
PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM C 1396/C 1396M-17, Standard Specification for Gypsum Wallboard.
 - .2 ASTM C 475/C 475M-15, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .3 ASTM C 645-14E1, Standard Specification for Nonstructural Steel Framing Members.
 - .4 ASTM C 754-17, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 - .5 ASTM C 840-17A, Standard Specification for Application and Finishing of Gypsum Board.
 - .6 ASTM C 954-15, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.122 in. (2.84 mm) in Thickness.
 - .7 ASTM C 1002-16, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - .8 ASTM C 1047-14A, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - .9 ASTM C 1178/C 1178M-13, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.
- .2 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-07, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in
-

original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

- .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 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 partition materials from nicks, scratches, and blemishes.
- .5 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Non-structural Metal Framing:

- .1 Non-load bearing channel stud framing: to ASTM C 645, stud size as indicated on drawings, roll formed 0.53 mm thickness for stud lengths up to 3500 mm, 0.91 mm thickness for stud length greater than 3500 mm, hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
- .2 Floor and ceiling tracks: to ASTM C 645, in widths to suit stud sizes, 32 mm flange height.
- .3 Metal channel stiffener: 19 x 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.
- .4 CH-Studs: Galvanized steel; stud size as indicated, 0.531 mm minimum metal thickness as selected from stud manufacturer's published limiting height table; unspliced lengths, as required, providing continuous edge support for liner board edges; to ASTM C645.

.2 Gypsum Board:

- .1 Standard board: to ASTM C 1396/C 1396M regular and Type X, 1200 mm wide x maximum practical length, ends square cut, edges tapered.
- .2 Glass mat water-resistant gypsum backing board: to ASTM C 1178/C 1178M, 1200 mm wide x maximum practical length.
- .3 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30.
- .4 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .5 Steel drill screws: to ASTM C 1002.
- .6 Casing beads, corner beads, control joints and edge trim: to ASTM C 1047, metal, zinc-coated by hot-dip process 0.5 mm base

thickness, perforated flanges, one piece length per location.

2.2 ACCESSORIES

- .1 Sealants: in accordance with Section 07 92 00 - Joint .Sealants
 - .1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.
- .2 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .3 Acoustic batt insulation:
 - .1 Flame spread: 10 to ASTM E84.
 - .2 Smoke development: 10 to ASTM E84.
 - .3 Sound Transmission Class: STC 49.
 - .4 Dimensional stability: Linear shrinkage less than 0.1%.

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 partition 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.

3.2 ERECTION OF FRAMING

- .1 Install steel framing members to receive screw-attached gypsum board in accordance with ASTM C 754 except where specified otherwise.
- .2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.
- .3 Place studs vertically at 400 mm on centre and maximum of 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 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .6 Include two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .7 Install heavy gauge single jamb studs at openings.
- .8 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.
- .9 Include 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
- .10 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .11 Extend partitions to ceiling height except where indicated.
- .12 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.
- .13 Install continuous insulating strips to isolate studs from uninsulated surfaces.
- .14 Install insulating strip under studs and tracks around perimeter of sound control partitions.

3.3 ERECTION OF GYPSUM BOARD AND ACCESSORIES

- .1 Do application and finishing of gypsum board in accordance with ASTM C 840 except where specified otherwise.
- .2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C 840 except where specified otherwise.
- .3 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.
- .5 Install 19 x 64 mm furring channels parallel to, and at exact locations

of steel stud partition header track.

- .6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .8 Install wall furring for gypsum board wall finishes in accordance with ASTM C 840, except where specified otherwise.
- .9 Install acoustical insulation and sealant in sound rated partitions to correspond with tested assembly.
- .10 Install gypsum boards in direction that will minimize number of end-butt joints. Stagger end joints 250 mm minimum.

3.4 APPLICATION

- .1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single layer gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.
- .3 Apply water-resistant gypsum board where wall tiles and adjacent to janitors closets. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads.

3.5 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.
 - .2 Install casing beads around perimeter of suspended ceilings.
 - .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
 - .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
 - .5 Install access doors to electrical and mechanical fixtures specified in respective sections.
 - .1 Rigidly secure frames to furring or framing systems.
-

- .6 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .7 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .8 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .9 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.6 CLEANING

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

3.7 PROTECTION

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

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 07 92 00 - Joint Sealants.

1.1 REFERENCES

- .1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
 - .1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).
 - .2 CTI A118.3-92, Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).
 - .3 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).
 - .4 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .3 Resilient Floor Covering Institute (RFCI) and Scientific Certification Systems (SCS):
 - .1 Floorscore IAQ certification
- .4 Terrazzo Tile and Marble Association of Canada (TTMAC)
 - .1 Tile Specification Guide 09 30 00 2016/*2017, Tile Installation Manual.
 - .2 Tile Maintenance Guide 2000.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Include manufacturer's information on:
 - .1 Ceramic tile, marked to show each type, size, and shape required;
 - .2 Dry-set cement mortar and grout;
 - .3 Elastomeric membrane and bond coat;
 - .4 Reinforcing tape;
-

- .5 Levelling compound;
- .6 Latex cement mortar and grout;
- .7 Slip resistant tile;
- .8 Waterproofing isolation membrane; and
- .9 Fasteners.
- .2 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Wall tile: submit duplicate samples panels of each colour, texture, size, and pattern of tile.
 - .2 Trim shapes, internal and external corners of vertical surfaces: duplicate samples of each type, colour, and size.

1.3 QUALITY ASSURANCE

- .1 Quality Assurance Submittals:
 - .1 Manufacturer's Instructions: manufacturer's installation instructions.
 - .2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Collect, separate, recycle, and reuse all site generated waste materials in accordance with Section 01 74 21 Construction/Demolition Waste Management and Disposal.
- .2 Coordinate all work related to Section 01 74 21 Construction/Demolition Waste Management and Disposal with Contractor.

1.7 AMBIENT CONDITIONS

- .1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C for 48 hours before, during, and 48 hours after, installation.
-

- .2 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.

1.8 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.
 - .3 Maintenance material to be same production run as installed material.

1.9 WARRANTY

- .1 Provide a written warranty on materials and workmanship for a period of five (5) years from the date of Substantial Performance.

PART 2 - PRODUCTS

2.1 WALL TILE

- .1 Type CT1: Ceramic tile: to CAN/CGSB-75.1, Type 5, Class MR4, 100 x 200 mm size, 8 mm thickness, square, cushion edges, glazed surface, plain pattern, colour as selected by Departmental Representative from manufacturer's complete range.

2.2 MORTAR AND ADHESIVE MATERIALS

- .1 Cement: to CSA A5, type 10.
 - .2 Sand: to ASTM C144, passing 16 mesh.
 - .3 Hydrated lime: to ASTM C207, Type N.
 - .4 Latex additive: formulated for use in cement mortar and thin set bond coat.
 - .5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.
 - .6 Adhesives:
 - .1 VOC limit for adhesives to meet content limits for VOC of SCAQMD Rule 1168.
-

2.3 WATERPROOFING AND CRACK CONTROL MEMBRANE

- .1 Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.

2.4 BOND COAT

- .1 Water-Cleanable, Tile-Setting Epoxy: ANSI A118.3 and ISO 13007; R2, with a VOC content of 65 g/L or less.

2.5 GROUT

- .1 Water-Cleanable Epoxy Grout: ANSI A118.3 and ISO RG, with a VOC content of 65 g/L or less.

2.6 ACCESSORIES

- .1 Sealant: in accordance with Section 07 92 00 - Joint Sealants.
 - .1 Sealants: maximum VOC limit 250 g/L to SCAQMD Rule 1168.
- .2 Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless-steel, ASTM A 666, 300 Series exposed-edge material.
- .3 Reinforcing mesh: 50x50x1.6x1.6mm galvanized steel wire mesh, welded fabric design, in flat sheets.

2.7 MIXES

- .1 Dry set mortar: mix to manufacturer's instructions.
- .2 Mix bond and leveling coats, and grout to manufacturer's instructions.

2.8 PATCHING AND LEVELLING COMPOUND

- .1 Cement base, acrylic polymer compound. Products containing gypsum are not acceptable.
 - .2 Have not less than the following physical properties:
 - .1 Compressive strength - 25 MPa.
-

- .2 Tensile strength - 7 MPa.
- .3 Flexural strength - 7 MPa.
- .4 Density - 1.9.
- .5 Capable of being applied in layers up to 50 mm thick, being brought to feather edge, and being trowelled to smooth finish.
- .6 Ready for use in 48 hours after application.

2.9 CLEANING COMPOUNDS

- .1 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.
- .2 Materials containing acid or caustic material are not acceptable.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 PREPARATION

- .1 Remove soap scum, sealers, dirt or other contaminants from existing tile. Mechanically abrade surfaces of existing glazed tile with a carborundum disc or by other means. Rinse abraded surface to remove dust. Apply leveling material and reinforce joint between leveling materials and existing tile with 51mm fibre mesh tape set in latex-Portland cement mortars.
- .2 For non-glazed or textured surfaces use an appropriate stripper as recommended by manufacturer.

3.3 WORKMANSHIP

- .1 Do tile work in accordance with TTMAC Tile Installation Manual, "Ceramic Tile", except where specified otherwise.
-

- .2 Apply tile and backing coats to clean and sound surfaces. Remove oil, dirt and other contaminants from existing wall surfaces.
- .3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.
- .4 Maximum surface tolerance 1:800.
- .5 Install new tile so that grout joint is over transition point between leveling material and existing ceramic tile where possible.
- .6 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.
- .7 Lay out tiles so perimeter tiles are minimum 1/2 size.
- .8 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .9 Make internal angles square, external angles with decorative edge protection trim
- .10 Keep 2/3 of the depth of grout joints free of setting material. Protect all tiles from grout staining, test in advance and pre-seal tile if required. Follow manufacturer recommendations for grout and residue removal.
- .11 Protect installed areas from traffic until setting materials have cured for periods specified in TTMAC Installation Manual.
- .12 Install divider strips at junction of tile and dissimilar materials.
- .13 Allow minimum 24 hours after installation of tiles, before grouting.
- .14 Clean installed tile surfaces after installation and grouting cured.
- .15 Make control joints at 4.5 m in each direction. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants.

3.4 WALL TILE

- .1 Tile installed over masonry walls: Install in accordance with TTMAC detail 303W.
-

- .2 Tile installed over gypsum board: Install in accordance with TTMAC detail 304W.
- .3 Tile installed over glass-mat back board: Install in accordance with TTMAC detail 305W.
- .4 Tile installed over existing wall tile: Install in accordance with TTMAC detail 323R.
- .5 Grout wall tile as specified to manufacturer's recommendation.

3.5 ACCESSORIES

- .1 Install transitions, edge protection, control joints, and other special accessories in the tile work in strict accordance with manufacturer's specifications.

3.6 CLEANING

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

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM F 1913-04(2014), Standard Specification for Vinyl Sheet Floor Covering Without Backing.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long base, nosing, feature strips, treads, edge strips.
- .4 Closeout Submittals:
 - .1 Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE AND HANDLING

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

1.4 AMBIENT CONDITIONS

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

1.5 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide extra materials of resilient sheet flooring and
-

adhesives in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide 5 m² of each colour, pattern and type flooring material required for project for maintenance use.

Extra materials one piece and from same production run as installed materials.

.3 Identify each roll of sheet flooring and each container of adhesive.

.4 Deliver to Departmental Representative, upon completion of the work of this section.

.5 Store where directed by Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Sheet vinyl flooring: to ASTM F 1913, commercial.

.1 Type II.

.2 Description: an unbacked, non-layered, homogeneous sheet vinyl flooring. Protected by a UV-cured polyurethane finish, colour and pattern detail dispersed uniformly throughout the thickness of the product. Colour pigments insoluble in water, and resistant to cleaning agents and light.

.3 Colour: selected by Departmental Representative.

.4 Thickness: 2 mm.

.2 Resilient base: continuous, top set, complete with pre-moulded end stops and external corners:

.1 Type: rubber.

.2 Style: cove.

.3 Thickness: 2.03 mm.

.4 Height: 101.6 mm.

.5 Lengths: cut lengths minimum 2400 mm.

.6 Colour: selected by Departmental Representative.

.3 Resilient stair tread: vinyl, 50 mm vertical face, round nose, full tread deep, 5mm thick, ribbed surface with contrasting colour strip for the visually impaired.:

.1 Photoluminescent Visually Impaired Vinyl Stair Treads - flooring accessories as shown in the finish schedule or listed herein as vinyl stair treads shall be Photoluminescent Visually-Impaired Vinyl Stair Treads and be designated by style PVIHD:

.1 Square nosing, nose shall have depth of 5.0 cm and the underside hinges to accommodate various ADA recommended stair panangles.

.2 Continuous 5.0 cm wide band and nose edge accent strip of photoluminescent material co-extruded into the stair tread.

.3 The photoluminescent material shall have photometric value of not less than 3½ hours when tested in accordance with SIN Specification #67510-1.

.4 The colour shall be selected by the Departmental Representative.

- .4 Stair risers: vinyl, solid colour pattern, colour as selected by Departmental Representative.
- .5 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
 - .1 Rubber floor adhesives:
 - .1 Adhesive: maximum VOC limit 60 g/L.
 - .2 Cove base adhesives:
 - .1 Adhesive: maximum VOC limit 50 g/L.
- .6 Sub-floor filler and leveler: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.
- .7 Metal edge strips:
 - .1 Aluminum extruded, smooth, mill finish stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
- .8 External corner protectors: stainless steel, type recommended by flooring manufacturer.
- .9 Edging to floor penetrations: stainless steel, type recommended by flooring manufacturer.
- .10 Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.
 - .1 Sealer: maximum VOC limit 100 g/L.
- .11 Vinyl welding rods: provide vinyl welding rods for heat welding of seams. Colour compatible with field colour of flooring. Welding rods produced by flooring manufacturer.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 SITE VERIFICATION OF CONDITIONS

- .1 Ensure concrete floors are clean and dry by using test methods recommended by flooring manufacturer.

3.3 PREPARATION

- .1 Remove existing resilient flooring.
- .2 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.
- .3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
- .4 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .5 Prime/Seal plywood sub-floor to resilient flooring manufacturer's printed instructions.

3.4 APPLICATION: STAIRS

- .1 Install stair treads and risers one piece for full width of stair. Adhere over entire surface and fit accurately.

3.5 APPLICATION: FLOORING

- .1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air re-circulate through district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation.
 - .2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.
 - .3 Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.
-

- .4 Run sheets in direction of traffic. Double cut sheet joints and heat weld according to manufacturer's printed instructions.
- .5 As installation progresses, and after installation roll flooring with 45 kg minimum roller to ensure full adhesion.
- .6 Cut flooring around fixed objects.
- .7 Install feature strips and floor markings where indicated. Fit joints tightly.
- .8 Install flooring in pan type floor access covers. Maintain floor pattern.
- .9 Continue flooring over areas which will be under built-in furniture.
- .10 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
- .11 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
- .12 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.6 APPLICATION: BASE

- .1 Lay out base to keep number of joints at minimum.
 - .2 Clean substrate and prime with one coat of adhesive.
 - .3 Apply adhesive to back of base.
 - .4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.
 - .5 Install straight and level to variation of 1:1000.
 - .6 Scribe and fit to door frames and other obstructions. Use pre-moulded end pieces at flush door frames.
 - .7 Cope internal corners. Use pre-moulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.
 - .8 Use toeless type base where floor finish will be carpet, coved type elsewhere.
-

- .9 Install toeless type base before installation of carpet on floors.
- .10 Heat weld base in accordance with manufacturer's printed instructions.

3.7 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.8 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Remove excess adhesive from floor, base and wall surfaces without damage.
- .3 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

3.9 PROTECTION

- .1 Protect new floors until final inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- .1 This Section includes one resinous flooring system, one with epoxy body.
 - .1 Application Method: Metal, power or hand troweled.
- .2 Resinous epoxy flooring system shall be installed over existing brick paver, concrete flooring and galvanized steel cold room floor.

1.3 SUBMITTALS

- .1 Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- .2 Samples for Verification: For each resinous flooring system required, applied to a rigid backing by Installer for this Project.
- .3 Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- .4 Maintenance Data: For resinous flooring to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- .1 Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
 - .2 Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and
-

topcoats, through one source from a single manufacturer, with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

- .3 Manufacturer Field Technical Service Representatives: Resinous flooring manufacture shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.
- .4 Field Technical Services Representatives shall be employed by the system manufacture to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.
- .5 Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Include 100 mm length of integral cove base.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- .6 Pre-installation Conference:
 - 1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
 - 2. Attendance:
 - .1 General Contractor
 - .2 Departmental Representative.
 - .3 Manufacturer/Installer's Representative.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
 - .2 Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.
 - .3 All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.
-

1.6 PROJECT CONDITIONS

- .1 Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
 - .1 Maintain material and substrate temperature between 18 and 30 deg C during resinous flooring application and for not less than 24 hours after application.
- .2 Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- .3 Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.
- .4 Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring.

1.7 WARRANTY

- .1 Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of one(1) full years from date of installation, or provide a joint and several warranty signed on a single document by material manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of one(1) full year from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

PART 2 - PRODUCTS

2.1 RESINOUS FLOORING

- .1 System Characteristics:
 - .1 Color and Pattern: Selected by Departmental Representative from manufacturer's full colour range.
 - .2 Wearing Surface: Texture 2.
 - .3 Integral Cove Base: 100 mm.
 - .4 Overall System Thickness: nominal 6.4 mm.
-

- .2 System Components: Manufacturer's standard components that are compatible with each other and as follows:
 - .1 Primer:
 - .1 Resin: Epoxy
 - .2 Formulation Description: (2)two component, 100 percent solids.
 - .3 Application Method: Squeegee and roller.
 - .4 Number of Coats: (1)one.
 - .2 Mortar Base:
 - .1 Resin: Epoxy.
 - .2 Formulation Description: (3)three component, 100 percent solids.
 - .3 Application Method: Metal Trowel.
 - .1 Thickness of Coats: nominal 6.4 mm.
 - .2 Number of Coats: (1)One.
 - .4 Aggregates: Pigmented Blended aggregate.
 - .3 Top Coat:
 - .1 Resin: Epoxy.
 - .4 Delete first subparagraph below if unnecessary.
 - .1 Formulation Description: (2)two component 100 percent solids.
 - .2 Type: pigmented.
 - .3 Finish: Texture #2
 - .4 Number of Coats: (2)Two.
- .3 System Physical Properties: Provide resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:
 - .1 Compressive Strength: 10,000 psi after 7 days per ASTM C 579.
 - .2 Tensile Strength: 1,750 psi per ASTM C 307.
 - .3 Flexural Strength: 4,000 psi per ASTM C 580.
 - .4 Water Absorption: < 1% per ASTM C 413.
 - .5 Impact Resistance: > 160 in. lbs. per ASTM D 2794.
 - .6 Flammability: Class 1 per ASTM E-648.
 - .7 Hardness: 85 to 90, Shore D per ASTM D 2240.

2.2 ACCESSORY MATERIALS

- .1 Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.
 - .2 Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated.
 - .3 Metal cove caps for integral cove base.
-

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous flooring application.
 - .2 Ensure brick paver substrate is sound, by removing and patching any loose or damaged substrate pavers.
 - .3 Substrate surface shall be free of laitance, glaze, efflorescence, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
 - .4 Mechanically prepare substrates as follows:
 - .1 Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - .2 Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.
 - .3 Repair damaged and deteriorated substrate surfaces according to resinous flooring manufacturer's written recommendations.
 - .4 Verify that substrates are dry.
 - .5 Verify that substrates have neutral Ph and that resinous flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
 - .5 Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
 - .6 Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
 - .7 Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations.
 - .8 Ensure cold storage room temperature is within acceptable limits recommended by flooring manufacture prior to starting application of resinous epoxy flooring.
-

3.2 APPLICATION

- .1 Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - .1 Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 - .2 Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - .3 At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
 - .1 Apply joint sealant to comply with manufacturer's written recommendations.
- .2 Apply primer where required by resinous system, over prepared substrate at manufacturer's recommended spreading rate.
- .3 Integral Cove Base: apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, of cove base. Round internal and external corners.
- .4 Apply metal trowel single mortar coat in thickness indicated for flooring system. Hand or power trowel and grout to fill voids. When cured, sand to remove trowel marks and roughness.
- .5 Apply topcoat(s) in number of coats indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.3 TERMINATIONS

- .1 Chase edges to "lock" the flooring system into the substrate along lines of termination.
 - .2 Penetration Treatment: Lap and seal resinous system onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.
 - .3 Treat floor drains by chasing the flooring system to lock in place at point of termination.
-

3.4 JOINTS AND CRACKS

- .1 Treat control joints to bridge potential cracks and to maintain monolithic protection.
- .2 Treat cold joints and construction joints to bridge potential cracks and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.
- .3 Discontinue floor coating system at vertical and horizontal contraction and expansion joints by installing backer rod and compatible sealant after coating installation is completed. Provide sealant type recommended by manufacturer for traffic conditions and chemical exposures to be encountered.

3.5 FIELD QUALITY CONTROL

- .1 Material Sampling: Departmental Representative may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.
 - .1 Departmental Representative will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.
 - .2 Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
 - .3 If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

3.6 CLEANING, PROTECTING, AND CURING

- .1 Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.
 - .2 Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
-

- .3 Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

PART 1 - GENERAL

1.1 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
 - .2 Maintenance Repainting Manual - current edition.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for paint and coating products and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29 - Health and Safety Requirements.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate 200 x 300mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards.
- .4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.3 DELIVERY, STORAGE AND HANDLING

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

- .1 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 Supply 1-9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

1.4 SITE CONDITIONS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces.
 - .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 or E3 rating where indoor air quality requirements exist.
 - .2 Primer: VOC limit 100 g/L maximum.
 - .3 Paint: VOC limit 100 g/L maximum.
- .4 Colours:
 - .1 Departmental Representative will provide colour schedule to Contractor.
- .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.
 - .2 Thin paint for spraying in accordance with paint manufacturer's written recommendations.
 - .3 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-Category	Gloss @ 60°	Sheen @ 85°
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 Concrete vertical surfaces: including horizontal soffits.

.1 INT 3.1 C - High Performance Architectural Latex (over alkali-resistant primer), G3Finish, Premium grade.

.2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).

.1 INT 5.3M - High Performance Architectural Latex, G4 Finish, Premium Grade.

.2 INT 5.3D - Epoxy (over epoxy primer), Premium Grade.

.3 Dressed Lumber: doors, door and window frames, casings, mouldings, etc.:

.1 INT 6.3A - High Performance Architectural Latex, G5 Finish, Premium Grade.

.2 INT 6.3L - Epoxy, Premium Grade.

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

.1 INT 9.2B - High Performance Architectural Latex, G4 Finish, Premium Grade.

.2 INT 9.2N - Epoxy High Build (over latex sealer), Premium Grade.

.8 Interior re-painting:

.1 Concrete Vertical Surfaces: (Including Soffits).

.1 RIN 3.1C- - High Performance Acrylic Latex, G3 Finish, Premium Grade.

.2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).

.1 RIN 5.3J - High Performance Architectural Latex, G4 Finish, Premium Grade.

.2 RIN 5.3D - Epoxy, Premium Grade.

.3 Dressed Lumber: (including doors, door and window frames, moldings, etc.)

.1 RIN 6.3T - High Performance Architectural Latex, G5 Finish, Premium Grade.

.2 RIN 6.3L - Epoxy, Premium Grade.

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

.1 RIN 9.2B - High Performance Architectural Latex, G4 Finish, Premium Grade.

.2 RIN 9.2D - Epoxy, Premium Grade.

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 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.

3.3 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 knot, 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 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 as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

- .7 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .8 Finish closets and alcoves as specified for adjoining rooms.
- .9 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.
- .10 Mechanical/Electrical Equipment:
 - .1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
 - .2 Do not paint over nameplates.
 - .3 Keep sprinkler heads free of paint.
 - .4 Paint fire protection piping red.
 - .5 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
 - .6 Paint natural gas piping yellow.
 - .7 Paint both sides and edges of backboards for telephone and electrical equipment before installation.
 - .1 Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Place paint defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.