

## **1 General**

### **1.1 WORK INCLUDED**

- .1 All drywall work shown on drawings and/or specifications. The work includes but is not necessarily limited to the following:
  - .1 Supply and installation of gypsum wallboard to all steel stud partitions, as indicated on the drawings.
  - .2 Supply and installation of acoustic blankets in walls, as indicated on the drawings.
  - .3 Supply and installation of gypsum wallboard on metal strapping.
  - .4 Allow openings for equipment installed in drywall construction.
  - .5 Installation of access panels in gypsum wallboard partitions and ceilings as supplied by Mechanical and Electrical trades.
  - .6 Supply and installation of corner beads, casing beads, trim, control joints and corner reinforcement.
  - .7 Supply and installation of taping and filling.
  - .8 Supply and installation of acoustic caulking to acoustically insulated gypsum board partitions.
  - .9 Supply and installation of fire rated wall assemblies.

### **1.2 RELATED SECTIONS**

- .1 Section 01 33 00- Submittal Procedures.
- .2 Section 05 50 00 - Metal Fabrications.
- .3 Section 08 11 13 - Steel Doors and Frames.
- .4 Section 09 22 16 - Non-Structural Metal Framing.
- .5 Section 09 91 00 - Painting.
- .6 Division 23 - Mechanical - Supply of access doors.
- .7 Division 26 - Electrical - Supply of access doors.

### **1.3 REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM)
    - .1 ASTM C36/C36M-01, Specification for Gypsum Wallboard.
    - .2 ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
    - .3 ASTM C514-01, Specification for Nails for the Application of Gypsum Board.
    - .4 ASTM C630/C630M-01, Specification for Water-Resistant Gypsum Backing Board.
    - .5 ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
    - .6 ASTM C954-00, 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.
    - .7 ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
    - .8 ASTM C1280-99, Specification for Application of Gypsum Sheathing Board.
    - .9 ASTM C1178/C1178M-01, Specification for Glass Mat Water-Resistant Gypsum Backing Board.
  - .2 Association of the Wall and Ceilings Industries International (AWEI)
  - .3 Underwriters' Laboratories of Canada (ULC)
    - .1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.
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#### 1.4 DEFINITIONS

- .1 Drywall = Gypsum Board = Gypsum Wall Board = GB = GWB

#### 1.5 SYSTEM DESCRIPTION

- .1 Design Requirements:
  - .1 Obtain services of professional engineer with experience in type of work of comparable complexity and scope, licensed to practice in Province of Prince Edward Island to design, review and Provide professional services for work of this Section.
  - .2 Design fire rated construction including ceiling, partition or fire protective membranes and furring to approved ULC design or other design acceptable to authorities having jurisdiction, to provide design fire rating indicated and/or required. Submit written evidence of acceptable test design.
  - .3 Provide sound rated construction having STC rating indicated and tested in accordance with ASTM E90.

#### 1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature minimum 10°C, maximum 21°C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Ensure relative humidity in building is acceptable to material suppliers prior to commencement of installation.
- .3 Apply board and joint treatment to dry, frost free surfaces.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials to site with manufacturer's original labels intact. Do not remove wrappings until ready for use.
- .2 No outside storage permitted. Store in clean, dry area, off ground. Provide adequate ventilation to avoid excess moisture, surface relative humidity and mould or fungal growth. Remove immediately any board showing signs of mould, mildew or fungal growth.
- .3 Stack gypsum board flat on level and dry surface without overhanging boards. Prevent sagging and damage to edges, ends and surfaces. Protect bagged products from moisture or wetting.

#### 1.8 SUBMITTALS

- .1 Make submittal in accordance with Section 01 33 00 - Submittals Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's literature, data sheets for each type of material provided under this Section for Project. Data sheets shall provide all required information. Submit manufacturer's installation instructions.
- .3 Material Safety Data Sheets:
  - .1 Submit MSDS for inclusion in Operation and Maintenance Manual without limitations for adhesives, sealants, patching and leveling compound, solid polymer and as designated later by Consultant.
- .4 Shop Drawings:
  - .1 Submit Shop Drawings showing design, construction, sound attenuating construction, adjacent construction, locations of access panels, elevations, finishes and relevant details of furring, enclosures and partitions which require fire rating.
- .5 Quality Assurance:
  - .1 Applicator Qualifications: Provide work of this Section executed by competent installers with minimum of 5 years experience in application of Products,

- systems and assemblies specified.
- .2 Comply with ASTM C840 for application and finishing gypsum board and manufacturer's written information.
- .3 Comply with following guide recommendations unless specified otherwise:
  - .1 Applications Guide CGC folder SA-130;
  - .2 Fire Resistant Assemblies CGC folder SA-100;
  - .3 Acoustical Assemblies CGC folder SA-200;
  - .4 Gypsum Fire Wall Systems CGC folder SA-925.

## 1.9 SITE ENVIRONMENTAL REQUIREMENTS

- .1 Do not begin the Work of this Section until:
  - .1 Mechanical and Electrical Work above the ceiling is complete.
  - .2 Substrate and ambient temperature is above 10°C and below 21°C.
  - .3 Relative humidity is below 80%.
  - .4 Ventilation is adequate to remove excess moisture.
- .2 Install temporary protection and facilities to maintain temperature above specified environmental requirements for 24 hours before, during, and 24 hours after installation of gypsum board, and for at least 48 hours after completion of joint treatment.

## 1.10 WASTE MANAGEMENT AND DISPOSAL

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times.

## 2 Products

### 2.1 MANUFACTURERS

- .1 Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:
  - .1 Bailey Metal Products Ltd.; [www.bmp-group.com](http://www.bmp-group.com).
  - .2 CertainTeed Gypsum Canada Inc.; [www.certainteed.com](http://www.certainteed.com)
  - .3 CGC Inc; [www.cgcinc.com](http://www.cgcinc.com)
  - .4 Georgia-Pacific Canada, Inc.; [www.gpgypsum.com](http://www.gpgypsum.com)
  - .5 Acadia Drywall Supplies Ltd; [www.acadiadrywall.com](http://www.acadiadrywall.com)."
  - .6 Gordon Incorporated.; [www.gordongrid.com](http://www.gordongrid.com)
  - .7 Roll Formed Specialty; [www.rollformed.com](http://www.rollformed.com)
  - .8 Cabot Gypsum.

### 2.2 ACCEPTABLE MATERIALS

- .1 Fire Rated Gypsum Board (where identified):
  - .1 Fire Rated Gypsum Board having Testing Agency Fire Rating Identification Stamp on Each Sheet
  - .2 ASTM C1396M, Type X, 15.9 mm thick gypsum board 1200 mm wide, maximum practical length and tapered edge as required by each fire resistance assembly.
  - .3 Acceptable Material:
    - .1 Dens Glass Exterior Sheathing, SP.
    - .2 Green Glass Exterior Sheathing.
    - .3 CGC Gyproc Firecode C.
    - .4 Georgia Pacific Gyproc Fireguard Type X.
    - .5 CertainTeed Fi-Rock Type X.
    - .6 Temple-Inland GypsumBoard Fire-Resistant Type X.

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- .2 Standard Gypsum Board:
    - .1 Type X board fire rated (where identified). To ASTM C 3696. 15.9 mm thick, 1219 mm wide x maximum practical length, Ends square cut, edges tapered.
    - .2 Acceptable Materials:
      - .1 CGC Inc.
      - .2 CertainTeed Gypsum Canada.
      - .3 G-P Gypsum.
      - .4 Temple Island Fire Resistant Type X.
      - .5 Cabot Gypsum Type X.
  - .3 Drywall Furring Channels:
    - .1 0.5 mm (25 gauge) core thickness galvanized steel channels for screw attachment of gypsum board.
  - .4 Resilient Drywall Furring Channels:
    - .1 0.5 mm (25 gauge) base steel thickness galvanized steel for resilient attachment of gypsum board.
  - .5 Steel drill screws:
    - .1 To ASTM C 1002.
  - .6 Insulating Strip:
    - .1 Rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 13 mm wide, with self sticking permanent adhesive on one face, lengths as required.
  - .7 Laminating compound:
    - .1 To CSA A82-31 asbestos free.
  - .8 Joint Compound:
    - .1 Special setting type compound: chemically setting, sandable, to ASTM C475.
    - .2 Acceptable Material:
      - .1 Canadian Gypsum Company Sheetrock 90.
      - .2 CertainTeed ProRoc Moisture and Mould resistant 90 Setting Compound with M2Tech.
      - .3 Acadia Drywall Sandable 90.
  - .9 Taping compound:
    - .1 Pre-mixed, to ASTM C475.
    - .2 Acceptable Materials:
      - .1 Canadian Gypsum Company All Purpose Ready-to-Use Joint Compound.
      - .2 CertainTeed ProRoc Moisture and Mould resistant 90 Setting Compound with M2Tech.
      - .3 Acadia Drywall Platinum Lite.
  - .10 Tape:
    - .1 50mm wide x 0.25mm thick, perforated paper, with chamfered edges.
  - .11 Bonding Adhesive:
    - .1 Type for purpose intended and as recommended and approved by manufacturer (Lepage PL 200 or PL 400).
  - .12 Metal Accessories:
    - .1 Corner Beads Minimum 0.40mm, Z180 zinc coated sheet steel to ASTM A525; beaded angle; flanges 32mm for 16mm board.
    - .2 Casing Beads: Minimum 0.40mm, Z180 zinc coated sheet steel to ASTM A525; "L" type; beaded angle or casing with one (1) side knurled for joint filling; suitable for 15.9mm wallboard, as specified.
    - .3 Casing Beads, corner beads, control joints and edge trim: to ASTM C 1047, Zinc metal, zinc-coated by hot-dip process zinc-coated by electrolytic process
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- aluminum coated phosphatized, 0.5mm base thickness, perforated flanges, one piece length per location.
- .4 Flexible Casing Beeds:
  - .1 0.531 mm (designation thickness 18mils/minimum base steel thickness 0.455 mm /25 ga) steel, wipe coated, angle shaped in size to fit over edge of gypsum board, to suit curved applications.
- .5 Control joint strip: Roll formed from galvanized steel sheet, with a tape-protected recess, 6mm wide x 41mm deep.
- .13 Access Doors and Panels:
  - .1 Supplied as part of Division 21, 22 23 and 26 for installation as part of this Section.
  - .2 Sized to suit requirements of other Sections, but minimum size 406 mm x 406 mm with drywall bead frame and key operated cylinder lock.
  - .3 Provide closed cell neoprene gaskets to provide air tight fit.
  - .4 Fire rated access panels shall conform to requirements of authorities having jurisdiction under law and shall be labeled.
  - .5 Access panels in operating rooms and procedure rooms and recovery rooms shall be stainless steel sealed room type suitable for use in operating rooms and adoptable with gypsum wall board partitions.
- .14 Resilient Sponge Tape:
  - .1 Self-sticking adhesive on 1 side, closed cell neoprene sponge tape.
  - .2 Acceptable Materials:
    - .1 Rubatex by Rubatex Corp.
    - .2 Perma-Stik 122X by Jacobs and Thompson Inc.
    - .3 Foamed vinyl Arnofoam by Arno Adhesive Tapes Incorporated.
    - .4 Greyflex Expanding Foam Sealant by Emseal Corporation.
- .15 Water:
  - .1 Fresh clean potable water, free from deleterious matter, acids or alkalies.
- .16 Sound Control Materials:
  - .1 Sound Attenuation Batts: Refer to and conform to requirements of Section 07 21 16 - Blanket Insulation to meet design requirements.
  - .2 Strip Impalement Clips:
    - .1 25 mm wide strip of Insul-Hold by Insul-Hold Canada Ltd., fabricated from 0.531 mm (designation thickness 18mils / minimum base steel thickness 0.455 mm (25 ga) galvanized sheet metal in 30 m rolls with punch-out insulation securement arrows. Alternatively, use special studs with punch-out impalement strips.
  - .3 Acoustic Sealant: ASTM C834 and ASTM C920, Class 25, Non-hardening.
    - .1 "QuietZone Acoustic Sealant" by Owens-Corning Canada Inc.
    - .2 "Tremco Acoustical Sealant" by Tremco Ltd.
  - .4 Elastomeric Sealant:
    - .1 As recommended by manufacturer of fibre-reinforced gypsum sheathing board.
  - .5 Gaskets:
    - .1 Closed cell neoprene, 3 mm thick x 64 mm wide.
  - .6 Asphalt Felt:
    - .1 CSA A123.3; No. 15 Type.
- .17 Sealants:
  - .1 In accordance with Section 07 92 00 - Joint Sealants

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### 3 Execution

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### 3.1 PARTITION TYPES

- .1 Refer to Drawings for partition types.
- .2 Provide partitions complete to underside of structure, unless otherwise indicated on Drawings.

### 3.2 EXAMINATION

- .1 Examine substrate for compliance with applicable requirements, installation tolerances and other conditions affecting installation of fibre-reinforced gypsum board or sheathing. Do not proceed until unsatisfactory conditions have been corrected. Beginning of installation shall indicate acceptance of substrate conditions.

### 3.3 INSTALLATION

- .1 Give minimum 48 hours notice for Consultant's inspection of internal wall insulation, vapour barriers and services prior to concealing with gypsum board.
  - .2 Carry out work using skilled tradesmen carefully supervised by competent foremen.
  - .3 Take all measurements accurately.
  - .4 Comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation. Install framing, blocking and furring in accordance with ASTM C645, ASTM C1280.
  - .5 Maintain wallboard panels minimum 6 mm and maximum 13 mm above floor to prevent moisture transfer.
  - .6 Extend panels to underside of deck or structure and at fire rated and sound control partitions.
  - .7 Do taping and filling of concealed surfaces above ceiling line, except at fire rated and sound control partitions and walls.
  - .8 For isolation and pressurized room control areas conform to requirements specified herein.
  - .9 Erect plain wallboard vertically or horizontally, whichever results in fewer end joints.
  - .10 Keep end joints away from prominent locations and central portions of ceilings.
  - .11 Locate vertical joints at least 300 mm from jamb lines of openings.
  - .12 Space screws for regular wallboard at 300 mm oc along board edges and in board field on walls and ceilings; at fire-rated assemblies, reduce spacings to comply with labelling authorities assembly listings.
  - .13 For other specialty boards screw spacing shall be in accordance with manufacturer's recommendations.
  - .14 Drive screws with power screw-gun and set with countersunk heads slightly below surface of board.
  - .15 Do not secure gypsum board by installing screws into aluminum or steel window and door frames.
  - .16 Install resilient sponge tape where gypsum board ceilings abut heads of door frames and where wallboard abuts heads or jambs of exterior door and window frames. Adhere tape to casing bead and compress during installation. Compressed thickness; 1.6 mm.
  - .17 At partitions except shaft walls, apply 1 continuous 6 mm bead of acoustical sealant to each side of partition where gypsum board meets dissimilar materials.
  - .18 Apply sealant beads at perimeter of all other services and like objects which penetrate wallboard in accordance with manufacturer's directions.
  - .19 Install access panels in locations to be determined by coordination with Trades installing mechanical, electrical and other building services.
  - .20 Consultant reserves right to relocate access panels up to 3600 mm from locations shown on Drawings due to site conditions, providing ample warning is given prior to installation.
  - .21 Install in accordance with manufacturer's instructions.
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- .22 Provide access panels in locations and sizes required by other Sections.
  - .23 Coordinate with other Sections for locations and sizes. Install in accordance with manufacturer's instructions.
  - .24 Access Doors and Panels:
    - .1 Install access doors and panels where required as part of work of this Section in walls, bulkheads, ceilings and soffits.
    - .2 Cooperate and coordinate delivery of access doors and panels supplied as part of work of Divisions 21, 22, 23, 24 and 26.
    - .3 Install access doors and panels supplied as part of work of Divisions 21, 22, 23, 24 and 26 in walls, bulkheads, ceilings and soffits.
    - .4 Ensure stainless steel sealed type access doors and panels are employed in operating rooms.
  - .25 Gypsum Board Application:
    - .1 Provide gypsum board in accordance with manufacturer's written installation instructions and finish to requirements of ASTM C840. Ensure moisture resistant gypsum board is installed on any wall/partition containing a plumbing fixture (i.e. water closets, sinks, tubs, etc.).
    - .2 Provide metal trim casing bead at junctions with dissimilar materials.
    - .3 Provide reveals at junctions with dissimilar materials where indicated.
    - .4 Provide curved uniform surfaces by wetting or dampening board or scoring back gypsum board and form to profiles indicated Provide additional screws and framing members to maintain design curve.
    - .5 Apply joint compound and trowel smooth to provide continuous, smooth radius free from flat spots, facets and trowel marks.
    - .6 Allow gypsum boards to dry thoroughly before handling.
    - .7 Provide finished work plumb, level and true, free from perceptible waves or ridges and square with adjoining work.
    - .8 Cut and fit gypsum board to accommodate or fit around other parts of Work.
    - .9 Provide work of this Section accurately and neatly.
    - .10 Butt gypsum board sheets together in moderate contact.
    - .11 Do not force into place.
    - .12 Place tapered or wrapped edges next to 1 another.
    - .13 Provide gypsum board perpendicular to framing and in lengths that will span ceilings and walls without creating end (butt) joints.
    - .14 If butt joints do occur stagger and locate them as far from centre of walls and ceilings as possible.
    - .15 Accurately fit exposed butt joints together and make edges smooth.
    - .16 Support ends and edges on framing.
    - .17 Fasten gypsum board to metal furring and metal studs with screws. Space screws at 200 mm oc at board edges and 300 mm oc on board field. Ensure perimeter screws are not less than 9 mm nor more than 13 mm from edges and ends are opposite screws on adjacent boards.
    - .18 Gypsum Board:
      - .1 Partitions:
        - .1 Apply gypsum board to metal studs with screws. Erect board with long dimension parallel to supports. Locate end joints over supporting members. Locate vertical joints at least 300 mm from jamb lines of openings. Space screws at 200 mm oc at board edges and 300 mm oc on board field.
      - .2 Joints: Finish all joints unless specified otherwise.
  - .26 Metal Trim and Accessories:
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- .1 Provide metal trim casing beads at reveals; at ceiling-wall intersections and partition perimeters; and at intersection of dissimilar constructions such as gypsum board to concrete.
  - .2 Provide metal trim casing beads where gypsum board abutts against a surface having no trim concealing junction.
  - .3 Provide a 13 mm separation gasket between metal trim casing beads and window frames or other cold surfaces or provide sponge tape between gypsum board partition or furring framing, where such framing abuts exterior door or window frame.
  - .4 Sponge tape between floor and gypsum board partition track.
  - .5 Tape shall be either full width or 1 strip 9 mm wide on each side of framing member.
  - .6 Provide casing bead and sponge tape where gypsum board abuts materials other than itself and acoustic tile ceilings including at exterior door and window frames, where juncture is not concealed with trim; or elsewhere where indicated on Drawings.
  - .7 Unless indicated otherwise, use tape 3 mm narrower than casing bead to provide recess at exposed side. Compress tape by 25%.
  - .8 Unless indicated otherwise, use tape 3 mm narrower than casing bead to provide recess at exposed side. Compress tape by 25%.
  - .9 Provide prefinished metal angle trim supports and Provide light pockets and eggcrate grilles and/or louvres in accordance with manufacturer's instructions.
  - .10 Install light pockets and eggcrate grilles and/or louvre units square, straight and in 1 piece where possible or with inconspicuous joints at long runs.
- .27 Control Joints:
- .1 Provide pre-fabricated, pre-manufactured control joints and/or prepared to suit site conditions control joints and in accordance with manufacturer's instructions and in accordance with ASTM C840.
  - .2 Set in gypsum facing board, supporting control joints with studs or furring channels on both sides of joint.
  - .3 Ensure double studs with discontinuous tracks and double suspended ceiling furring channels have been installed prior to commencing board and bead application at control joints.
  - .4 Provide control joints at following locations:
    - .1 Support construction changes.
    - .2 Partition, ceiling or furring runs exceed 9000 mm.
  - .5 Provide control joints full height floor to ceiling or door header to ceiling in partitions and furring runs.
  - .6 Provide control joints from wall to wall in ceiling areas.
  - .7 Provide continuous polyethylene dust barrier behind and across control joints.
  - .8 Obtain Consultant's acceptance of exact location of control joints.
- .28 Sound Control:
- .1 Where indicated on Drawings, provide sound rated partitions and ceiling in locations indicated to meet required minimum Sound Transmission Class STC rating.
  - .2 Gypsum board shall be applied on both sides of sound-proofed partitions.
  - .3 Follow manufacturer's details and recommendations.
  - .4 Provide sound attenuation insulation to completely fill height of stud cavities.
  - .5 Tightly butt ends and sides of blankets within cavities.
  - .6 Cut blankets to fit small spaces.
  - .7 Carefully fit blankets behind electrical outlets, bracing, fixture attachments and
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- mechanical and electrical services.
- .8 Staple blankets to back of gypsum board as recommended by gypsum board manufacturer.
- .9 At sound attenuating suspended ceiling and enclosures having spring isolator hangers, terminate ceiling or enclosure at adjacent construction by providing continuous isolator strip and sealed joint.
- .29 Sealant:
  - .1 Conform to ASTM C919 for use of sealants in sound attenuation partitions.
  - .2 Apply acoustical sealant around partition cutouts including, but not limited to, electrical outlets and boxes, plumbing and duct outlets, and other miscellaneous wall and floor penetrations or gaps.
  - .3 Apply acoustical sealant to every air gap, such as gaps around perimeter of wall, between wall panels and around any penetrations made for plumbing or electrical wiring. Seal off any piping, electrical output boxes, and duct work with acoustical treatments. Treat junction boxes with acoustic putty, treat piping and duct work either with fiberglass duct liner or damping material or both.
  - .4 Treat frame with gasket material (weather-strip) and install security flap on bottom of door to seal it off.
  - .5 Apply minimum 13 mm diameter bead of acoustic sealant continuously around periphery of each face of partition to seal gypsum board/structure junction where partitions abut fixed building components in accordance with recommendations of "CGC Drywall/Steel Framed Systems, Folder SA923 09250".
- .30 Joint Treatment - Gypsum Board:
  - .1 Verify board is firm against framing members and screw heads are properly depressed.
  - .2 Mix joint compound or ready-to-use compounds according to manufacturer's directions. Use pure, unadulterated, clean water for mixing.
  - .3 Permit mixed material to stand 30 minutes before using.
  - .4 Do not mix more material than can be used within 1 hour.
  - .5 Do not use set or hardened compound.
  - .6 Clean tools and equipment after mixing each batch.
  - .7 Tape and fill joints and corners in accordance with gypsum board manufacturer's printed instructions.
  - .8 Fill either manually, using hand tools of trade, or by a mechanical taping and filling machine of proven efficiency.
  - .9 Remove plastic tape from control joints after finishing with joint compound.
  - .10 After final coats of filler have dried at least 24 hours, sand surface lightly with No. 00 sandpaper to leave it smooth, ready for decoration.
  - .11 Provide finished work smooth, seamless, plumb and true, flush and with square plumb neat corners.
  - .12 Levels of Finish: Provide following levels of finish in accordance with ASTM C840.

### 3.4 FIRE RATED PARTITIONS

- .1 Ensure materials for fire rated construction conform to requirements of Authorities Having Jurisdiction to obtain fire rating shown on Drawings.
  - .2 Where dissimilar components are built into fire rated assemblies ensure continuity of fire separation by boxing in elements with gypsum board and framing to suit Authorities Having Jurisdiction.
  - .3 Work in cooperation with Section providing firestopping work.
  - .4 Provide fire rated enclosures, separations and assemblies as indicated on Drawings conforming to requirements of Authorities Having Jurisdiction.
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- .5 Where required, secure sound attenuation blanket insulation between studs as specified in Article on Sound Control Partitions.

### **3.5 CUTTING AND PATCHING**

- .1 Cooperate and coordinate with other Sections to obtain satisfactory gypsum board finish work. Do all cutting, patching and make good as required by installation of work of other Sections.

### **3.6 CLEANING**

- .1 Clean off beads, casings, joint cement droppings and similar items and remove surplus materials and rubbish on completion and as directed.

### **3.7 FIRE WALL IDENTIFICATION**

- .1 Following installation of gypsum board and painting.
- .2 Provide identification on fire walls.
- .3 Using three (3) stencils cut out to read "Smoke Sealed", "1-Hour Fire Rated" and "2-Hour Fire Rated" in 75mm high letters.
- .4 Using stencil and spray can of paint to transfer the information to the appropriate walls above the ceiling level at 3000 mm o/c on both sides of wall.

END OF SECTION

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## **1 General**

### **1.1 WORK INCLUDED**

- .1 Supply and install non-load bearing steel stud systems, and furring systems for interior walls and drywall work included in Section 09 21 16 - Gypsum Board Assemblies, all as indicated in the contract documents.
- .2 Supply and install metal blocking and bracing.

### **1.2 RELATED SECTIONS**

- .1 Section 09 21 16 - Gypsum Board Assemblies.
- .2 Division 23 - Heating, Ventilation and Air Conditioning (HVAC).
- .3 Division 26 - Electrical.

### **1.3 REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM).
  - .1 ASTM C645-00, Specification for Nonstructural Steel Framing Members.
  - .2 ASTM C754-00, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

### **1.4 QUALITY ASSURANCE**

- .1 Execute Work of this section by a Contractor who has adequate plant, equipment and skilled tradesman to perform it expeditiously, and who has been responsible for satisfactory installations similar to that specified, during a period of at least the immediate past three (3) years.
- .2 Attend pre-installation meeting to verify project requirements and manufacturer's installation.

### **1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times.

## **2 Products**

### **2.1 NON-LOAD BEARING WALL FRAMING**

- .1 Non-load bearing channel stud framing: to ASTM C645, stud sizes as noted on drawings, including 32, 64, 92 and 152mm stud sizes, roll formed from 0.84 mm (20 gauge) thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centers.
  - .2 Deflection for interior stud walls to be L/240 maximum.
  - .3 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
  - .4 Metal channel stiffener: 13 x 38 mm size, 1.4 mm (18 gauge) thick cold rolled steel, coated with rust inhibitive coating.
  - .5 Acoustical sealant: to CAN/CGSB-19.21 to perimeter of walls with acoustic insulation.
  - .6 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.
  - .7 Wall Reinforcement metal blocking: 14 ga. X 610 mm wide galvanized metal sheet reinforcement to ASTM A924 at locations including, but not limited to the following:
    - .1 All washroom accessories.
    - .2 Millwork.
    - .3 Zone valve boxes, fire hose cabinets and fire extinguisher cabinets.
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- .4 Wall-mounted door stops.
- .5 All other wall-mounted specialties, including Owner-supplied items.

## 2.2 STEEL STUDS

- .1 Steel Studs:
  - .1 ASTM C645, Galvanized sheet steel, minimum 0.531 mm (designation thickness 18mils/minimum base steel thickness 0.836 mm/colour-White/20 ga) thickness, zinc coating Z275, screw able with crimped web and returned flange, of depth shown in maximum continuous lengths practicable.
  - .2 Provide heavier gauges where required due to height.
- .2 Heavy Duty Studs at Openings and Unrestrained Height:
  - .1 ASTM C645, Galvanized sheet steel, minimum 1.087mm, 18ga thickness, zinc coating Z275, screw able with crimped web and returned flange, of depth shown in maximum continuous lengths practicable.
  - .2 Provide heavier gauges where unrestrained height exceeds 3600 mm.
- .3 Provide knockout openings in web at 460 mm oc to accommodate horizontal mechanical and electrical service lines and bracing.
- .4 Floor and Ceiling Partition Track for Gypsum Board:
  - .1 ASTM C645, Galvanized sheet steel, 0.836 mm /colour-White/20 ga) overall thickness zinc coating Z275, with minimum 30 mm legs, top track having longer legs where required to compensate for deflection of structure above.
  - .2 Width to suit metal studs.
- .5 Furring Channels:
  - .1 Galvanized sheet steel, minimum 0.914 mm (designation thickness 33mils/minimum base steel thickness 0.836 mm /colour-White/20 ga) overall thickness zinc coating Z275 screw channels, 67 mm wide x 22 mm deep.
- .6 Carrying Channels for Gypsum Board:
  - .1 ASTM C645, galvanized sheet steel, minimum 1.214 mm (designation thickness 43mils/minimum base steel thickness 1.087 mm /colour-yellow/18 ga) overall thickness zinc coating Z275, 38 mm high with 19 mm flanges, for primary carrying member in suspended ceilings and as horizontal stiffeners or bracing in metal stud systems.

## 3 Execution

### 3.1 ERECTION (NON-LOAD BEARING WALL FRAMING)

- .1 Align partition tracks at floor and ceiling and secure at 600 mm o.c. maximum.
- .2 Install dampproof course under stud shoe tracks of partitions on slabs on grade.
- .3 Place studs vertically at 400 mm o.c. and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .4 Erect metal studding to tolerance of 1:1000.
- .5 Attach studs to bottom track using screws. Do not fix top of studs to ceiling track.
- .6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
- .8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centers specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .9 Erect track at head of door/window openings and sills of sidelight/window openings to

- accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs. For door widths greater than 1219 mm, incorporate diagonal braced stud at head of opening.
- .10 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
  - .11 Install steel studs or furring channel between studs for attaching electrical and other boxes.
  - .12 Extend all partitions to underside of deck above except where noted otherwise on drawings. Where partitions occur under and parallel to ductwork, provide steel stud frames around ductwork to secure partition head. Maintain 12 mm clearance between ductwork, piping or equipment which might transmit vibration to metal framing.
  - .13 Maintain 19 mm clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 88 mm leg ceiling tracks.
  - .14 Install continuous insulating strips to isolate studs from uninsulated surfaces.
  - .15 Install two lines of stiffeners in partitions up to 2440 mm high and three lines in partitions over 3660 mm high. Install stiffeners snugly in knock out service holes, extended horizontally across entire length of each braced partition and across two full stud spaces at each side of door and screen openings. Wire stiffeners at splices.
  - .16 Install metal blocking for the attachment of accessories and equipment as required by individual sections and drawings. Blocking to be sized to suit vertically a minimum of 150 mm higher, 150 mm lower than the attachment points and horizontally a minimum of one stud beyond attachment point each way.
  - .17 Provide and install 18ga wall reinforcement metal sheet on all washroom walls secured to 'flanges' of steel studs with sheet metal screws. Locate bottom of metal sheet at 600 mm AFF.
  - .18 Install 75mm X 75mm metal angle blocking vertically to all non-90° corners for full height to 150 mm above ceiling and to all corners designated to receive corner guards for height of guard.
  - .19 Conform to manufacturer recommendations for installation of fire dampers.
  - .20 Provide diagonal bracing at maximum 1220mm o.c. at large door and screen openings 1200mm and wider in interior partitions between top of frame and floor structure above.

### 3.2 INSTALLATION

- .1 Metal Framing for Partitions:
  - .1 Comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation and recommendations of CGC Drywall Steel-Framed Systems for metal stud partition, ceiling, column fireproofing and bulkhead detailing.
  - .2 Install members true to lines and levels and to maintain surface flatness with maximum variation of 3 mm in 300 mm in any direction.
  - .3 Provide partition tracks at floor and underside of ceiling or structure above.
  - .4 Align accurately. Lay out to partition layout.
  - .5 Curved partitions: Erect partial height and curved partitions as indicated.
  - .6 Cut top and bottom runners through leg and web at 50 mm intervals for arc length.
  - .7 Bend runners to uniform curve of radius indicated and locate straight lengths tangent to arcs. Support outside (cut) leg of runners by clinching a 25 mm high x 0.914 mm (designation thickness 33mils/minimum base steel thickness 0.836 mm /colour-White/20 ga)thick sheet steel strip to inside of cut legs using metal lock fasteners.
  - .8 Attach studs to runners with 9.5mm long pan head framing screws.

- .9 On straight lengths at ends of arcs, place studs 150 mm on center with last stud left free standing.
- .10 Place studs vertically at 400 mm oc unless otherwise specified, not more than 50 mm from abutting walls, and at each side of openings and corners.
- .11 Position studs in tracks.
- .12 Cross brace studs as required to provide rigid installation.
- .13 Provide heavy duty double boxed studs at each side of openings to extend in 1 piece from floor to underside of structure above.
- .14 Co-ordinate erection of studs and installation of service lines.
- .15 Provide continuous gasket to separate metal framing from masonry and concrete.
- .16 Do not secure studs to exterior window framing, or to ceiling grid members.
- .17 Provide continuous gasket between ceiling and floor tracks, and structure.
- .2 Access Doors and Panels:
  - .1 Install access doors and panels where required as part of work of this Section in walls, bulkheads, ceilings and soffits.
  - .2 Cooperate and coordinate delivery of access doors and panels supplied as part of work of Divisions 21, 22. 23. 24 and 26.
  - .3 Install access doors and panels supplied as part of work of Divisions 21, 22. 23. 24 and 26 in walls, bulkheads, ceilings and soffits.

### 3.3 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

## **1 General**

### **1.1 SUMMARY**

- .1 Provide resilient base including but not limited to following:
  - .1 Surface fillers, primer and adhesive.
  - .2 Resilient base as indicated as the base on the drawings.
  - .3 Millwork profile resilient wall base.

### **1.2 RELATED SECTIONS**

- .1 Following description of work is included for reference only and shall not be presumed to be complete:
  - .1 Section 07 92 00 - Joint Sealants.
  - .2 Section 09 65 19 - Resilient Tile Flooring.
  - .3 Section 09 68 13 - Carpeting.

### **1.3 REFERENCES**

- .1 ASTM F1861-02 - Standard Specification for Resilient Wall Base.
- .2 CAN/CSA-A126.5-87, Resilient Wall Base.
- .3 ASTM F2170-02 -Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

### **1.4 SUBMITTALS**

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's literature, data sheets for each type of material provided under this Section for Project.
  - .2 Data sheets shall provide all required information.
  - .3 Submit required copies of detailed instructions for maintaining, preserving and keeping materials in clean and safe conditions and give adequate warning of maintenance practices or materials detrimental to specified materials.
  - .4 Submit manufacturer's installation instructions.
- .3 Data sheets:
  - .1 Submit manufacturer's data sheets for each type of resilient base, resilient base adhesive, surface fillers and primers.
  - .2 Data sheets shall provide all required information.
- .4 Material Safety Data Sheets:
  - .1 Submit MSDS for inclusion in Operation and Maintenance Manual for adhesives and sealants.
- .5 Samples:
  - .1 Submit duplicate 610 mm long sample of each type of resilient bases.
- .6 Operating and Maintenance Instructions Manual:
  - .1 Provide maintenance data for resilient bases for incorporation into maintenance manual specified in Section 01 78 00 - Closeout Submittals.

### **1.5 QUALITY ASSURANCE**

- .1 Qualifications:
    - .1 Surface burning characteristics to CAN/ULC-S102.2-M. Flame Spread 25 or less; Smoke Developed 50 or less.
  - .2 Pre-Construction Meeting:
    - .1 Prior to start of work, arrange for project site meeting of all parties associated with work of this Section, including Contractor, resilient base installer, trade or
-

- substrates to which flooring is applied and manufacturer's representative.
- .2 Review Specification for work included under this Section and determine complete understanding of requirements and responsibilities relative to work included, storage and handling of materials, materials to be used, installation of materials, sequence and quality control, project staffing, restrictions on areas of resilient base installation and other matters affecting construction, to permit compliance with intent of this Section.
- .3 Site Sample Mock-Up Area:
  - .1 Install minimum 3600 mm long sections of each type of resilient base as directed at the site by Consultant.
  - .2 Do not proceed with resilient base work until quality control Mock-Up has been reviewed and accepted by Consultant.
  - .3 Reviewed and accepted quality control Mock-Up shall be retained and serve as minimum acceptable standard for the resilient base work.
  - .4 Quality control Mock-Up shall be incorporated into finished resilient base work if so accepted by Consultant.

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver materials in good condition to site in manufacturer's original unopened containers that bears name and brand of manufacturer, project identification, shipping and handling instructions.
- .2 Store on site in designated space at minimum temperature of 20 deg C for period of 48.

#### **1.7 PROJECT CONDITIONS**

- .1 Provide each flooring Product in accordance with manufacturer's recommended tolerances for:
  - .1 Substrate moisture content.
  - .2 Temperature and ventilation.
  - .3 Maintain Relative Humidity at application to % recommended by manufacturer when tested in accordance with ASTM F2170, Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- .2 Environmental Requirements: Air temperature and structural base temperature at base installation are shall be above 20 deg C for 72 hours before, during and 48 hours after installation.
- .3 Allow base materials and application adhesives to acclimatize to these temperatures for 48 hours.

#### **1.8 WARRANTY**

- .1 Warranty resilient bases for a period of 3 years from date of Substantial Performance of the Work against defects and/or deficiencies in accordance with General Conditions of the Contract.
- .2 Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no expense to Owner.
- .3 Defects include but are not limited to; failure in adhesive bond and extensive colour fading.

#### **1.9 MAINTENANCE MATERIALS**

- .1 Extra Materials: Supply to Owner at completion of job 6000 mm of coil stock of each type of resilient base in colours specified for future repairs, boxed in original containers and clearly labeled.
  - .2 Extra stock shall be same production run as installed products.
  - .3 Store extra stock in location as directed later by Consultant.
-

## 1.10 WASTE MANAGEMENT AND DISPOSAL

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A weekly clean-up is mandatory and is to be undertaken the day prior to job site meeting.

## 2 Products

### 2.1 MATERIALS

- .1 Resilient Base:
  - .1 PVC- Free: Supply rubber cove base 3 mm thick x 100 mm high, vulcanized rubber, in coil lengths, top set with coved toe with pre-manufactured inside and outside corners.
  - .2 Base shall meet performance and dimensional requirements of ASTM F-1861, Type TS, PVC free, Group 1, Class C Fire Resistance Rating.
  - .3 Colours selected by Consultant from manufacturer's full range including designer colours.
  - .4 Acceptable Materials:
    - .1 "Rubber Wall Base" by Johnsonite Division of Duramax Inc.; [www.johnsonite.com](http://www.johnsonite.com)
    - .2 "Marathon Rubber Cove Base" by American Biltrite (Canada) Ltd., [www.american-biltrite.com](http://www.american-biltrite.com)
    - .3 "Pinnacle Rubber Wall Base" by Roppe.; [www.roppe.com](http://www.roppe.com)
    - .4 "Wallflowers Rubber Wall Base" Flexco; [www.flexcoFloor.com](http://www.flexcoFloor.com)
    - .5 Amtico "Marathon Classic"
- .2 Surface fillers and primers:
  - .1 Types and brands approved, acceptable to resilient base manufacturers for applicable conditions. Use non-shrinking latex compound.
- .3 Resilient base adhesives:
  - .1 Waterproof, clear setting type and brands as recommended by resilient base manufacturer.

## 3 Execution

### 3.1 EXAMINATION

- .1 Examine wall surfaces to ensure that they are dry, clean, level and free from cracks, ridges a dusting, scaling and carbonation, which might preclude a satisfactory installation.
- .2 Remove irregularities and fill depressions with non-shrinking latex (epoxy) compound.
- .3 This Subcontractor shall check that the primer, adhesive and filler of this section are compatible. Report in writing, all errors, defects and discrepancies immediately to Consultant.
- .4 Do not commence with work until unsatisfactory conditions have been corrected.
- .5 Failure to report unsatisfactory conditions will be construed acceptance and approval of substrate conditions.
- .6 Commencement of work shall imply acceptance of substrate with regard to conditions of substrate at time of installation.

### 3.2 INSTALLATION

- .1 Resilient base work shall be performed by experienced and competent workers in strict accordance with manufacturers written instructions for material concerned.
  - .2 Fill cracks or irregularities with crack filler approved by resilient base manufacturer.
-

- .3 Provide a solid backing over entire area behind resilient base.
- .4 Apply primer in strict accordance with manufacturer's written instructions.
- .5 Permit primer to dry.
- .6 Apply adhesive evenly and continuously with an approved notch tooth spreader at the recommended rate for full base adhesion and contact.
- .7 Mechanical spreader not approved.
- .8 Do not apply adhesive in a manner which promotes induced waviness in resilient base.
- .9 Do not spread more adhesive than can be covered before initial set takes place.
- .10 Use waterproof adhesive throughout.
- .11 Mix and spread adhesive evenly, in quantities which can be covered by resilient base within the adhesive's working time.
- .12 If the adhesive over-dries, completely remove it using solvents compatible with adhesive and re-apply adhesive.
- .13 Do not soil walls, bases, fitments, finish carpentry work or adjacent surfaces with adhesive.
- .14 Promptly remove all excess and spillage of adhesive.
- .15 Unroll coils of resilient base.
- .16 Place resilient base flat to loosen coil set.
- .17 Set wall base in adhesive tightly against wall and floor surfaces.
- .18 Use lengths as long as practicable and not less than 500 mm long.
- .19 Install resilient bases to walls, columns and fitments as indicated on the Drawings, during final stages of completion of work, when permanent partitions are finished, when prime paint coats are applied and when surface conditions are suitable for installation.
- .20 Set resilient base in adhesive to produce a positive, permanent bond without gaps, tight against vertical and floor surfaces for a uniform fit.
- .21 Install resilient base straight and level with maximum height variation of 1:1000, having vertical, tight and flush "hairline" butt joints with no two joints closer than 610mm apart.
- .22 Provide mitred internal corners.
- .23 External corners shall be wrapped around corners as sharp as possible by scoring the back.
- .24 Install pre-molded end stops where end of base is exposed or does not butt against a vertical surface in the finished work.
- .25 Accurately scribe and fit resilient base to metal frames and other obstructions.
- .26 Roll resilient base with clean, polished 2.27 kg roller, against vertical and floor surfaces to ensure full bonding to surfaces.
- .27 Ensure that installation of resilient base is tight, firm, and free of bubbling and separation of any kind from surfaces.
- .28 Remove defective installation as directed by Consultant and install new resilient base as specified herein.
- .29 Resilient base work shall be handed over to Owner free of blemishes and in perfect condition.

### 3.3 CLEANING

- .1 Remove excess adhesive from floor, base and wall surfaces without damage.
- .2 Clean, seal and wax floor and base surface to flooring manufacturer's instructions.

END OF SECTION

## **1 General**

### **1.1 SUMMARY**

- .1 The work of this Section comprises the furnishing of all equipment, labour and materials necessary for the supply and installation of the following, including all accessories, as specified in this Section and indicated on the Finish Schedule and Drawings:
  - .1 Vinyl composition tile in all rooms where vinyl composition tile (VCT) is indicated as the floor material on the Drawings.
  - .2 Preparation of sub-floor to receive VCT, including filling of saw-cut control joints.
- .2 The substrate for the VCT will be:
  - .1 Existing concrete slab on grade.

### **1.2 RELATED WORK**

- .1 Section 09 68 13 - Carpeting.

### **1.3 REFERENCES**

- .1 CSA-A126.1-M1984, Vinyl Composition Floor Tile.
- .2 CAN/ULC-S102-2-M88, Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies..
- .3 CGSB 25-GP-21M-78, Floor Polish, Water Emulsion, Detergent Resistant, Non-buffable.

### **1.4 SAMPLES**

- .1 Submit samples complete with full range of available colors in accordance with Section 01 33 00 - Submittal Procedures.

### **1.5 MAINTENANCE DATA**

- .1 Provide data for maintenance of resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals..

### **1.6 MAINTENANCE MATERIAL**

- .1 Deliver 2% of each color, pattern and type flooring material including base required for this project for maintenance use. Identify each box. Store where directed by Owner.
- .2 Maintenance materials to be of same production run as installed materials.

### **1.7 ENVIRONMENTAL REQUIREMENTS**

- .1 Maintain air temperature and structural base temperature at flooring installation area above 20 C for 48 hours before, during and for 48 hours after installation..

### **1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times.

## **2 Products**

### **2.1 MATERIALS**

- .1 Vinyl composition tile (VCT):
    - .1 To CSA A-126.1 and CAN/ULC-S102.2
    - .2 Type: A
    - .3 Fire test data:
      - .1 Flame spread: 75 or less
      - .2 Smoke developed: 300 or less
-

- .4 Size: 457 mm x 457 mm.
- .5 Thickness: 4 mm
- .6 Pattern: ship lap & square.
- .7 Texture: smooth
- .8 Color: 'Grey Slateas' (FF203).
- .9 Acceptable Materials:
  - .1 Majestic; Freefit.
- .2 Primers and adhesives:
  - .1 As recommended by resilient flooring manufacturer for specific installation, except products with VOC's not permitted..
- .3 Sub-floor filler and leveler: while premix latex requiring water only to produce cementitious paste.
- .4 Edge strips: extruded or formed metal.
  - .1 VCT-to-Carpet by Section 09 68 13 - Carpeting.
- .5 Sealer: type recommended by flooring manufacturer.
- .6 Wax: type recommended by flooring manufacturer.

### **3 Execution**

#### **3.1 INSPECTION**

- .1 Ensure concrete floors are dry using test methods recommended by flooring manufacturer, and exhibit negative alkalinity, carbonization or dusting.

#### **3.2 SUB-FLOOR TREATMENT**

- .1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, saw-cut control joints and other defects with sub-floor filler.
- .2 Clean floor and apply filler, trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured.
- .3 Seal concrete to flooring manufacturer's recommendations.

#### **3.3 FLOORING-APPLICATION GENERAL**

- .1 Lay flooring in strict accordance with manufacturer's printed instructions for substrate over which material is being laid.
- .2 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half width of tile.
- .3 Install flooring in staggered grid pattern with continuous joints and pattern grain parallel for all units and parallel to width or room.
- .4 Roll flooring to ensure full adhesion in accordance with flooring manufacturer's recommendations.
- .5 Cut flooring neatly around fixed objects.
- .6 Install flooring in pan type floor access covers. Maintain floor pattern.
- .7 Terminate flooring at centerline of door openings where adjacent floor finish or color is dissimilar.
- .8 Install metal edge strips at unprotected or exposed edges where flooring terminates and between flooring and dissimilar materials.

#### **3.4 CLEANING AND WAXING**

- .1 Remove excess adhesive from floor, base and wall surfaces without damage.
- .2 Clean, seal and wax floor surface to flooring manufacturer's instructions.

#### **3.5 PROTECTION OF FINISHED WORK**

- .1 Protect new floors from after initial waxing until just before final waxing and final

- inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

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## 1 General

### 1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 78 00 - Closeout Submittals.
- .3 Section 09 65 16 - Resilient Sheet Flooring.
- .4 Section 09 65 19 - Resilient Tile Flooring.

### 1.2 REFERENCES

- .1 American Association of Textile Chemists and Colorists (AATCC)
    - .1 AATCC 16-1998, Color Fastness to Light.
    - .2 AATCC 23-1999, Color Fastness to Burn Gas Fumes.
    - .3 AATCC 118-1997, Oil Repellency: Hydrocarbon Resistance Test.
    - .4 AATCC 129-2001, Color Fastness to Ozone in the Atmosphere Under High Humidities.
    - .5 AATCC 134-2001, Electrostatic Propensity of Carpet.
    - .6 AATCC 171-2000, Carpets: Cleaning of; Hot Water Extraction Method.
    - .7 AATCC 174-1998, Antimicrobial Activity Assessment of Carpets.
    - .8 AATCC 175-1998, Stain Resistance: Pile Floor Coverings.
    - .9 AATCC 189-2001, Fluorine Content of Carpet Fibers.
  - .2 American Society for Testing and Materials (ASTM International)
    - .1 ASTM D1055-97, Specification for Flexible Cellular Materials - Latex Foam.
    - .2 ASTM D1335-98, Tuft Bind of Pile Floor Coverings.
    - .3 ASTM D1667-97, Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
    - .4 ASTM D3936-00 Standard Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Covering.
    - .5 ASTM D5252-98a, Standard Practice for the Operation of the Hexapod Drum Tester.
    - .6 ASTM D5417-99, Standard Practice for Operation of the Vettermann Drum Tester.
    - .7 ASTM E84-01, Test Method for Surface Burning Characteristics of Building Materials.
    - .8 ASTM E648-00, Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
    - .9 ASTM E662-01, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
  - .3 Canadian General Standards Board (CGSB)
    - .1 CAN/CGSB-4.2 No.27.6-M91, Textile Test Methods - Flame Resistance - Methemine Tablet Test for Textile Floor Coverings.
    - .2 CAN/CGSB-4.2 No.77.1-94/ISO 4919:1978, Textile Test Methods - Carpets - Determination of Tuft Withdrawal Force.
    - .3 CGSB 4-GP-36M-78, Carpet Underlay, Fiber Type.
    - .4 CAN/CGSB-4.129-93(R1997), Carpets for Commercial Use.
    - .5 CGSB 20-GP-23M-78, Cushion, Carpet, Flexible Polymeric Material.
    - .6 CAN/CGSB-25.20-95, Surface Sealer Floors.
  - .4 Carpet and Rug Institute (CRI)
    - .1 CRI-104-96, Standard Installation of Commercial Carpet.
    - .2 IAQ Carpet Testing Program.
  - .5 National Floor Covering Association (NFCA)
-

- .1 Floor Covering Specification Manual 1998.
- .6 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-88(R2000), Surface Burning Characteristics of Building Materials and Assemblies.
  - .2 CAN/ULC-S102.2-88(R2000), Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.

### 1.3 SUBMITTALS

- .1 Submit control submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit verification to demonstrate compliance with CAN/ULCS102.
- .3 Submit proof that carpet has been tested and passed the Indoor Air Quality (IAQ) Carpet Testing Program requirements of the Carpet and Rug Institute (CRI) and the Canadian Carpet Institute (CCI).
- .4 Submit report verifying that tuft bind meets requirements of CAN/CGSB-4.129 when tested to CAN/CGSB-4.2 No.77.1.
- .5 Submit report outlining proposed dust control measures.
- .6 Submit carpet schedule using same room designations indicated on drawings.
- .7 Submit carpet manufacturer's installation instructions: Indicate special procedures and perimeter conditions requiring special attention.
- .8 Submit certification and description of carpet reclamation process.

### 1.4 PRODUCT DATA

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit product data sheet for each carpet, adhesive, carpet protection and subfloor patching compound.
- .3 Submit WHMIS MSDS - Material Safety Data Sheets acceptable to Labour Canada and Health Canada for carpet adhesive. Indicate VOC content.
- .4 Submit data on specified products, describing physical and performance characteristics, sizes, patterns, colours, and methods of installation.

### 1.5 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Contractor to verify on site that existing tile matches sample tile provided as part of the shop drawing submission approval process.
- .3 Submit drawings showing columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required as well as pattern, location of edge moldings and edge bindings to Departmental Representative for review prior to installation of carpet.

### 1.6 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate 600 x 600 mm pieces of each color of carpet specified.

### 1.7 CLOSEOUT SUBMITTALS

- .1 Submit operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .2 Submit maintenance data: Include maintenance procedures, recommendations for maintenance materials and equipment, and suggested schedule for cleaning.

### 1.8 QUALIFICATIONS

- .1 Installer Qualifications:
  - .2 Flooring contractor requirements.
-

- .1 Specialty contractor normally engaged in this type of work, with prior experience in installation of these types of materials.
- .2 Certified by carpet manufacturer prior to tender submission.
- .3 Must not sub-contract labour without written approval of Departmental Representative.
- .3 Be responsible for proper product installation, including floor testing and preparation as specified and in accordance with carpet manufacturers written instructions.

#### **1.9 REGULATORY REQUIREMENTS**

- .1 Prequalification: compliance with Department of Consumers and Corporate Affairs regulations under "Hazardous Products Act", Part II of the Schedule.
- .2 Indoor Air Quality: compliance with CRI/CCI Green Label Indoor Air Quality Program, CRI/CCI-IAQ requirements for maximum total volatile chemicals released into air. Label each carpet product with CRI/CCI-IAQ label.

#### **1.10 DELIVERY, STORAGE AND HANDLING**

- .1 Label packaged materials. For carpet tile products indicate nominal dimensions of tile and indicate installation direction.
- .2 Store packaged materials in original containers or wrapping with manufacturer's seals and labels intact.
- .3 Store carpet and adhesive at minimum temperature of 18°C and relative humidity of maximum 65% for minimum of 48 hours before installation.
- .4 Prevent damage to materials during handling and storage. Keep materials under cover and free from dampness.
- .5 Store materials in area of installation for minimum period of 48 hours prior to installation.
- .6 Modular carpet: store on pallet form as supplied by Manufacturer. Do not stack pallets.

#### **1.11 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal, and with Waste Reduction Workplan.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.
- .4 Vacuum used carpet before removal.
- .5 Maintain possession of removed used carpet.
- .6 Remove used broom in large pieces, roll tightly and pack in container. Use effective packing techniques to maximize amount of material in container. Do not stack carpet tile higher than 1800 mm high.

#### **1.12 ENVIRONMENTAL REQUIREMENTS**

- .1 Moisture: Ensure substrate is within moisture limits and alkalinity limits prescribed by manufacturer. Prepare moisture testing and provide report to Departmental Representative.
- .2 Temperature: Maintain ambient temperature of not less than 18 °C from 48 hours before installation to at least 48 hours after completion of work.
- .3 Relative humidity: Maintain relative humidity between 10 and 65% RH for 48 hours before, during and 48 hours after installation.
- .4 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
- .5 Ventilation:
  - .1 Departmental Representative will arrange for ventilation system to be operated

during installation of carpet.

- .2 Ventilate enclosed spaces in accordance with PWGSC Temporary Hoarding & Venting Guidelines. Provide fans with HEPA filters as needed.
- .3 Provide continuous ventilation during and after carpet application. Run ventilation system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of carpet installation.
- .6 Do not install carpet work above ceilings is complete.

### **1.13 EXTRA MATERIALS**

- .1 Provide extra materials of carpet, carpet base, and adhesives in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide 5% of net amount of tile required to complete the work as noted.
- .3 Extra materials to be from same production run as installed materials.
- .4 Identify each package of carpet and each container of adhesive.
- .5 Deliver to site and store where directed by Departmental Representative.

## **2 Products**

### **2.1 MANUFACTURERS**

- .1 Certified to Carpet and Rug Institute's and the Canadian Carpet Institute IAQ requirements.

### **2.2 MODULAR CARPET**

- .1 Acceptable material:
  - .1 Interface, Urban Grid; color Gold, Champagne & Brown.
  - .2 Carpet color to match existing carpet per zone (refer to Drawings).

### **2.3 SPECIAL REQUIREMENTS**

- .1 Soil Resistance: 350 ppm fluorine minimum.
- .2 Permanent static control: to AATCC 134, 3000V maximum at 20%RH and 22°C.
- .3 Anti-microbial: to AATCC 174, 99% reduction, 0% growth.
- .4 Stain resistance: to AATCC 175, 8.

### **2.4 ACCESSORIES**

- .1 Not applicable.

## **3 Execution**

### **3.1 DEMOLITION**

- .1 Remove and divert existing carpet for reuse in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal, and with Waste Reduction Workplan. Coordinate with Departmental Representative.

### **3.2 SUB-FLOOR TREATMENT**

- .1 Existing raised steel panel floor to be inspected and levelled as required for proper installation of non tile flooring.
- .2 Any and all existing carpet glue left from demo work to be removed.

### **3.3 PREPARATION**

- .1 Prepare floor surfaces in accordance with CRI 104 Standard for Installation of Commercial Carpet.
  - .2 Pre-condition carpeting following manufacturer's printed instructions.
-

### **3.4 INSTALLATION**

- .1 Install carpet in accordance with manufacturer's printed instructions and in accordance with Carpet and Rug Institute Standard for Installation of Commercial Carpet.
- .2 Install carpet after finishing work is completed but before office furniture is installed.
- .3 Finish installation to present smooth wearing surface.
- .4 Use material from same dye lot. Ensure colour, pattern and texture match within any one visual area. Maintain proper tile direction.
- .5 Fit neatly around architectural, mechanical, electrical and telephone outlets into recesses and around projections.
- .6 Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- .7 Install carpet smooth and free of bubbles, puckers, and other defects.

### **3.5 CARPET BINDER BARS**

- .1 Install binder bars at exposed carpet edges and centre under doors in door openings.
- .2 Provide metal thresholds as required for floor to floor transitions.

### **3.6 BASE INSTALLATION**

- .1 Lay out base to keep number of joints at minimum.
- .2 Set base on adhesive tightly, using 3kg hand roller, against wall and floor surfaces.
- .3 Install straight and level to variation of 1:1000.
- .4 Scribe and fit to door frames and other obstructions.
- .5 Cope internal corners.

### **3.7 PROTECTION OF FINISHED WORK**

- .1 Vacuum carpets clean immediately after completion of installation. Protect traffic areas.
- .2 Prohibit traffic on carpet for a period of 24 hours until adhesive is cured.
- .3 Install carpet protection to satisfaction of Departmental Representative.

END OF SECTION

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## 1 General

### 1.1 SUMMARY

- .1 Work Included: Provide painting including but not limited to following:
  - .1 Interior:
    - .1 Exposed building surfaces as indicated on Room Finish Schedules.
    - .2 Hollow metal doors, frames and transom panels.
    - .3 Edges of plastic laminated wood doors and trim of lites in same doors.
    - .4 Wood doors including trim of lites in same doors.
    - .5 Borrowed light frames.
    - .6 Glazed screen frames, mullions and closures.
    - .7 Glazing stops in wood doors.
    - .8 Exposed miscellaneous metal and steel items for the work of all trades, including hangers, etc., for mechanical and electrical works.
    - .9 Gypsum board bulkheads and enclosures.
    - .10 Mechanical and electrical backboards.
    - .11 Access panels and doors.
    - .12 Screens.
    - .13 Wood fitments unless plastic laminated as noted.
    - .14 Conduit, piping, ductwork, light panels, etc. exposed to view in areas listed as painted on the Room Finish Schedule.
    - .15 Finish painting of prime painted diffusers, registers and grilles in exposed locations.

### 1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 61 00 - Material and Equipment.
- .4 Section 01 77 00 - Closeout Procedures.
- .5 Section 05 50 00 - Metal Fabrications.
- .6 Section 06 41 00 - Architectural Wood Casework.
- .7 Section 08 11 13 - Hollow Metal Doors and Frames.
- .8 Section 08 14 16 - Flush Wood Doors.
- .9 Section 09 21 16 - Gypsum Board Assemblies.
- .10 Mechanical Sections.
- .11 Electrical Sections.

### 1.3 REFERENCES

- .1 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33
  - .2 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
    - .1 Material Safety Data Sheets (MSDS).
  - .3 Master Painters Institute (MPI)
    - .1 MPI Architectural Painting Specifications Manual, 2004.
  - .4 National Fire Code of Canada - 1995
  - .5 Society for Protective Coatings (SSPC)
    - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

### 1.4 QUALITY ASSURANCE

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- .1 Qualifications:
  - .1 Contractor: minimum of five years proven satisfactory experience.
- .2 Pre-Installation Meeting:
  - .1 Attend pre-installation meeting one week prior to beginning work of this Section.
    - .1 Verify project requirements.
    - .2 Review installation and substrate conditions.
    - .3 Coordination with other building subtrades.
    - .4 Review quality expectations.
  - .2 Standard of Acceptance:
    - .1 Walls: No defects visible from a distance of 1000 mm at 900 to surface.
    - .2 Final coat to exhibit uniformity of color and uniformity of sheen across full surface area.

## 1.5 HEALTH AND SAFETY

- .1 Occupational Health and Safety in accordance with Section 01 35 29 - Health, Safety, and Emergency Response Procedures.

## 1.6 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

- .1 Environment Choice Program:
  - .1 Provide paint products certified to meet the requirements of the Environmental Choice Program, Department of the Environment.
  - .2 Submit CSA Certification Reports that products proposed for use are certified under the Environmental Choice Program.

## 1.7 QUALITY CONTROL

- .1 Provide mock up in accordance with Section 01 45 00 - Quality Control.
- .2 Prepare and paint one (1) designated wall of one (1) room to requirements specified herein, with specified paint with selected colors, gloss/sheen, textures and workmanship to MPI Painting Specification Manual standards for review and approval.
- .3 When approved, surface, area, room and/or items shall become acceptable standard of finish quality and workmanship for similar on site work.

## 1.8 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's literature, data sheets for each type of material provided under this Section for Project. Data sheets shall provide all required information. Submit manufacturer's installation instructions.
  - .2 Material Safety Data Sheets: Submit MSDS for inclusion in Operation and Maintenance Manual without limitations for adhesives, sealants, patching and leveling compound, solid polymer and as designated later by Departmental Representative.
  - .3 Samples:
    - .1 Submit full range color sample chips to indicate where color availability is restricted.
  - .4 Manufacturer's Instructions:
    - .1 Submit manufacturer's installation and instructions.
  - .5 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals include following:
    - .1 Product name, type and use.
    - .2 Manufacturer's product number.
      - .1 Color numbers and associated locations.

### 1.9 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in original containers, sealed, with labels intact.
- .3 Labels shall clearly indicate:
  - .1 Manufacturer's name and address.
  - .2 Type of paint or coating.
  - .3 Compliance with applicable standard.
  - .4 Color number in accordance with established color schedule.
- .4 Remove damaged, opened and rejected materials from site.
- .5 Provide and maintain dry, temperature controlled, secure storage.
- .6 Observe manufacturer's recommendations for storage and handling.
- .7 Store materials and supplies away from heat generating devices.
- .8 Store materials and equipment in a well ventilated area with temperature range 7°C to 25°C.
- .9 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .10 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative.
- .11 Remove paint materials from storage only in quantities required for same day use.
- .12 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

### 1.10 FIRE SAFETY REQUIREMENTS

- .1 Provide one - 3kg Type ABC 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.

### 1.11 SITE CONDITIONS

- .1 Environmental Requirements: Paint and finish in clean, dust-free, properly ventilated and adequately lit areas (minimum 100 lx (9.3 ft candles).
- .2 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".
- .3 Perform no painting work when maximum moisture content of substrate exceeds:
  - .1 15% for wood.
  - .2 12% for gypsum board.
- .4 Surface and Environmental Conditions:
  - .1 Apply paint finish only 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 only to adequately prepared surfaces and to surfaces within moisture limits noted herein.
  - .3 Apply paint only when previous coat of paint is dry or adequately cured.
  - .4 Apply paint finishes only when conditions forecast for entire period of application fall within manufacturer's recommendations.
  - .5 Paint occupied facilities in accordance with approved schedule only. Schedule operations to approval of the Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

### **1.12 EXTRA MATERIAL**

- .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit one - one liter can of each type and color of primer, identified color and paint type in relation to established color schedule and finish system.
- .3 Deliver and store where directed.

### **1.13 SCHEDULING OF THE WORK**

- .1 Submit work schedule for various stages of painting to Departmental Representative for approval. Submit schedule minimum of 48 hours in advance of proposed operations.
- .2 Obtain written authorization from Departmental Representative for changes in work schedule.
- .3 Schedule painting operations to prevent disruption of occupants in and about the building.

### **1.14 WARRANTY**

- .1 Warrant work of this Section for period of 2 years against defects and/or deficiencies in accordance with General Conditions of the Contract.
- .2 Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Departmental Representative and at no expense to Owner.
- .3 Defects include but are not limited to; material shrinkage, cracking, splitting and defective workmanship including but are not limited to failure in bubbling, blistering and delamination.

### **1.15 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times.
- .4 Separate for reuse and place in designated containers steel waste in accordance with Waste Management Plan.
- .5 Handle and dispose of hazardous materials in accordance with CEPA, regulations.
- .6 Unused paint materials must be disposed of at official hazardous material collections site.

## **2 Products**

### **2.1 MATERIALS**

- .1 Provide paint materials for paint systems from single manufacturer.
  - .2 Conform to latest MPI requirements for painting work including preparation and priming.
  - .3 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.
  - .4 Provide paint products meeting MPI "Environmentally Friendly", E2 ratings based on VOC (EPA Method 24) content levels.
  - .5 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
  - .6 Water-borne surface coatings and recycled water-borne surface coatings must have a flash point of 61.00C or greater.
  - .7 Both water-borne surface coatings and recycled water-borne surface coatings must be made by a process that does not release:
    - .1 Matter in undiluted production plant effluent generating a 'Biochemical Oxygen
-

- Demand' (BOD) in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.
- .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.
  - .8 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes must meet a minimum "Environmentally Friendly" E2 rating.
  - .9 Recycled water-borne surface coatings must contain 50 % post-consumer material by volume.
  - .10 Recycled water-borne surface coatings must not contain:
    - .1 Lead in excess of 600.0 ppm weight/weight total solids.
    - .2 Mercury in excess of 50.0 ppm weight/weight total product.
    - .3 Cadmium in excess of 1.0 ppm weight/weight total product.
    - .4 Hexavalent chromium in excess of 3.0 ppm weight/weight total product.
    - .5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.
  - .11 The following must be performed on each batch of consolidated post-consumer material before surface coating is reformulated and canned. These tests must be performed at a laboratory or facility which has been accredited by the 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 Vapor Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
  - .12 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique No. 8081 as defined in EPA SW-846.
  - .13 Painting products: except where specifically specified otherwise all paint to be latex base with the following manufacturer's product lines as Acceptable Material for use on this project.
    - .1 PPG - Pure Performance - 0 VOC.
    - .2 Benjamin Moore - Genex - 0 VOC.
    - .3 Glidden Lifemaster 2000 - 0 VOC.
    - .4 Primers
      - .1 Latex as recommended by paint manufacturer except where specifically indicated otherwise.

## 2.2 COLOURS

- .1 Departmental Representative will provide Color Schedule after Contract award.
- .2 Color schedule will be based upon selection of two (2) base colors and one (1) accent colors. Allow for one (1) deep base colors for base and accent colors.
- .3 Selection of colors from manufacturers full range of colors.
- .4 Second coat in three coat system to be tinted slightly lighter color than top coat to show visible difference between coats.

## 2.3 MIXING AND TINTING

- .1 Perform color tinting operations prior to delivery of paint to site in strict accordance with manufacturer's written instructions.
- .2 Paste, powder or catalyzed paint mixes shall be mixed
- .3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.
- .4 Thin paint for spraying according in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from

- .5 manufacturer and provide copy of instructions to Departmental Representative.  
 Re-mix paint prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color 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 | 10 to 25    10 to 35 | 20 to 35    min. 35  |
| Gloss Level 5 | 20 to 35    min. 35  | 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 as indicated.

**2.5 INTERIOR PAINTING SYSTEMS**

- .1 Galvanized metal: doors, frames, railings, misc. steel, pipes, overhead decking, and ducts.
  - .1 INT 5.3A - Latex gloss level 5-semi-gloss finish.
- .2 Dressed lumber: including doors, door and window frames, casings, mouldings:
  - .1 INT 6.3T - Latex semi-gloss finish (over latex primer).
- .3 Gypsum board: gypsum wallboard, drywall, "sheet rock type material":
  - .1 INT 9.2A - Latex gloss level 3-eggshell finish (over latex sealer).

**3 Execution**

**3.1 TOPCOAT AND INTERMEDIATE COAT THICKNESSES**

- .1 Latex & Acrylics (Interior): 0.03 mm (1.2 mils) DFT/coat.

**3.2 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.

**3.3 GENERAL**

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

**3.4 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 unfavorable 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.

### 3.5 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.
  - .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.
- .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
  - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalies, 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 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
- .6 Apply wood filler to nail holes and cracks.
- .7 Tint filler to match stains for stained woodwork.
- .8 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.

### 3.6 APPLICATION

- .1 Method of application to be as approved by Departmental Representative.
- .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.
  - .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 Spray application:
  - .1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
  - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
  - .3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
  - .4 Brush out immediately all runs and sags.

- .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.
- .4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 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.
- .9 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .10 Finish closets and alcoves as specified for adjoining rooms.
- .11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

### **3.7 MECHANICAL/ELECTRICAL EQUIPMENT**

- .1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with color and finish to match adjacent surfaces, except as indicated.
- .2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- .3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Keep sprinkler heads free of paint.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matte black paint.
- .8 Paint fire protection piping red.
- .9 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .10 Paint natural gas piping yellow.
- .11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
- .12 Do not paint interior transformers and substation equipment.
- .13 Mechanical and electrical panel covers are to be sanded and spray painted. Color to be confirmed. Mechanical and electrical covers located in electrical, mechanical and service rooms are to remain factory finish.

### **3.8 FIELD QUALITY CONTROL**

- .1 Advise Departmental Representative when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .2 Cooperate with inspection firm and provide access to areas of work.
- .3 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.

### **3.9 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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