabric: 50mm x 50mm x 3,2mm welded to 32mm x 32mm x 3 mm steel angle frame. Panels reinforced with 12,7mm steel rods at 915 mm o/c. Painted.
- .2 Steel sections and plates: to CSA G40.20/G40.21, type 44W.
  - .1 Posts: hollow steel tubing, painted square 50mm x 50mm x 2mm, construction, designed to fasten to walls, ceiling and floor.
  - .2 Extension posts: 44 x 44 mm hollow steel tubing, minimum wall thickness 1.6 mm.
  - .3 Post caps: manufacturer's standard formed cap; finish to match other components.
- .3 Door: same material as posts and partition mesh complete with latch, hinges and door stop.
- .4 Welding materials: to CSA W59.
- .5 Bolts, fasteners and fastening hardware: manufacturer's standard to suit design and application.

**2.2 Accessories**

- .1 Master Key Systems and Padlocks.

**2.3 Fabrication**

- .1 Panels:
  - .1 Fabricate panels 2100 x 1200 mm welded at 100 mm on centre to angle frame.
  - .2 Mitre and weld frame corners.
  - .3 Provide 12,7 mm steel rod at 915 mm o/c.
- .2 Posts:
  - .1 2100 mm high with floor plates for fixing and post cap.
  - .2 Include corner, wall, door and other special posts to manufacturer's standard.
- .3 Post extensions:
  - .1 Length required to telescope 600 mm into post and extend posts to ceiling.
  - .2 Weld ceiling plate on upper end for fixing.
  - .3 Supply extension posts every second post.
- .4 Swing doors: standard doors:
  - .1 Sizes as indicated
  - .2 Reinforce door with 40 x 5 mm or equivalent flat bar centre rail and 20 x 6 mm or equivalent flat bar bracing from centre rail to opposite corners on hinge side.
- .5 Swing door hardware:
  - .1 Equip doors with stops, keeper, hasp for padlock.
  - .2 Equip standard doors with 1-1/2 pair of butts.

## **2.4 Finishes**

- .1 Baked enamel factory finish.
  - .1 Standard colour selected by Departmental Representative.
  - .2 Paint materials: in accordance with Section [09 91 23 - Interior Painting].

## **PART 3 - EXECUTION**

### **3.1 Examination**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for wire mesh partitions installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.2 Erection**

- .1 Install mesh enclosures and doors in accordance with manufacturer's printed instructions.
- .2 Erect enclosures plumb, level, straight, rigidly supported, and securely fastened to abutting surfaces, free from superimposed loads.
- .3 Fix to masonry and concrete using lag bolts and shields; to hollow walls using bolts and toggle type anchors; to steel supports with bolts in threaded holes or spot welds.
  - .1 Locate fasteners on interior side where possible for maximum security.
- .4 Install door and adjust for proper closing, locking and smooth operation.
  - .1 Swing door on exterior side of enclosed area.

### **3.3 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

## **END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 ASTM International
  - .1 ASTM A167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

### **1.2 Action and informational submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Provide manufacturer's printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

### **1.3 Closeout submittals**

- .1 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

### **1.4 Maintenance material submittals**

- .1 Tools:
  - .1 Provide special tools required for assembly, disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.
  - .2 Deliver special tools to Departmental Representative.

### **1.5 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors, in dry location] and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect toilet and bathroom accessories from nicks, scratches, and blemishes.

**PART 2 - PRODUCTS****2.1 Materials**

- .1 Stainless steel sheet metal: to ASTM A167.
- .2 Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.

**2.2 Components**

- .1 Toilet tissue dispenser: single roll type, [surface] mounted, chrome plated steel frame, capacity of 500 double ply roll, roll under spring tension for controlled delivery.
- .2 Portable toilet bucket with seat.
- .3 White vinyl wall protection (**Wp**)

**2.3 Fabrication**

- .1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
- .2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.
- .3 Brake form sheet metal work with 1.5 mm radius bends.
- .4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- .5 Back paint components where contact is made with building finishes to prevent electrolysis.
- .6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CAN/CSA-G164.
- .7 Shop assemble components and package complete with anchors and fittings.
- .8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
- .9 Provide steel anchor plates and components for installation on studding and building framing.

**PART 3 - EXECUTION****3.1 Examination**

- .1 Verification of Conditions: verify that conditions of substrates and surfaces to receive toilet and bathroom accessories previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to toilet and bathroom accessories installation.

**3.2 Installation**

- .1 Install and secure accessories rigidly in place as follows:
  - .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
- .2 Use tamper proof screws/bolts for fasteners.

- .3 Fill units with necessary supplies shortly before final acceptance of building.

**3.3 Adjusting**

- .1 Adjust toilet and bathroom accessories components and systems for correct function and operation in accordance with manufacturer's written instructions.
- .2 Lubricate moving parts to operate smoothly and fit accurately.

**3.4 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**3.5 Protection**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by toilet and bathroom accessories installation.

**3.6 Schedule**

- .1 Locate accessories as follows. Exact locations determined by Departmental Representative.
- .2 Toilet tissue dispenser: one in the toilet compartment mounting height 700 mm above finished floor.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 References**

- .1 ASTM International
  - .1 ASTM A167-[99(2009)], Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
  - .2 ASTM A240/A240M-[11b], Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
  - .3 ASTM A653/A653M-[11], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .4 ASTM B117-[11], Standard Practice for Operating Salt Spray (Fog) Apparatus.
  - .5 ASTM B456-[11e1], Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
  - .6 ASTM E54-[80(1996)], Standard Test Methods for Chemical Analysis of Special Brasses and Bronzes.
  - .7 ASTM E478-[08], Standard Test Methods for Chemical Analysis of Copper Alloys.
- .2 NFPA (National fire protection association) - Flammable and Combustible Liquids

### **1.2 Action and informational submittals**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for fire proof cabinets and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Test Reports:
  - .1 Include test reports by independent testing laboratories indicating results of furniture finish tests.

### **1.3 Delivery, storage and handling**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Do not expose to wet, humid or outdoor environments.
  - .3 Store and protect fire proof cabinets from nicks, scratches, and blemishes.
  - .4 Replace defective or damaged materials with new.

## **PART 2 - PRODUCTS**

### **2.1 Fire proof cabinets**

- .1 Double wall 18 gauge steel. 350 lb shelf capacity.
- .2 Adjustable galvanized steel shelves. Sloped shelves safely direct spills away from containers.
- .3 Recessed paddle handle, can be used with padlock.
- .4 Continuous piano hinge provides smooth closure.
- .5 Adjustable leveling feet for uneven surfaces.
- .6 Inside dimensions: 1011mm x 782mm x 1552mm.
- .7 Capacity Sump: 10.72 gallons.
- .8 Fire rating temperature: 325 F for 10 minutes.
- .9 Reference product: H-2219M-Y by Uline or equivalent.

## **PART 3 - EXECUTION**

### **3.1 Examination**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for fire proof cabinet's installation in accordance with manufacturer's written instructions.
  - .1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

### **3.2 Installation**

- .1 Install fire proof cabinets as indicated on the plans.

### **3.3 Cleaning**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .1 Touch up marred or abraded finished surfaces.
  - .2 Wipe down surfaces to remove fingerprints and markings.
- .3 Waste Management: separate waste materials for in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal

### **3.4 Protection**

- .1 Protect installed products and components from damage during construction.
- .2 Do not expose to wet, humid or outdoor environments.

## **END OF SECTION**

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