

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 07 21 00 – Building Insulation
- .2 Section 07 84 00 - Firestopping
- .3 Section 07 92 00 - Joint Sealants.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C475/C475M-17, 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 C840-19b, Standard Specification for Application and Finishing of Gypsum Board.
 - .4 ASTM C1002-18 – 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 C1047-19, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - .6 ASTM C1280-18, Standard Specification for Application of Gypsum Sheathing.
 - .7 ASTM C1177/C1177M-17, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - .8 ASTM C1178/C1178M-18, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.
 - .9 ASTM C1396/C1396M-17, 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-600-2018 Fire Resistance Design Manual-Sound Control – Gypsum Systems
 - .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.
- .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 Fasteners: ASTM C1002. Exterior finish to be corrosion-resistant.
- .4 Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- .5 Blocking: Galvanized sheet metal; 1.22 mm thick.

2.2 PANEL MATERIALS

- .1 Fire Rated Gypsum Board (Type X): ASTM C1396/C1396M, fire resistive type, UL, ULC, or ITS rated; thickness as indicated, maximum available length in place; ends square cut, tapered edges.

- .2 Joint Materials: ASTM C475/C475M-15; paper reinforcing tape, joint compound, adhesive, and water.
- .3 Fasteners: ASTM C1002-16; Type S12 screws; finish to be corrosion-resistant.
- .4 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.
- .5 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
- .6 Joint compound: to ASTM C475/C475M-15, asbestos-free.
- .7 Compressible Foam Gasket: sill plate gasket; polyethylene foam, minimum thickness 6mm x full width of sill plate.

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 C840-19b except where specified otherwise.
- .2 Do application of gypsum sheathing to ASTM C1280-18.
- .3 Install work level to tolerance of 1:1200.

3.3 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.

3.4 PANEL INSTALLATION

- .1 Install panels in accordance with manufacturer's written instructions.
- .2 Apply gypsum board after bucks, anchors, blocking, electrical and mechanical work have been installed.
- .3 Erect single layer board in most economical direction, with ends and edges occurring over firm bearing.
- .4 Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.
- .5 Use screws when fastening to metal furring or framing.
- .6 Double Layer Applications: Secure second layer to first with fasteners. Offset joints of Second layer from joints of first layer.
- .7 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.
- .8 Install casing beads around perimeter of suspended ceilings.
- .9 Install casing beads where board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .10 Construct control joints of preformed units set in board facing and supported independently on both sides of joint.

- .11 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.
- .12 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
- .13 Install access doors to electrical and mechanical fixtures.
 - .1 Rigidly secure frames to framing systems.
- .14 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.
- .15 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.

3.5 CLEANING

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

END OF SECTION

Part 1 General

1.1 REFERENCES

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

1.2 ACTION AND INFORMATIONAL 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.

1.3 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 (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 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 Colours to match existing.
- .2 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

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.

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 Architect.

- .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