

PROJECT TITLE            PRESCOTT DFO-CCG  
MARINE BASE COMPLEX  
401 KING STREET WEST  
PRESCOTT, ONTARIO K0E 1T0

PROJECT NUMBER            R.072734.001

PROJECT DATE            2014-10-03

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PART 1 - GENERAL

1.1 MINIMUM  
STANDARDS

- .1 Execute work to meet or exceed:
  - .1 National Building Code of Canada 2010, National Fire Code of Canada 2010, Ontario Building Code 2012 and any other code of provincial or local application, including all amendments up to project date, provided that in any case of conflict or discrepancy, the more stringent requirements shall apply as directed by the Departmental Representative.
  - .2 Rules and regulations of authorities having jurisdiction.
  - .3 Treasury Board of Canada Secretariat, Fire Protection Standard, April 1, 2010.
  - .4 Observe and enforce construction safety measures required by National Building Code 2010, Part 8 Safety Measures at Construction and Demolition Sites, Occupational Health and Safety Act and Regulations for Construction Projects, Revised Statutes of Ontario 1990, Chapter O.1 as amended, O. Reg. 213/91 as amended by O. Reg. 631/94, O. Reg. 143/99, O. Reg. 571/99, O. Reg. 145/00, O. Reg. 527/00, R.R.O. 1990, Reg. 834, O. Reg. 278/05 (Asbestos), Workplace Safety and Insurance Board and municipal statutes and authorities.
  - .5 Environmental Protection Act, O. Reg. 102/94 and O. Reg. 103/94.

1.2 SAFETY PLANS  
FOR WORK ORDERS

- .1 Provide a Fire Safety Plan, specific to the work location, in accordance with NBC 2010, Division B, Part 8, Article 8.1.1.1 and NFC 2010, Division B, Part 2, subsection 2.8.2 prior to commencement of work. The plan shall be coordinated with, and integrated into, the existing Building's Emergency Procedures and Evacuation Plan in place at the site. Departmental Representative will provide Building's Emergency Procedures and Evacuation Plan. Deliver two copies of the Fire Safety Plan to the Departmental Representative not later than 14 days before commencing work.
- .2 On award of Contract, submit to Departmental Representative, two copies of Contractor's and sub-contractors':
  - .1 Site Specific Safety Plan.
  - .2 Safety Communication Plan.
  - .3 Emergency Procedures Plan.
  - .4 WSIB - Workplace Safety and Insurance Board Experience report.

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| <u>1.3 TAXES</u>   | .1 | Pay applicable Federal, Provincial and Municipal taxes.  |
| <u>1.4 FEES, PERMITS, CERTIFICATES AND LETTERS</u>           | .1 | Provide authorities having jurisdiction with information requested.  |
|  | .2 | Pay fees and obtain certificates, permits and letters required.  |
|  | .3 | Furnish certificates, permits and letters when requested.  |
|  | .4 | Obtain receipt from carpet manufacturer for existing carpet returned for recycling and submit to Departmental Representative with request for final payment.   |
| <u>1.5 EXAMINATION</u>                                       | .1 | Examine existing conditions and determine conditions affecting work.   |
|  | .2 | Conduct concrete floor moisture testing using Calcium Chloride moisture tests.   |
|  | .1 | Submit test results to Departmental Representative for approval prior to installing any flooring. Conduct one test per 100 sq. metres of area being covered.   |
| <u>1.6 DOCUMENTS</u>   | .1 | Keep one copy of contract documents and shop drawings on the site.   |
| <u>1.7 ELECTRONIC SUBMITTALS</u>                             | .1 | Submit number of hard copies specified for each type and format of submittal and also submit in electronic format as pdf files. Forward pdf, NMSEdit Professional spp, MS Word, MS Excel; on USB compatible with PWGSC encryption requirements or through email or alternate electronic file sharing service such as Oproma, as directed by Departmental Representative. |
| <u>1.8 CONTRACTOR'S AS-BUILT DRAWINGS AND SPECIFICATIONS</u> | .1 | As work progresses, neatly record significant deviations from the Contract drawings and specifications using fine, red marker on full size white prints and specifications. Make the same changes on the electronic files.   |
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- .2 Neatly print lettering and numbers in size to match original. Lines may be drawn free-hand but shall be neat and accurate. Add at each title block note: "AS BUILT". Also circle on List of Drawings each title and number of drawing marked with "AS-BUILT" information. Circle on Table of Contents each specification section number and title of specification sections marked with "AS-BUILT" information.
  - .3 Departmental Representative will provide one electronic set of drawings, schedules and specifications for as-built drawing and specification purposes.
    - .1 Drawings are in Autocad.
    - .2 Specifications are in NMSEdit Professional.
    - .3 Amendments and addenda are in MS Word.
  - .4 Record following significant deviations:
    - .1 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
    - .2 Field changes of dimension.
    - .3 Other significant deviations which are concealed in construction and can not be identified by visual inspection.
    - .4 Alternative materials and systems installed replacing original materials and systems specified by trade name.
  - .5 Turn one set, paper copy and electronic copy, of AS-BUILT drawings and specifications over to Departmental Representative on completion of work. Submit pdf files on USB compatible with PWGSC encryption requirements, through email or alternate electronic file sharing service such as ftp.
  - .6 If project is completed without significant deviations from Contract drawings and specifications submit to Departmental Representative one set of drawings and specifications marked "AS-BUILT".
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1.9 OPERATIONS AND  
MAINTENANCE DATA

- .1 On completion of project submit to Departmental Representative 3 copies of Operations and Maintenance Data assembled in three 255 x 295 mm vinyl-covered, 3-ring, loose-leaf binders with title sheet labelled "Operations Data and Maintenance Manual", project title, date and list of contents. Organize content into applicable sections between hard paper dividers with labelled tabs.
- .2 Include in each binder maintenance instructions for finished surfaces, warranties and guarantees in form approved by Departmental Representative and operations and maintenance data for equipment and systems with parts list, suppliers' names and addresses, schematic diagrams for electrical hardware, complete set of final shop drawings (bound separately), names, addresses and phone numbers of sub-contractors and suppliers, list of materials with names of manufacturer and source of supply. Neatly type lists and rates. Use clear drawings, diagrams or manufacturer's literature.

1.10 SHOP DRAWINGS  
AND PRODUCT DATA  
SHEETS

- .1 Prior to submission check and certify as correct, shop drawings and product data sheets. Issue to Departmental Representative each submission at least 7 days before dates reviewed submission will be needed.
- .2 Submit 3 prints and 1 electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .3 Submit 3 prints and 1 electronic copy 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.

- .4 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept. This review shall not mean that PWGSC 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 all requirements of construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.
- .5 Submit 3 prints and 1 electronic of product data sheets for standard manufactured items. Indicate VOC's in g/l for adhesives, primers, sealants, paints, curing and sealing compounds, sealers, particleboard, plywood, preserved wood, and any other product that emits more than 25 g/l VOC during application, curing, initial off gassing or end use.
- .6 Responsibility for errors, omissions or deviations from requirements of Contract Documents is not relieved by Departmental Representative's review of submittals.

1.11 CONSTRUCTION  
PHOTOGRAPHS

- .1 Submit electronic and hard copy of grey tone digital photography in jpg format, standard resolution.
- .2 Identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 2 Locations. Viewpoints and location of viewpoints determined by Departmental Representative.
- .4 Frequency: as directed by Departmental Representative.

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| <u>1.12 DESIGN DATA,<br/>TEST REPORTS,<br/>CERTIFICATES,<br/>MANUFACTURER'S<br/>INSTRUCTIONS,<br/>MANUFACTURER'S<br/>FIELD REPORTS</u> | <p>.1 Prior to submission check and certify as correct each submission. Issue to Departmental Representative each submission at least 7 days before reviewed submission will be needed.</p> <p>.2 Submit 3 white print copies of each item.</p> <p>.3 For products bearing the 'Ecologo' of the Environmental Choice Program, Environment Canada, Canadian Environmental Protection Act, Environmental Choice Product Guidelines:<br/>.1 Submit two copies of the licensing criteria statements and the verification of compliance with Sections 3(a) and 3(b) of the ECP to the Departmental Representative. For adhesives, paints, primers and sealants, cleaners and degreasers, floor polishes, water borne surface coatings, indicate VOC in g/l.<br/>.2 Alternatively, material in original containers bearing the 'Ecologo' or products bearing the 'Ecologo' will satisfy this requirement.</p> <p>.4 Responsibility for errors, omissions or deviations from requirements of Contract Documents is not relieved by Departmental Representative's review of submittals.</p> |
| <br>   |   |
| <u>1.13 SAMPLES</u>  | <p>.1 Submit duplicate samples.</p> <p>.2 Identify manufacturer's name, product and colour.</p> <p>.3 Installed work shall match reviewed sample.</p>   |
| <br>   |   |
| <u>1.14 ADDITIONAL<br/>DRAWINGS</u>  | <p>.1 Departmental Representative may furnish additional drawings to clarify work.</p> <p>.2 Such drawings become part of Contract Documents.</p>   |
| <br>   |   |
| <u>1.15 PROTECTION</u>   | <p>.1 Protect existing work from damage.</p> <p>.2 Replace damaged existing work with material and finish to match original.</p> <p>.3 Cover furniture and fittings prior to commencing work.</p> <p>.4 Remove coverings and clean following completion of each work period.</p>  |
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- .5 Provide temporary, dustproof partitions between occupied and work areas. Maintain access to fire exits and washroom facilities. Remove partition on completion of work.

#### 1.16 EXISTING SERVICES

- .1 Establish location, protect and maintain existing utility lines.
- .2 Maintain existing services in occupied areas.
- .3 Use designated existing sanitary facilities.
- .4 Use existing water and electrical services at no cost.
- .5 Use elevator designated, protect walls from damage.

#### 1.17 TEMPORARY FACILITIES AND SERVICES

- .1 Provide and maintain temporary facilities and services required to carry out work.
- .2 Remove temporary facilities and services on completion of work.

#### 1.18 METRIC SIZED MATERIALS

- .1 SI metric units of measurement are used exclusively on the drawings and in the specifications for this project.
  - .2 The Contractor is required to provide metric products in the sizes called for in the Contract Documents except where a valid claim can be made that a particular product is not available on the Canadian market.
  - .3 Claims for exemptions from use of metric sized products shall be in writing and fully substantiated with supportive documentation. Promptly submit application to Departmental Representative for consideration and ruling. Non-metric sized products may not be used unless Contractor's application has been approved in writing by the Departmental Representative.
  - .4 Difficulties caused by the Contractor's lack of planning and effort to obtain modular metric sized products which are available on the Canadian market will not be considered sufficient reasons for claiming that they cannot be provided.
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- .5 Claims for additional costs due to provision of specified modular metric sized products will not be considered.

#### 1.19 MATERIAL AND EQUIPMENT

- .1 Use new products unless otherwise specified.
- .2 Deliver and store material and equipment to manufacturer's instructions with manufacturer's labels and seals intact.
- .3 When material or equipment is specified by standard or performance specifications, upon request of Departmental Representative, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.

#### 1.20 CONCEALMENT

- .1 Conceal pipes, ducts, conduits and wiring in finished areas.

#### 1.21 CUTTING AND REMEDIAL WORK

- .1 Co-ordinate work to keep cutting and remedial work to a minimum.
  - .2 Execute cutting and remedial work required. Notify Departmental Representative before cutting, boring or sleeving structural members.
  - .3 Prior to cutting or drilling horizontal or vertical surfaces including concrete, concrete block or other structural substrate, determine location of reinforcing, service lines, pipes, conduits or other items by x-ray, ground penetrating radar or other appropriate method. Submit findings to Departmental Representative prior to cutting or drilling.
  - .4 Do not cut, puncture or drill any member of ceiling system which forms part of an integrated assembly with mechanical or electrical components.
  - .5 Use specialists in affected material to execute cutting and remedial work.
  - .6 Match work to adjoining construction and finishes.
  - .7 Fit components tight to adjoining surfaces.
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- .8 Make good surfaces exposed or disturbed by work with material and finish to match existing adjoining surfaces.
- .9 After patching wall, ceiling or other painted surfaces, paint the entire wall or area up to the next change in plane or direction as directed by Departmental Representative.

1.22 FASTENINGS

- .1 Provide fastenings of type, size and spacing required to assure secure anchorage.
- .2 Obtain Departmental Representative's permission before using explosive actuated fasteners.

1.23 CO-ORDINATION  
AND CO-OPERATION

- .1 Site will be occupied during execution of work.
- .2 Building will be occupied during execution of work.
- .3 Work area will not be occupied during execution of work.
- .4 Execute work with minimum disturbance to occupants and normal use of building.
- .5 Maintain access and exits.
- .6 Where security has been reduced by work of contract, provide temporary means to maintain security.

1.24 ALTERATIONS TO  
EXISTING BUILDING

- .1 Remove and recycle or dispose of:
  - .1 Carpeting, ceiling and flooring items as indicated.
- .2 Remove, temporarily store, clean, alter to suit and reinstall:
  - .1 Mechanical and electrical items as indicated.
- .3 Provide new openings required in existing construction.
- .4 Block in openings where items removed with material and finish to match existing adjoining construction.

1.25 INSPECTION AND TESTING .1 When initial tests and inspections reveal work not to contract requirements, pay for tests and inspections required by Departmental Representative on corrected work.

1.26 COST BREAKDOWN .1 Within 48 hours of notification of acceptance of bid furnish a cost breakdown by Section aggregating contract price.

.2 Show separately cost of equipment purchased exempt from Ontario Retail Sales Tax under your Ontario Sales Tax licence number.

.3 Within 48 hours of acceptance of bid submit a list of subcontractors.

1.27 SCHEDULING .1 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion. When schedule has been reviewed by the Departmental Representative take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.

.2 Carry out work Monday to Friday from 08:00 to 17:00 hours and on Saturdays, Sundays and statutory holidays. Cooperate with Coast Guard requirement with temporary work stoppage for their operational emergency response.

.3 Carry out noise generating work Monday to Friday from 08:00 to 17:00 hours and on Saturdays, Sundays and statutory holidays.

.4 Interior painting of new space or unoccupied space may be carried out during normal working hours.

.1 Provide continuous ventilation during and after application of paint. Run ventilation system 24 hours per day during installation at 30% outside air; provide continuous ventilation for 7 days after completion of application of paint.

1.28 CLEANING .1 Maintain project free of accumulated waste and rubbish.

.2 Final cleaning:

.1 Remove temporary protection.

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- .2 Remove dust, dirt and foreign matter from surfaces. HEPA vacuum interior surfaces.
- .3 Polish glass and metal surfaces.
- .4 Broom clean paved exterior surfaces, rake clean other exterior surfaces.
- .5 Remove snow and ice from access to building and parking lots.

#### 1.29 CONSTRUCTION & DEMOLITION WASTE

- .1 Carefully deconstruct and source separate materials/equipment and divert from D&C waste destined for landfill to maximum extent possible. Reuse, recycle or sell material off site for reuse except where indicated otherwise. On site sales are not permitted. Target for this project is 75% diversion from landfill.
- .2 For construction and demolition projects, even for those not over 2,000 m<sup>2</sup> total floor area, source separate waste and maintain waste audits in accordance with the Environmental Protection Act, Ontario Regulation 102/94 and Ontario Regulation 103/94.
  - .1 Provide facilities for collection, handling and storage of source separated wastes.
  - .2 Source separate the following waste:
    - .1 Corrugated cardboard.
    - .2 Wood, not including painted or treated wood or laminated wood.
    - .3 Gypsum board, unpainted.
    - .4 Steel.
- .3 Submit a waste reduction workplan indicating the materials and quantities of material that will be recycled and diverted from landfill.
  - .1 Indicate how material being removed from the site will be reused or recycled.
- .4 Submit proof that all waste is being disposed of at a licensed land fill site or waste transfer site. A copy of the disposal/waste transfer site's license and a letter verifying that said landfill site will accept the waste must be supplied to Departmental Representative prior to removal of waste from the demolition site.

1.30 ASBESTOS  
DISCOVERY

- .1 If during alteration work existing asbestos material is discovered (e.g. fireproofing, acoustic or thermal insulation, pipe or tank covering) stop work and immediately notify Departmental Representative. Do not remove any existing material containing asbestos fibres.
- .2 If during alteration work existing asbestos material, other than known asbestos-containing material is discovered do not remove such asbestos-containing material; stop work and immediately notify Departmental Representative.

1.31 DESIGNATED  
SUBSTANCES

- .1 The work area has been surveyed for the presence of designated substances referred to in the Occupational Health and Safety Act and Regulations for Construction Projects, O.Reg. 213/91 as amended. Survey Report prepared by WSP Canada Inc., Markham, Ontario, April.10.2014.
- .2 Results from the survey, identify if there are no "designated substances" as defined by the Occupational Health and Safety Act Revised Statutes of Ontario, 1990, Chapter 0.1 as amended, in the work area.
- .3 The list of designated substances present at the work area shall be submitted prior to start of Phase 2 as indicated on drawing A1.
- .4 Provide copies of this list to each prospective subcontractor prior to start of Phase 2.
- .5 Post prominent notices identifying and warning of the hazardous agent in the part of the workplace in which the agent is found or used. Notices shall be in English and other languages prescribed under the Act.

Material

May be Present at:

Acrylonitrile	Industrial areas only.
Arsenic	Paint (low levels)
Asbestos plaster.	Used up till '83 in ac. and hard
Benzene	Industrial Areas, solvent.
Ethylene Oxide	Laboratory sterilizer gas.
Isocyanates	Foamed urethane, liquid
urethane/varathane.	
Lead	Sound baffles, paint, metal
trim, paint, structural paint,	
storage tanks, bell and bowl	

fittings(plumbing), flashing.  
 Mercury Electrical Switches, Thermostats  
 and controls.  
 PCB's Transformers (wet), pre-1979  
 ballasts.  
 Silica Cement, Concrete dust,  
 refractory brick and insulations.  
 Vinyl Chloride Industrial (not a buildings  
 issue).

<u>1.32 SPECIAL PROTECTION AND PRECAUTIONS</u>	.1	Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of material safety data sheets acceptable to ESDC - Labour Program.
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<u>1.33 IAQ - INDOOR AIR QUALITY</u>	.1	Comply with CSA Z204-94(R1999), Guideline for Managing Indoor Air Quality in Office Buildings and CSA B651-12, Annex A, article A.5 Indoor Air Quality.
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<u>1.34 POLLUTION CONTROL</u>	.1	Spills of deleterious substances: .1 Immediately contain, limit spread and clean up in accordance with provincial regulatory requirements. .2 Report immediately to Ontario Spills Action Centre: 1-800-268-6060. .3 Further information on dangerous goods emergency cleanup and precautions including a list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.
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<u>1.35 GREEN GLOBES</u>	.1	Submit documentation on how the materials and equipment meet or exceed the criteria for GREEN GLOBES.
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## PART 2 - PRODUCTS

<u>2.1 NOT USED</u>	.1	Not used.
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PART 3 - EXECUTION

3.1 NOT USED .1 Not used.



## PART 1 - GENERAL

### 1.1 REFERENCES

- .1 Canadian Standards Association (CSA): Canada
  - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.
- .2 National Building Code 2010 (NBC):
  - .1 NBC 2010, Division B, Part 8 Safety Measures at Construction and Demolition Sites.
- .3 National Fire Code 2010 (NFC):
  - .1 NFC 2010, Division B, Part 5 Hazardous Processes and Operations, subsection 5.6.1.3 Fire Safety Plan.
- .4 Province of Ontario:
  - .1 Occupational Health and Safety Act Revised Statutes of Ontario 1990, Chapter O.1 as amended, and Regulations for Construction Projects, O. Reg. 213/91 as amended.
  - .2 O. Reg. 490/09, Designated Substances.
  - .3 Workplace Safety and Insurance Act, 1997.
  - .4 Municipal statutes and authorities.
- .5 Treasury Board of Canada Secretariat (TBS):
  - .1 Treasury Board, Fire Protection Standard April 1, 2010  
[www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text](http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text).

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation.
  - .3 Measures and controls to be implemented to address identified safety hazards and risks.

- .2 Provide a Fire Safety Plan, specific to the work location, in accordance with NBC, Division B, Article 8.1.1.3 prior to commencement of work. The plan shall be coordinated with, and integrated into, the existing Building, Emergency Procedures and Evacuation Plan in place at the site. Departmental Representative will provide Building Emergency Procedures and Evacuation Plan. Deliver two copies of the Fire Safety Plan to the Departmental Representative not later than 14 days before commencing work.
  - .3 Contractor's and Sub-contractors' Safety Communication Plan.
  - .4 Contingency and Emergency Response Plan addressing standard operating procedures specific to the project site to be implemented during emergency situations. Coordinate plan with existing Building Emergency Response requirements and procedures provided by Departmental Representative.
  - .5 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 7 days after receipt of comments from Departmental Representative.
  - .6 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
  - .7 Submit names of personnel and alternates responsible for site safety and health.
  - .8 Submit records of Contractor's Health and Safety meetings [when requested].
  - .9 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
  - .10 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, weekly.
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- .11 Submit copies of orders, directions or reports issued by health and safety inspectors of the authorities having jurisdiction.
- .12 Submit copies of incident and accident reports.
- .13 Submit Material Safety Data Sheets (MSDS).
- .14 Submit Workplace Safety and Insurance Board (WSIB)- Experience Rating Report.
- .15 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

#### 1.3 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to commencement of Work.

#### 1.4 WORK PERMIT

- .1 Apply for building permits related to project prior to commencement of Work.
- .2 Obtain 'Permit to Work Form' from SNC-Lavalin O&M. internal permit for buildings operated by the AFD contractor.
- .3 Obtain Hot Work Permit from Property Manager.

#### 1.5 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

#### 1.6 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

#### 1.7 REGULATORY REQUIREMENTS

- .1 Comply with the Acts and regulations of the Province of Ontario.
  - .2 Comply with specified standards and regulations to ensure safe operations at site.
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1.8 PROJECT/SITE  
CONDITIONS

- .1 Work at site will involve contact with:
  - .1 Silica in concrete.
  - .2 Mercury in switches, fluorescent light tubes and thermostats.
  - .3 Lead in paint, solder in electronic equipment.
  - .4 Benzene in paints and adhesives.
  - .5 Vinyl chloride in conduits and interior finishes.

1.9 GENERAL  
REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns either accepting or requesting improvements.
- .3 Relief from or substitution for any portion or provision of minimum Health and Safety standards specified herein or reviewed site-specific Health and Safety Plan shall be submitted to Departmental Representative in writing.

1.10 COMPLIANCE  
REQUIREMENTS

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990 Chapter 0.1, as amended.

1.11 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

- .3 Where applicable the Contractor shall be designated "Constructor", as defined by Occupational Health and Safety Act and Regulations for Construction Projects for the Province of Ontario.

1.12 UNFORSEEN  
HAZARDS

- .1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, immediately stop work and advise Departmental Representative verbally and in writing.
- .2 Follow procedures in place for Employees Right to Refuse Work as specified in the Occupational Health and Safety Act for the Province of Ontario.

1.13 HEALTH AND  
SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have site-related working experience specific to activities associated with abatement of lead and asbestos containing materials.
  - .2 Have working knowledge of occupational safety and health regulations.
  - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
  - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
  - .5 Be on site during execution of Work [and report directly to and be under direction of site supervisor.

1.14 POSTING OF  
DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province of Ontario, and in consultation with Departmental Representative.
  - .1 Contractor's Safety Policy.
  - .2 Constructor's Name.
  - .3 Notice of Project.
  - .4 Name, trade, and employer of Health and Safety Representative or Joint Health and Safety Committee members (if applicable).
  - .5 Ministry of Labour Orders and reports.

- .6 Occupational Health and Safety Act and Regulations for Construction Projects for Province of Ontario.
- .7 Address and phone number of nearest Ministry of Labour office.
- .8 Material Safety Data Sheets.
- .9 Written Emergency Response Plan.
- .10 Site Specific Safety Plan.
- .11 Valid certificate of first aider on duty.
- .12 WSIB "In Case of Injury At Work" poster.
- .13 Location of toilet and cleanup facilities.

1.15 CORRECTION OF  
NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.16 BLASTING

- .1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.

1.17 POWDER  
ACTUATED DEVICES

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

1.18 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.
- .2 Assign responsibility and obligation to Competent Supervisor to stop or start Work when, at Competent Supervisor's discretion, it is necessary or advisable for reasons of health or safety. Departmental Representative may also stop Work for health and safety considerations.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

## PART 1 - GENERAL

### 1.1 RELATED REQUIREMENTS

.1 Section 09 65 00.

### 1.2 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.

### 1.3 REFERENCES

- .1 LEED Canada-CI Version 1.0-[2007], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.
- .2 LEED Canada for Existing Buildings, Operations and Maintenance-[2009], LEED Canada 2009 Leadership In Energy and Environmental Design Green Building Rating System Reference Guide.

### 1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:  
.1 Submit manufacturer's instructions, printed product literature and data sheets for flooring and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative.
- .3 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .4 Address topics at level of detail commensurate with environmental issue and required construction task[s].
- .5 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 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .6 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.

1.5 FIRES

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

1.6 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 CLEANING

- .1 Progress Cleaning:
  - .1 Leave Work area clean at end of each day.
- 2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for reuse and recycling.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

## PART 1 - GENERAL

### 1.1 REFERENCES

- .1 ASTM International
    - .1 ASTM C635/C635M-13a, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
    - .2 ASTM C636/C636M-13, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
    - .3 ASTM E1477-98a(2013), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
  - .2 Canada Green Building Council (CaGBC)
    - .1 LEED Canada For New Construction and Major Renovations 2009.
    - .2 LEED Canada For Core and Shell 2009.
    - .3 LEED Canada-CI Version 1.0-[2007], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.
  - .3 Canadian General Standards Board (CGSB)
    - .1 CAN/CGSB-92.1-[M89], Sound Absorptive Prefabricated Acoustical Units.
  - .4 Green Seal Environmental Standards (GS)
    - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
  - .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
    - .1 Material Safety Data Sheets (MSDS).
  - .6 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
    - .1 SCAQMD Rule 1113-2007, Architectural Coatings.
  - .7 Underwriter's Laboratories of Canada (ULC)
    - .1 CAN/ULC-S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
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## 1.2 ACTION AND INFORMATIONAL SUBMITTALS

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- .1 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for ceiling panels and ceiling suspension system and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Shop Drawings:
  - .1 Submit reflected ceiling plans for special grid patterns as indicated.
  - .2 Indicate insert and hanger spacing and fastening details, lateral bracing and accessories.
- .3 Samples:
  - .1 Submit for review and acceptance of each unit.
  - .2 Samples will be returned for inclusion into work.
  - .3 Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
    - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
  - .4 Low-Emitting Materials:
    - .1 Submit listing of touch-up paints used in building, comply with VOC and chemical component limits or restriction requirements.

## 1.3 DELIVERY, STORAGE AND HANDLING

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- .1 Deliver, store and handle materials in accordance 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 indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
    - .2 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
    - .3 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.
-

.4 Store and protect acoustic ceiling materials from nicks, scratches, and blemishes.  
.5 Replace defective or damaged materials with new.

- .4 Develop Construction Waste Management Plan related to Work of this Section.
- .5 Packaging Waste Management: remove for reuse and return by manufacturer of padding and packaging materials as specified in Construction Waste Management Plan.

## PART 2 - PRODUCTS

### 2.1 COMPONENTS

- .1 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1.
    - .1 Pattern to match existing, Class A, recycled content of 70-75%.
    - .2 Flame spread rating of 25 or less in accordance with CAN/ULC-S102.
    - .3 Smoke developed in accordance with CAN/ULC-S102.
    - .4 Noise Reduction Coefficient (NRC) designation of .70.
    - .5 Light Reflectance (LR) range of
    - .6 to ASTM E1477.
    - .7 Edge type to match existing.
    - .8 Colour to match existing.
    - .9 Size to match existing.
    - .10 Shape flat.
  - .2 Acoustical Suspension:
    - .1 Basic materials for suspension system: commercial quality cold rolled steel, zinc coated.
    - .2 Hanger wire: galvanized soft annealed steel wire, 3.6 mm diameter for access tile ceilings.
    - .3 Hanger inserts: purpose made.
    - .4 Accessories: splices, clips, wire ties, retainers and wall moulding to complement suspension system components, as recommended by system manufacturer.
  - .3 Performance/Design Criteria:
    - .1 Maximum deflection: 1/360th of span to ASTM C635/C635M deflection test.
-

- 2.2 ACCESSORIES .1 Touch-up paint: in accordance with manufacturer's recommendations for surface conditions:  
.1 Paint: VOC limit 250 g/L maximum to GS-11 SCAQMD Rule 1113.

### PART 3 - EXECUTION

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

- 3.2 INSTALLATION .1 Installation: in accordance with ASTM C636/C636M except where specified otherwise.
- .2 Suspension System:  
.1 Erect ceiling suspension system after work above ceiling has been inspected by Departmental Representative.  
.2 Secure hangers to overhead structure using attachment methods acceptable to Departmental Representative.  
.3 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.  
.4 Lay out system according to reflected ceiling plan.  
.5 Install wall moulding to provide correct ceiling height.  
.6 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.  
.7 Support at light fixtures and diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.  
.8 Interlock cross member to main runner to provide rigid assembly.  
.9 Ensure finished ceiling system is square with adjoining walls and level within 1:1000.
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- .3 Acoustic Panels:
  - .1 Install acoustical panels and tiles in ceiling suspension system.
  - .2 Co-ordinate ceiling work with work of other sections such as interior lighting, fire protection communication, and intrusion and detection systems.

### 3.3 CLEANING

- .1 Progress Cleaning:
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .3 Waste Management: separate waste materials for reuse and recycling .
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### 3.4 PROTECTION

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

## PART 1 - GENERAL

### 1.1 REFERENCES

- .1 ASTM International.
    - .1 ASTM D395-03(2008), Standard Test Methods for Rubber Property - Compression Set.
    - .2 ASTM D623-07, Standard Test Methods for Rubber Property-Heat Generation and Flexing Fatigue In Compression.
    - .3 ASTM D624-00(2007), Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
    - .4 ASTM D638-10, Standard Test Method for Tensile Properties of Plastics.
    - .5 ASTM D2240-05(2010), Standard Test Method for Rubber Property-Durometer Hardness.
    - .6 ASTM D3673-89(2009), Standard Text Methods for Chemical Analysis of Alpha Olefin Sulfonates.
    - .7 ASTM D5116-10, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
    - .8 ASTM E84-11b, Test Method of Surface Burning Characteristics of Building Materials.
    - .9 ASTM E413-10, Classification for Rating Sound Insulation.
    - .10 ASTM E662-09, Test Method of Specific Optical Density of Smoke Generated by Solid Materials.
    - .11 ASTM F150-06, Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring. 23 ASTM F511-04, Standard Test Method for Quality of Cut (Joint Tightness) of Resilient Floor Tile.
    - .12 ASTM F710-11, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
    - .13 ASTM F925-02(2008), Standard Test Method for Resistance to Chemicals of Resilient Flooring.
    - .14 ASTM F970-07, Standard Test Method for Static Load Limit.
    - .15 ASTM F1066-04(2010)e1, Standard Specification for Vinyl Composition Floor Tile.
    - .16 ASTM F1265-03a(2008), Standard Test Method for Resistance to Impact for Resilient Floor Tile.
    - .17 ASTM F1303-04(2009), Sheet Vinyl Floor Covering With Backing.
    - .18 ASTM F1344-12e1, Standard Specification for Rubber Floor Tile.
    - .19 ASTM F1700-04(2010), Standard Specification for Solid Vinyl Floor Tile.
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- .20 ASTM F1861-08, Standard Specification for Resilient Wall Base.
  - .21 ASTM F1914-07, Standard Test Methods for Short-Term Indentation and Residual Indentation of Resilient Floor Covering.
  - .22 ASTM F2055-10, Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method.
  - .23 ASTM F2199-09, Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat.
  - .2 Underwriter Laboratories of Canada (ULC)
    - .1 CAN/ULC-S102.2-10, Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.
  - .3 National Fire Protection Association (NFPA)
    - .1 NFPA 253-2011, Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.
    - .2 NFPA 255-2006, Standard Method of Test of Surface Burning Characteristics of Building Materials.
    - .3 NFPA 258-2001, Standard Research Test Method for Determining Smoke Generation of Solid Materials.
  - .4 U.S. Federal Specifications:
    - .1 FS SS-W-40a Wall Base, Rubber and Vinyl Plastic.
    - .2 FS SS-T-312b Resilient Rubber Flooring. Other references. Americans with Disabilities
  - .5 International Code Council/American National Standards Institute (ICC/ANSI)
    - .1 ICC/ANSI A117.1-2003, Accessible and Usable Buildings and Facilities.
  - .6 Builders Hardware Manufacturers Association (BHMA)
    - .1 ANSI/BHMA-A156.21-2009, Thresholds.
  - .7 CSA Group
    - .1 CSA B651-12, Accessible Design for the Built Environment.
  - .8 Scientific Certification Systems (SCS)
    - .1 SCS-EC10.2-2007, Indoor Air Quality Performance.
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|-----------------------------|---|
| <u>1.2 WHMIS</u>            | <ul style="list-style-type: none"><li>.1 Submit WHMIS MSDS - Material Safety Data Sheets acceptable to Labour Canada and Health Canada for primer, cement and adhesive. Indicate VOC content.</li><li>.2 Submit WHMIS MSDS in accordance with Section 01 11 01.</li></ul>   |
| <br>                        |   |
| <u>1.3 MAINTENANCE DATA</u> | <ul style="list-style-type: none"><li>.1 Provide maintenance data for resilient flooring for incorporation into operation and maintenance manual specified in Section 01 11 01.</li></ul>   |
| <br>                        |   |
| <u>1.4 SUBMITALS</u>        | <ul style="list-style-type: none"><li>.1 Submit a list of 2 projects (with contact people and phone numbers) completed within the previous 12 months which use the same systems specified here in accordance with Section 01 11 01.</li><li>.2 Submit copy of flooring manufacturer's installation procedures in accordance with Section 01 11 01.</li><li>.3 Submit copy of installer's certificate of competence granted by the linoleum manufacturer in accordance with Section 01 11 01.</li><li>.4 Submit letter stating that the moisture content of concrete slab and the ph of the surface is within manufacturer's written guidelines for proposed flooring system.</li><li>.5 Do not proceed with flooring installation if the concrete slab moisture content is over 3.0 lbs/1000 S.F for vinyl or 3.5 lbs/1000 S.F. for linoleum. Contact the manufacturer's representative and inform the Departmental Representative immediately.</li></ul> |
| <br>                        |   |
| <u>1.5 SAMPLES</u>          | <ul style="list-style-type: none"><li>.1 Submit samples in accordance with Section 01 11 01.</li><li>.2 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long.</li></ul>   |
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1.6 MAINTENANCE  
MATERIALS

- .1 Provide 5% of lineal metres of resilient base of matching colour in addition to the resilient base required to complete the present installation.
- .2 Deliver to job site in boxes clearly marked with information on contents and include address and date of installation.
- .3 Unload and store within building where directed by Departmental Representative.

1.7 ENVIRONMENTAL  
CHOICE PROGRAM

- .1 Provide adhesive products bearing the 'Ecologo' of the Environmental Choice Program, Department of the Environment, Canadian Environmental Protection Act, Environmental Choice Product Guidelines ECP/PCE-44-92 for Adhesives.
- .2 Submit one copy of the licensing criteria statements and the verification of compliance with Sections 3(a) and 3(b) of the ECP to the Departmental Representative.

1.8 AIR QUALITY

- .1 Select materials and off gas flooring products off site in accordance with CSA B651, including Annex A Environmental Considerations, A.5 Indoor Air Quality and FloorScore certified to SCS-EC10.2-2007.
- .2 No detectable odour after installation from flooring, adhesive or accessories.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Vinyl composition tile: to ASTM F1066, asbestos free.
  - .1 Tile: mottled, size 305 x 305 x 3.17 mm.
- .2 Solid vinyl tile (SVT- ): to CSA A126.2-M1984, annealed, micro-edged, 3 mm thickness, 305 x 305 mm.
- .3 Conductive vinyl tile (CVT- ): to ASTM F1700, Class 1 Monolithic, CSA A126.2, Type A mottled, asbestos free, 305 x 305 x 3.178 mm.
  - .1 Tested in accordance with ASTM F150:
    - .1 Static Propensity: less than 2 kV with conductive footwear per AATCC-134, at 20% relative humidity.

- .2 Static decay: 5,000 volts to zero in less than 0.01 seconds per US Federal Test Method 101B, Method 4048 at 15% relative humidity.
        - .3 Electrical resistance: greater than 25 KOhms ( $>25 \times 10^3$  Ohms) & less than 1 MOhms ( $<1 \times 10^6$  Ohms).
      - .2 Flame spread: 24 to CAN/ULC-S102.2.
      - .3 Smoke developed: 38 to CAN/ULC-S102.2.
      - .4 Grounding: 13 mm wide copper foil tape.
- .4 Static dissipative tile (SDT- ): to ASTM F1066, Class 2, Through Pattern, Mottled, asbestos free, 305 x 305 x 3.178 mm.
  - .1 Tested in accordance with ASTM F150:
    - .1 Static Propensity: less than 2 kV with conductive footwear per AATCC-134, at 20% relative humidity.
    - .2 Static decay: 5,000 volts to zero in less than 0.01 seconds per US Federal Test Method 101B, Method 4048 at 15% relative humidity.
    - .3 Electrical resistance: equal to or greater than 1 MOhms ( $>10^6$  Ohms) & equal to or less than 1,000 MOhms ( $>10^9$  Ohms).
  - .2 Flame spread: 19 to CAN/ULC-S102.2.
  - .3 Smoke developed: 38 to CAN/ULC-S102.2.
  - .4 Grounding: 13 mm wide copper foil tape.
- .5 Rubber tile (RT-1): to ASTM F1344, 900 x 900 x 3.5 mm, plain, integral 25 mm dia. studs, 30 mm o.c., projecting 0.64 mm.
- .6 Recycled rubber square tile flooring (RRS-): non-laminated, single ply surface formulated from a combination of 100% post-consumer recycled black SBR (styrene butadiene rubber), and/or EPDM (ethylene propylene diene monomer) rubber, and polyurethane binder, overall thickness 8.0 mm, width
  - .1 m. square cut (glue down).
  - .2 Total recycled content: 75%.
  - .3 Tensile strength: minimum 1370 kPa, to ASTM D412.
  - .4 Flexibility: pass 6 mm mandrel, to ASTM F137.
  - .5 Coefficient of Friction: minimum 0.9, to ASTM D2047.
  - .6 Sound transmission coefficient: 8, to ASTM E413.
  - .7 Static load limit: maximum 0.13 mm (0.005 in) at 2745 kPa, to ASTM F970.
  - .8 Impact insulation class: minimum 48, to ASTM E492.
  - .9 Chemical resistance: to ASTM F925.
    - .1 5% acetic acid: no change.
    - .2 70% isopropyl alcohol: no change.

- .3 5% sodium hydroxide: no change.
- .4 5% hydrochloric acid: no change.
- .5 5% ammonia: no change.
- .6 Bleach: no change.
- .7 5% phenol: no change.
- .8 Sulphuric acid: no change.
- .10 Taber Abrasion (H-22): 0.8% weight loss.
- .11 Acceptable material: 'ECONights' and 'ECOearth' recycled rubber flooring, manufactured by ECORE International, 416-603-7373, [www.ecosurfaces.com](http://www.ecosurfaces.com), 'Evolution' recycled rubber flooring, manufactured by Dinoflex, 250-832-7780, [www.dinoflex.com](http://www.dinoflex.com).
- .7 Vapor Emission Test kit: "Vapor emission Test for measurement of Concrete Moisture", manufactured by Vaprecision (800) 449-6194 and distributed by Durox Floor Accessories, (416) 630-4883.
- .8 Sheet rubber flooring adhesive: solvent free, water based acrylic, Ecologo certified.
  - .1 Acceptable material: '915 Solvent Free Acrylic Adhesive', manufactured by Johnsonite, (905) 886-8081.
- .9 Resilient base (RB- ): to ASTM F1861, Type [TP rubber thermoplastic 100 mm high, continuous, Style A-Straight.
- .10 Primer, cement, and seam adhesive: type recommended by flooring and base manufacturer to suit substrate and installation, Ecologo certified.
- .11 Vinyl composite tile adhesive: zero VOC, low odour, no alcohol, glycol or amonia, Ecologo certified.
  - .1 Acceptable material: 'EcoTech #3200 Clear pressure Sensitive Floor Tile Adhesive' manufactured by Chembond, 905-799-2663; 'Armstrong S-515' manufactured by Armstrong 800-356-9301x8987 [www.armstrong.com](http://www.armstrong.com), distributed by GE Shnier 905-789-3755.
- .12 Static dissipative tile adhesive: water based, low VOC and type recommended by flooring manufacturer.
  - .1 Acceptable material: '#333 Conductive Acrylic Adhesive' manufactured by Amtico, supplied by Centura Floor and Wall Fashions, (416) 785-5165; 'S-202' manufactured by Armstrong 800-356-9301x8987 [www.armstrong.com](http://www.armstrong.com), distributed by GE Shnier 905-789-3755.

- .13 Dispersion insulator: solvent free, liquid polyvinylidene chloride, non-flamable, 20-60 minute drying time, coverage approx. 150-300 grams/m<sup>2</sup> per coat, specific weight 1.24 kg/ltr.  
.1 Acceptable material: "026 Dispersion Insulator" by Forbo, (416) 661-2351.
- .14 Self-levelling compound: modified cement based material forming a roller-castor-chair and moisture-resistant layer.
- .15 Resin welding rod: type recommended by flooring manufacturer.
- .16 Cove stick: type recommended by flooring manufacturer.
- .17 Cap: PVC, colour selected by Departmental Representative for terminating linoleum base.
- .18 Sub-floor filler: premixed latex modified cement mixed with water to produce cementitious paste.
- .19 Concrete floor sealer: to CAN/CGSB-25.20-95, Type 1.
- .20 Wax and sealer: type recommended by flooring manufacturer.
- .21 Reducing strip: same material as flooring.

### PART 3 - EXECUTION

#### 3.1 SUB-FLOOR TREATMENT

- .1 Remove ridges and bumps.
  - .2 Apply sub-floor filler to low spots and cracks to achieve floor level to a tolerance of 1:500, allow to cure.
  - .3 Prepare and seal porous and powdery concrete surfaces in accordance with flooring manufacturer's written instructions.
  - .4 Remove dust, old adhesive, paint, dirt, wax, sealer and foreign matter from existing surfaces.
-

3.2 PREPARATION AND  
INSTALLATION

- .1 Maintain room and material temperature at approximately 20°C for 3 days before laying, and minimum 2 days after laying.
- .2 Test subfloor for moisture content in accordance with flooring manufacturer's instructions using the Vaprecision vapour emission test.
  - .1 Perform moisture condition test in each major area. A minimum of 1 test per 1000 sq. ft., prior to installation. Moisture condition shall not exceed [3 pounds per 1000 sq. ft. per 24 hour day in accordance with the Rubber Manufacturers Association Test Method.] [3-1/2 pounds per 1000 sq. ft. per 24 hour day in accordance with Forbo Ltd] recommendations. Do not proceed with work until results of moisture condition tests are acceptable.
- .3 Do not proceed with work until results of moisture condition tests are acceptable.
- .4 Prepare floor and install flooring in accordance with flooring manufacturer's instructions.
- .5 Ground CVT and SDT in accordance with flooring manufacturer's written instructions.
- .6 Roll surface with 45 kg roller.
- .7 Wrap around straight base at external corners.
- .8 Base joints at maximum length available or at internal corners.
- .9 Install reducing strip at exposed edges, centre under doors at doorways.
- .10 Install ramp threshold in accordance with written manufacturer's instructions and as indicated.

3.3 CLEANING AND  
WAXING

- .1 Clean, seal and wax to manufacturer's instructions.
- .2 Strip Amtico rubber tiles to remove factory silicone finish before finishing.

## PART 1 - GENERAL

- 1.1 REFERENCES
- .1 Green Seal Environmental Standards (GS)
    - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
  - .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
    - .1 Material Safety Data Sheets (MSDS).
  - .3 The Master Painters Institute (MPI)
    - .1 Architectural Painting Specification Manual - current edition.
    - .2 Maintenance Repainting Manual - [current edition].
  - .4 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
    - .1 SCAQMD Rule 1113-[A2007], Architectural Coatings.
- 1.2 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit in accordance with Section 01 33 00.
  - .2 Product Data:
    - .1 Submit manufacturer's instructions, printed product literature and data sheets for paint and coating products and include product characteristics, performance criteria, physical size, finish and limitations.
    - .2 Submit 2 copies of WHMIS MSDS.
  - .3 Samples:
    - .1 Submit for review and acceptance of each unit.
    - .2 Construction Waste Management:
      - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
      - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
    - .3 Low-Emitting Materials:
      - .1 Submit listing of paints and coatings used in building, comply with VOC and chemical component limits or restriction requirements.
-



1.3 DELIVERY,  
STORAGE AND  
HANDLING

- .1 Deliver, store and handle materials in accordance 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 Provide and maintain dry, temperature controlled, secure storage.
  - .2 Store painting materials and supplies away from heat generating devices.
  - .3 Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.
- .4 Fire Safety Requirements:
  - .1 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.
  - .2 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.
- .5 Develop Construction Waste Management Plan related to Work of this Section.
- .6 Packaging Waste Management: remove for reuse packaging materials as specified in Construction Waste Management Plan.

1.4 SITE CONDITIONS

- .1 Heating, Ventilation and Lighting:
    - .1 Ventilate enclosed spaces in accordance with Section 01 51 00.
    - .2 Co-ordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
    - .3 Provide minimum lighting level of [323] Lux on surfaces to be painted.
  - .2 Temperature, Humidity and Substrate Moisture Content Levels:
    - .1 Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.
    - .2 Test concrete, masonry and plaster surfaces for alkalinity as required.
-

.3 Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.

.3 Additional application requirements:

.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 in occupied facilities during silent hours 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 Supply paint materials for paint systems from single manufacturer.
- .2 Conform to latest MPI requirements for painting work including preparation and priming.
- .3 Materials in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual "Approved Product" listing.
  - .1 Use MPI listed materials having E2 rating where indoor air quality requirements exist.
- .4 Colours:
  - .1 Submit proposed Colour Schedule to Departmental Representative for review.
  - .2 Base colour schedule on selection of 2 base colours and 2 accent colours.
- .5 Mixing and tinting:
  - .1 Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written recommendations. Obtain written approval from Departmental Representative for tinting of painting materials.
  - .2 Use and add thinner in accordance with paint manufacturer's recommendations.
    - .1 Do not use kerosene or similar organic solvents to thin water-based paints.
  - .3 Thin paint for spraying in accordance with paint manufacturer's written recommendations.

.4 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.

.6 Gloss/sheen ratings:

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

Gloss Level-Categor	Gloss @ 60 degrees	Sheen @ 85 degrees
<u>y</u>		
Gloss Level 1	Max. 5	Max. 10
- Matte Finish		
Gloss Level 2	Max.10	10 to 35
- Velvet		
Gloss Level 3	10 to 25	10 to 35
- Eggshell		
Gloss Level 4	20 to 35	min. 35
- Satin		
Gloss Level 5	35 to 70	
- Semi-Gloss		
Gloss Level 6	70 to 85	
- Gloss		
Gloss Level 7	More than 85	
- High Gloss		

.2 Gloss level ratings of painted surfaces as indicated.

.7 Interior painting:

.1 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.

.1 INT 9.2A - Latex gloss level 25 finish (over latex sealer).

.2 INT 9.2C - Alkyd gloss level 25 finish (over latex sealer).

.3 INT 9.2M - Institutional low odour/low VOC gloss level 25 finish.

.8 Interior re-painting:

.1 Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock" type material, etc.

.1 RIN 9.2A - Latex gloss level 25.

.2 RIN 9.2C - Alkyd gloss level 25 finish.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheets.
- .2 Perform preparation and operations for interior painting in accordance with MPI - Architectural Painting Specifications Manual and MPI - Maintenance Repainting Manual except where specified otherwise.

#### 3.2 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.

#### 3.3 PREPARATION

- .1 Protection of in-place conditions:
  - .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.

.4 Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations.

.5 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.

.6 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.

.7 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.

.8 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.

.9 Touch up of shop primers with primer as specified.

### 3.4 APPLICATION

.1 Paint only after prepared surfaces have been accepted by Departmental Representative.

.2 Use method of application approved by Departmental Representative.

.1 Conform to manufacturer's application recommendations.

.3 Apply coats of paint in continuous film of uniform thickness.

.1 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 and projecting ledges.
  - .1 Do not paint over nameplates.
  - .2 Keep sprinkler heads free of paint.

### 3.5 CLEANING

- .1 Progress Cleaning:
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .3 Waste Management: separate waste materials for reuse and recycling.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .4 Place paint and primer defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous