

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 06 08 99 – Rough Carpentry for Minor Works
- .2 Section 07 92 00 - Joint Sealants.

**1.2 REFERENCES**

- .1 ASTM International
  - .1 ASTM C475/C475M-15, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
  - .2 ASTM C514-04(2014), Standard Specification for Nails for the Application of Gypsum Board.
  - .3 ASTM C840-16, Standard Specification for Application and Finishing of Gypsum Board.
  - .4 ASTM C1002-16 – 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.
  - .5 ASTM C1047-14a, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
  - .6 ASTM C1280-13a, Standard Specification for Application of Gypsum Sheathing.
  - .7 ASTM C1177/C1177M-13, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
  - .8 ASTM C1178/C1178M-13, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.
  - .9 ASTM C1396/C1396M-14a, Standard Specification for Gypsum Wallboard.
  - .10 ASTM D3273-16, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- .2 Gypsum Association (GA)
  - .1 GA-214-2015 - Recommended Levels of Finish for Gypsum, Glass mat and Fiber-Reinforced Gypsum Panels.
  - .2 GA-216 -2016, Application and Finishing of Gypsum Panel Products.
  - .3 GA-600-2015 Fire Resistance Design Manual-Sound Control – Gypsum Systems, 21<sup>st</sup> Edition.
  - .4 GA-801-2007 Handling Gypsum Board.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

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

- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum board assemblies and include product characteristics, performance criteria, physical size, finish and limitations.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store gypsum board assemblies materials level indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect gypsum board assemblies from nicks, scratches, and blemishes.
  - .3 Protect from weather, elements and damage from construction operations.
  - .4 Handle gypsum boards to prevent damage to edges, ends or surfaces.
  - .5 Replace defective or damaged materials with new.

## **Part 2        Products**

### **2.1            FRAMING MATERIALS**

- .1     Studs and Tracks: ASTM C645; galvanized sheet steel, 0.792 mm thick unless indicated otherwise, C-shape, with knurled faces, and C-H and E-studs and J-runners for shaftwalls.
- .2     Furring, Framing, and Accessories: ASTM C645 and GA-216. Use 200 mm wide 1.22 mm thick studs for blocking for support of finishes and fixtures.
- .3     Support Channels, Furring and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.
- .4     Fasteners: ASTM C1002. Exterior finish to be corrosion-resistant.
- .5     Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- .6     Blocking: Galvanized sheet metal; 1.22 mm thick.
- .7     Gypsum Board Suspension Ceiling members: System and all components required to provide suspended "Cloud" with metal edge trim noted in item 7.

### **2.2            PANEL MATERIALS**

- .1     Glass mat water-resistant gypsum backing board:
  - .1        To ASTM C1178/C1178M-13, thickness as indicated, 1200 mm wide x maximum practical length.
  - .2        Mould-Resistant: Scores a 10 (highest) when tested in accordance with ASTM D3273-16.
  - .3        Hardness core, edges and ends, N (lbf): 67 (15)
  - .4        Weight: minimum 9.8 kg / m<sup>2</sup> (2.0 lbs/ft<sup>2</sup>)
  - .5        Paintable type where painted.
- .2     Glass mat gypsum substrate sheathing: to ASTM C1177/C1177M-13, thickness as indicated, 1200 mm wide x maximum practical length.
- .3     Joint Materials: ASTM C475/C475M-15; paper reinforcing tape, joint compound, adhesive, and water.
- .4     Fasteners: ASTM C1002-16; Type S12 screws; finish to be corrosion-resistant.
- .5     Trim: to GA-216-2006:
  - .1        Casing beads, corner beads, control joints and edge trim: to ASTM C1047-14a, zinc-coated by hot-dip process, 0.5 mm base thickness, perforated flanges, one piece length per location.
- .6     Sealants: in accordance with Section 07 92 00 - Joint Sealants.
- .7     Joint compound: to ASTM C475/C475M-15, asbestos-free.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verify that site conditions are ready to receive work and opening dimensions are as instructed by the manufacturer.

**3.2 ERECTION**

- .1 Do application and finishing of gypsum board to ASTM C840-16 except where specified otherwise.
- .2 Do application of gypsum sheathing to ASTM C1280-13a.
- .3 Install work level to tolerance of 1:1200.

**3.1 METAL STUD INSTALLATION**

- .1 All walls, full height, to underside of deck above and sealed for sound and or fire rating.
- .2 Install studs in accordance with ASTM C754 and manufacturer's instructions.
- .3 Set studs 25 mm from concrete, concrete block walls.
  - .1 Rigidly secure studs to walls at minimum mid-height to prevent deflection.
- .4 Install sill plate gaskets to all tracks in contact with concrete on grade and walls to receive sound insulation.
- .5 Metal Stud Spacing: Maximum 400 mm o.c. or as indicated.
- .6 Where partitions require extending stud framing through the ceiling to the structure above.
  - .1 Maintain clearance under structural building members to avoid deflection transfer to studs.
  - .2 Provide extended leg ceiling runners.
  - .3 Door and Window Opening Framing: Install double studs at frame jambs.
  - .4 Install stud tracks on each side of opening, at frame head height, and between studs and adjacent studs.
- .7 Blocking: Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, wood frame opening, toilet accessories, hardware, equipment, wall mounted door stops, firestopping and as required to support accessories.
  - .1 Blocking ends and lap joints in to be secured to studs.
- .8 Anchorage to Substrate: Rigidly secure studs to substrate at minimum mid-height to prevent deflection.

### 3.3 PANEL INSTALLATION

- .1 Install panels in accordance with manufacturer's written instructions.
- .2 Install shaftwall liner panels in accordance with manufacturer's written instructions and to suit fire rating indicated.
- .3 Apply gypsum board after bucks, anchors, blocking, electrical and mechanical work have been installed.
- .4 Erect single layer board in most economical direction, with ends and edges occurring over firm bearing.
- .5 Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.
- .6 Use screws when fastening to metal furring or framing.
- .7 Double Layer Applications: Secure second layer to first with fasteners. Offset joints of Second layer from joints of first layer.
- .5 Exterior Soffits and Ceilings: install board perpendicular to supports; stagger end joints over supports. Install with 6 mm gap where boards abut other work.
- .6 Erect accessories straight, plumb or level, rigid and at proper plane.
  - .1 Use full length pieces where practical.
  - .2 Make joints tight, accurately aligned and rigidly secured.
  - .3 Mitre and fit corners accurately, free from rough edges.
  - .4 Secure at 150 mm on centre.
- .7 Install casing beads around perimeter of suspended ceilings.
- .8 Install casing beads where board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .9 Construct control joints of preformed units set in board facing and supported independently on both sides of joint.
- .8 Place control joints consistent with lines of building spaces.
  - .1 Locate control joints where indicated at changes in substrate construction at approximate 10 m spacing on long corridor runs at approximate 15 m spacing on ceilings.
- .10 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
- .11 Install access doors to electrical and mechanical fixtures.
  - .1 Rigidly secure frames to framing systems.
- .12 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.
- .13 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with AWCI Levels of Gypsum Board Finish:

- .1 Levels of finish:
  - .1 Level 5: embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; apply a thin skim coat of joint compound to entire surface; surfaces smooth and free of tool marks and ridges.
  - .2 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

### **3.4 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

**END OF SECTION**

**Part 1            General**

**1.1            RELATED SECTIONS**

- .1      Section 03 33 00 - Cast-in-Place Concrete
- .2      Section 03 35 00 - Concrete Finishing

**1.2            REFERENCES**

- .1      American Society for Testing and Materials (ASTM)
  - .1      ASTM C307-03 (2012) Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing's.
  - .2      ASTM C579-01 (2012), Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
  - .3      ASTM C580/D580M-12, Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing's, and Polymer Concretes.
  - .4      ASTM D570-98 (2010)e1, Standard Test Method for Water Absorption of Plastics.
  - .5      ASTM D635-14, Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
  - .6      ASTM D638-14, Standard Test Method for Tensile Properties of Plastics.
  - .7      ASTM D 695-15 Standard Test Method for Compressive Properties of Rigid Plastics.
  - .8      ASTM D2240- 15, Standard Test Method for Rubber Property-Durometer Hardness.
  - .9      ASTM D2369-10(2015)e1, Standard Test Method for Volatile Content of Coatings.
  - .10     ASTM D3273-16 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
  - .11     ASTM D4060-14, Standard Test Method for Abrasion Resistance of Organic Coatings by Taber Abraser.
  - .12     ASTM D4541-09e1, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
  - .13     ASTM F2170-16a Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
  - .14     ASTM F2659-10(2015), Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter.
  - .15     ASTM G21-15, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

- .2 Canadian Standards Association (CSA)
  - .1 CSA A23.1-14/A23.2-14 Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete.
- .3 International Concrete Repair Institute (ICRI)
  - .1 ICRI Guideline No. 310.2R-2013, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays.
- .4 Underwriters Laboratories of Canada (CAN/ULC)
  - .1 CAN/ULC S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

### 1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Submit manufacturer's Product data, including physical properties and appearance options including: standard colours, variable surface textures and surface sheen.
- .3 Provide samples.
  - .1 Submit full line of product samples minimum 75 mm x 75 mm for colour selection.
  - .2 Submit duplicate 300 x 300 x 6 mm thick samples of each colour selected in both sanded and un-sanded finish for selection.
    - .1 Provide as many samples as required to achieve desired texture.
- .4 Closeout Submittals:
  - .1 Provide maintenance data for epoxy matrix for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
  - .2 Operations and Maintenance Data: Submit manufacturer's printed maintenance instructions for repair, cleaning and maintenance procedures; include name of original installer and contact information.

### 1.4 QUALITY ASSURANCE

- .1 Pre-application Meeting:
  - .1 Convene a pre-application meeting two (2) weeks before commencing the Work of this Section to review the following:
    - .1 Surface preparation.
    - .2 Priming.
    - .3 Application.
    - .4 Curing and protection.
    - .5 Coordination with other Work.



## **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and to manufacturer's instructions.
- .2 Deliver materials to job site just prior to installation.
- .3 Store materials inside, in dry location, away from heavy traffic areas.
- .4 Deliver and store materials in manner to prevent damage.
- .5 Ensure materials remain in original wrapping and containers until used.

## **1.6 ENVIRONMENTAL REQUIREMENTS**

- .1 Do not install the Work of this Section outside of the following environmental ranges without Manufacturers' written acceptance:
  - .1 Ambient and Substrate Temperature: Minimum/Maximum 10°/30°C (50°/86°F).
  - .2 Substrate temperature must be at least 3°C (5°F) above measured Dew Point.
  - .3 Mixing and Application attempted at Material, Ambient and/or Substrate Temperature conditions less than 18°C (65°F) will result in a decrease in Product workability and slower cure rates.
  - .4 Relative Ambient Humidity: maximum ambient humidity 85% (during application and curing).
  - .5 Measure and confirm acceptable test results for Ambient Relative Humidity, Ambient and Surface Temperature and Dew Point.
- .2 Substrate Moisture: Contractor is responsible for all costs associated with the following:
  - .1 Moisture content of concrete substrate must be ≤ 4% by mass as measured with concrete moisture meter.
  - .2 Additionally, internal concrete relative humidity tests may be conducted by the contractor as per ASTM F2170 and values must be ≤ 85%.
  - .3 If moisture content of concrete substrate is higher than 4% by mass and / or if relative humidity test results exceed readings of 85% RH, the manufacturer will instruct on addition of moisture mitigation systems or moisture tolerant primers.
- .3 Supply temporary utilities, including power, water, temporary ventilation and lighting for use by applicator.
- .4 Maintain constant ambient room temperature for 48 hours before, during and after installation or until cured. Minimum temperature of 10°C (50°F) and maximum temperature of 30°C (85°F). Do not apply Product while ambient and substrate temperatures are rising.
- .5 Erect suitable barriers and post legible signs at points of entry to prevent traffic and trades from entering the work area during application and curing period of the floor.
- .6 Ensure adequate ventilation and air flow.

## **Part 2 Products**

### **2.1 FLOORING**

- .1 Resinous Flooring System: trowel applied and sealed decorative epoxy floor, composed of multi-coloured quartz aggregates finished with transparent top coats and as follows:
  - .1 Compressive Strength: 47.8 MPa at 28 days in accordance with ASTM C579.
  - .2 Flexural Strength: 11.1 MPa) at 28 days in accordance with ASTM C580.
  - .3 Hardness: 85 Shore D at 7 days in accordance with ASTM D2240.
  - .4 System Thickness: minimum 6 mm.

### **2.2 COMPONENTS**

- .1 Primer and Mortar: two component, clear, high solids, low odour, low VOC, high gloss epoxy finish:
  - .1 Applied Thickness:
    - .1 Prime Coat: 254 µm (10 mils) wet film thickness (w.f.t.)
    - .2 Mortar: 6 mm
  - .2 Compressive Strength: 41 MPa in accordance with ASTM D695.
  - .3 Tensile Strength: 36 MPa in accordance with ASTM D638.
  - .4 Hardness: 83 Shore D in accordance with ASTM D2240.
- .2 Decorative Trowel Quartz Aggregates: finished with transparent top coats.
  - .1 Grout Coat: two component, clear, high solids, low odour, low VOC, high gloss epoxy finish:
    - .1 Applied Thickness: 203 µm (8 mils) w.f.t.
    - .2 Compressive Strength: 47.8 MPa in accordance with ASTM C579.
    - .3 Tensile Strength: 6.7 MPa in accordance with ASTM C307.
    - .4 Flexural Strength: 11.1 MPa in accordance with ASTM C580.
    - .5 Hardness: 84 Shore D in accordance with ASTM D2240.
  - .2 Top Coat: two component, high solids, low odour, low VOC, high strength, high gloss, clear epoxy resin formulated for improved resistance to clarity change over time:
    - .1 Applied Thickness: 508 µm (20 mils) w.f.t.
    - .2 Compressive Strength: 70 MPa (10,521 p.s.i.) in accordance with ASTM C579.
    - .3 Tensile Strength: 28 MPa (4,061 p.s.i.) in accordance with ASTM D638.
    - .4 Flexural Strength: 83 MPa (12,038 p.s.i.) in accordance with ASTM C580.

- .5 Elongation: 4% in accordance with ASTM D638.
- .6 Hardness: 85 Shore D in accordance with ASTM D2240.
- .7 Resistance to Mold Growth: Rated 0 (no growth) in accordance with ASTM D3273.
- .8 Resistance to Fungi Growth: Rated 10 (highest resistance) in accordance with ASTM G21.
- .3 Light Anti-slip Texture Satin Finish Top Coat: two-component, low odour, low VOC, fine aggregate containing clear epoxy resin formulated for improved resistance to clarity change over time.

## **2.3 ACCESSORIES**

- .1 Provide all cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per manufacturer's specifications.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Examine surfaces to receive flooring system.
  - .1 Submit Notice in Writing to Contractor if surfaces are not acceptable.
  - .2 Do not begin surface preparation or application until unacceptable conditions have been corrected.
  - .3 Do not apply flooring system to substrate treatments for moisture, repair, or levelling not of the same manufacturer.
- .2 Surface must be clean, sound and dry.
- .3 Pre-Installation Testing:
  - .1 Substrate moisture:
    - .1 Measure and confirm acceptable conditions for Substrate Moisture Content, Ambient Relative Humidity, Ambient and Surface Temperature and Dew Point.
    - .2 Confirm and record above values at least once every 3 hours during installation or more frequently whenever conditions change (e.g. Ambient Temperature rise/fall, Relative Humidity increase/decrease, etc.).
- .4 Ensure concrete substrate conforms to the minimum requirements of the flooring manufacturer.
- .5 Re-level/slope as required to achieve grade and/or drainage in accordance with contract drawings and manufacturer's minimum requirements.

### **3.2 SURFACE PREPARATION**

- .1 Prepare surface to receive flooring systems in accordance with manufacturer's written instructions.
- .2 Control Joints and Cracks: Repair and treat control joints and surface cracks utilizing manufacturer's standard materials and installation details.

### **3.3 APPLICATION**

- .1 Mix and apply material in accordance with manufacturer's written installation instructions and procedures.
  - .1 Apply to rates coverage is specified in this Section.
- .2 Follow manufacturer's written recommendations on terminations and connections to walls, drains, doorways, columns and floor-to-floor transitions.
- .3 Apply resinous flooring with care to ensure that no laps, voids, or other marks or irregularities are visible. Apply to achieve appearance of uniform colour, sheen and texture; all within limitations of materials and areas concerned.
- .4 Match colours and textures of Consultant accepted samples.
- .5 Install 6 mm base with 6 mm L type zinc base bead top strips at 100 mm height straight and level.
- .6 Finishing:
  - .1 Trowel epoxy flooring with non-skid finish.
  - .2 Apply 3 coats of clear epoxy finish.

### **3.4 CLEAN UP**

- .1 Dispose of all waste from resinous flooring system installation in accordance with environmental legislation applicable to the Place of the Work and requirements of all authorities having jurisdiction.
- .2 Dispose of empty containers at an approved waste handling facility for recycling or disposal.

### **3.5 PROTECTION**

- .1 Protect finished floor from damage by subsequent trades.
- .2 Protect freshly applied Products from dampness, condensation and water for at least seventy-two (72) hours.
- .3 Monitor air flow and changes in air flow.
- .4 Protect against introduction of dust, debris, and particles, etc. that may result in surface imperfections and other defects.
- .5 Follow manufacturer's written recommendations with respect to cure, wait time and return to service.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 03 35 00 –Concrete Finishing
- .2 Section 07 46 23 – Wood Siding
- .3 Section 08 11 00 - Metal Doors and Frames.
- .4 Section 09 21 16 - Gypsum Board Assemblies.
- .5 Sections - Mechanical
- .6 Sections – Electrical

**1.2 REFERENCES**

- .1 Master Painters Institute (MPI)
  - .1 MPI Architectural Painting Specifications Current Edition.

**1.3 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit product data and instructions for each paint and coating product to be used.
- .3 Samples: Submit full range colour sample chips to indicate where colour availability is restricted.

**1.4 PRODUCTS DELIVERY, STORAGE, AND HANDLING**

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

## **1.5 SITE CONDITIONS**

- .1 Heating, Ventilation and Lighting:
  - .1 Provide heating facilities to maintain ambient air and substrate temperatures above 10°C for 24 hours before, during and after paint application until paint has cured sufficiently.
  - .2 Provide continuous ventilation for seven days after completion of application of paint.
  - .3 Provide temporary ventilating and heating equipment to meet minimum requirements.
  - .4 Provide minimum lighting level of 323 Lux on surfaces to be painted.
- .2 Surface and Environmental Conditions:
  - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
  - .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
  - .3 Apply paint when previous coat of paint is dry or adequately cured.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Paint materials shall be listed on the current edition of the MPI Approved Products List. Where selection of finishes from MPI Approved Products List is limited, selection of alternate materials will be at the option of the Departmental Representative.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Conform to latest MPI requirements for interior and exterior painting work including preparation and priming.

### **2.2 COLOURS**

- .1 Departmental Representative will provide Colour Schedule after Contract award.
- .2 Selection of colours from manufacturer's full range of colours at no extra cost.
- .3 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.
- .4 Base colour schedule on selection of (5) base colours and (3) accent colours.

### **2.3 MIXING AND TINTING**

- .1 Perform colour tinting operations prior to delivery of paint to site.
- .2 Use and add thinner in accordance with paint manufacturer's recommendations.
  - .1 Do not use kerosene or similar organic solvents to thin water-based paints.
- .3 Thin paint for spraying in accordance with paint manufacturer's instructions.

## 2.4 GLOSS/SHEEN RATINGS

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

Gloss Level	Finish	Units @ 60°	Units @ 85°
G1	matte or Flat	0 to 5 max.	10 Max
G2	velvet	0 to 10	10 to 35
G3	eggshell	0 to 25	10 to 35
G4	satin	20 to 35	35 min.
G5	semi-gloss	35 to 70	
G6	gloss	70 to 85	
G7	high gloss	> 85	

- .2 In General Gloss level ratings of painted surfaces shall be:
- .1 Exterior: Gloss finish in all areas.
- .2 Interior: Gloss finish in all areas.
- .3 Final selection will be provided by the Departmental Representative with colour finish schedule at no extra cost.

## Part 3 Execution

### 3.1 MANUFACTURER'S INSTRUCTIONS

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

### 3.2 GENERAL

- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.
- .3 Review all steel to be painted to ensure that all steel has been ground, sanded, body filled, sealant applied and is ready for painting.
- .1 Do not paint until ready.

### 3.3 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.
- .1 Identify and store items in secure location and re-installed after painting is completed.
- .2 Protection:
- .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking.
- .1 If damaged, clean and restore surfaces as directed by Departmental Representative.

- .2 Protect items that are permanently attached.
- .3 Protect factory finished products and equipment.
- .4 Protect passing pedestrians, building occupants and general public in and about the building.
- .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements.
- .4 All rust from structural steel, miscellaneous metals, pipes, sprinkler pipes, etc shall be removed by the painter, and primed before painting.

### 3.4 APPLICATION

- .1 Conform to manufacturer's application instructions unless specified otherwise.
- .2 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
- .3 All structural steel, miscellaneous metals and other items which have factory primer to be re-primed on site by the painter.
- .4 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
- .5 Apply coats of paint continuous film of uniform thickness.
  - .1 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 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .8 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

### 3.5 INTERIOR PAINT AND COATING SYSTEMS

- .1 Provide interior paint products with a VOC range 151 g/L.
  - .1 Where selection of finishes from MPI Approved Products List is limited, selection of alternate materials will be at the option of the Departmental Representative.
- .2 Interior painting systems to be based on MPI Premium grade unless noted otherwise.
  - .1 The following is list of principal items only.
  - .2 All exposed surfaces are to be painted.
    - .1 Surfaces not included in this schedule shall be painted at the discretion of the Consultant at no extra cost
- .3 **Brick Masonry Units:**
  - .1 **EXT 4.1D – Epoxy – Gloss**
    - .1 Three (3) coats epoxy



- .4 **Concrete Masonry Units:**
  - .1 **INT 4.2D** - HIPAC Latex Finish:
    - .1 One coat MPI #4 Block Filler
    - .2 Two coats HIPAC Latex.
  - .2 **INT 4.2G** - Epoxy (tile-like) finish as scheduled:
    - .1 One coat MPI #116 epoxy block filler,
    - .2 Two finish coats epoxy.
- .5 **Structural Steel:** overhead and structural members; columns, beams, joists, etc. and adjacent fabrications.
  - .1 **INT 5.1C** - Waterborne Dry Fall Finish:
    - .1 One coat: Primer
    - .2 One coat: Waterborne Dry Fall MPI #118.
  - .2 **INT 5.1K** – Epoxy Modified latex
    - .1 One coat: Rust inhibitive primer
    - .2 Two coats: Epoxy Modified Latex, Int.
- .6 **Metal Fabrications - Site finishing:** including stairs, guards, channel frames, railings, ladders, vanity support brackets, etc.
  - .1 **INT 5.1F** – Polyurethane, Pigmented
    - .1 One coat: Epoxy primer
    - .2 Two coats: Polyurethane
- .7 **Galvanized Metal: miscellaneous overhead steel pipes, decking, ducts, conduit, etc.**
  - .1 **INT 5.3M** - Waterborne Dry Fall Finish:
    - .1 Wash all ductwork and piping to remove grease and oil.
    - .2 One coat: Primer
    - .3 Two coats: Waterborne Dry Fall MPI #133.
- .8 **Galvanized Metal: interior steel man doors and frames etc.**
  - .1 **INT 5.3K** – W.B. Light Industrial Coating
    - .1 One coat: Waterborne Primer
    - .2 Two coats: W.B. Light Industrial Coating.
- .9 **Dressed Lumber: Interior Finish Carpentry and Millwork for Clear Finish:**
  - .1 Shop Finish:
    - .1 **INT 6.3K** - Polyurethane Varnish Finish:
    - .2 Minimum three coats clear polyurethane finish.
- .10 **Plywood Mounting Boards: electrical room.**
  - .1 **INT 6.4P** - Fire Retardant Pigmented:
    - .1 Apply to ULC approved procedures.
    - .2 Two coats Fire Retardant Pigmented
    - .3 Verify colour with Departmental Representative.

- .11 **Gypsum Board - Dry Areas:** Drywall surfaces, cement board, other wall and ceiling panels inc. wall-mounted equipment to be painted-out.

.1 **INT 9.2B** - HIPAC Latex:

- .1 One coat Latex Primer Sealer,
- .2 Two coats HIPAC Latex.

- .12 **Gypsum Board - Wet Areas, Washrooms, Kitchen, Laundry:**

.1 **INT 9.2E** – Epoxy-("Tile Like")

- .1 One coat primer / sealer
- .2 Two finish coats Epoxy.

### 3.6 **FLOOR PAINT COATING SYSTEMS**

- .1 High performance, multi-purpose, surface tolerant, two-component, 94% solids, chemically- cured high-solids epoxy coating for industrial or high performance architectural coating (HIPAC) applications.

- .1 Prepare surface by Acid etching or other means as approved by manufacturer.
- .2 Three (3) coats; Apply at a rate of 6 -8 mils (150 – 200 microns) dry equivalent to minimum 7.8 mils (195 microns) wet.
- .3 Anti-slip finish.

### 3.7 **EXTERIOR PAINT COATING SYSTEMS**

- .1 **Galvanized and non-galvanized steel and Metal:** Steel structure, fabrications, gates and fences, doors and frames, all rooftop equipment and piping, etc.

.1 **EXT 5.3L** - Polyurethane, Pigmented

- .1 One coat: Epoxy primer
- .2 Two coats: Polyurethane

- .2 **Galvanized Steel Doors and Frames:** doors and frames,

.1 **EXT 5.3D** - Polyurethane, Pigmented

- .1 One coat: Vinyl Wash Primer
- .2 One coat: Epoxy
- .3 Two coats: Polyurethane

- .3 **Wood:**

.1 **EXT 5.3B** - Alkyd Finish:

- .1 One coat non-cementitious primer,
- .2 Two finish coats alkyd.

.2 **EXT 6.2H** –Clear (2 component) polyurethane finish.

- .1 2 coats.

### **3.8 MECHANICAL AND ELECTRICAL EQUIPMENT**

- .1 Paint all exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
- .2 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .3 Properly prepare metal to remove oils etc prior to painting.
- .4 Do not paint over nameplates.
- .5 Keep sprinkler heads free of paint.
- .6 Paint interior of all grill and vents flat black.
- .7 Paint all roof top equipment.
- .8 Paint all bollards safety yellow.

### **3.9 MECHANICAL ELECTRICAL AND SERVICE ROOMS**

- .1 Paint all housekeeping pads, and concrete floors, step / stairs with Floor Paint Coating System specified under 3.6 above.
- .2 Paint safety yellow line around all housekeeping pads top and side 100 mm wide and step/ stair nosing with Floor Paint Coating System specified under 3.6 above.
- .3 Paint ladders in mechanical room safety yellow with Floor Paint Coating System specified under 3.6 above.

### **3.10 SITE TOLERANCES**

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

### **3.11 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. Avoid scuffing newly applied paint.

**END OF SECTION**