

**PART 1 GENERAL**

1.1 Related Work

- .1 Wood Framing Section 06 11 00
- .2 Finish Carpentry Section 06 20 00
- .3 Vapour and Air Barriers Section 07 27 00

1.2 References

- .1 Aluminum Association
  - .1 Designation for Aluminum Finishes- 1997
- .2 American Society for Testing and Materials (ASTM)
  - .1 ASTM C 36-95, Specification for Gypsum Wallboard.
  - .2 ASTM C 79-94, Specification for Gypsum Sheathing Board.
  - .3 ASTM C 442-92, Specification for Gypsum Backing Board and Coreboard.
  - .4 ASTM C 475-94, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
  - .5 ASTM C 514-94, Specification for Nails for the Application of Gypsum Board.
  - .6 ASTM C 557-93a, Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
  - .7 ASTM C 630-93, Specification for Water-Resistant Gypsum Backing Board.
  - .8 ASTM C 840-95, Specification for Application and Finishing of Gypsum Board.
  - .9 ASTM C 954-93, Specification for Steel Drill Screws for the Application of Gypsum Board.
  - .10 ASTM C 1002-93, Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.
  - .11 ASTM C 1047-94, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
  - .12 ASTM C 1280-94, Specification for Application of Gypsum Sheathing Board.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
  - .2 CAN/CGSB-71.25-M88, Adhesive for Bonding Drywall to Wood Framing and Metal Studs.
- .4 Underwriter Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-1988, Building Materials and Assemblies.

**PART 2 PRODUCTS**

2.1 Materials

- .1 Standard board: to ASTM C 36 regular, 13 mm thick, 16 mm thick and 16 mm Type X, 1200 mm wide x maximum practical length, ends square cut, edges bevelled.

- .2 Gypsum sheathing board: to ASTM A 79, regular, 16 mm thick and Type X, 16 mm thick, 1200 mm wide x maximum practical length.
- .3 Water-resistant board: to ASTM C 630 regular, 12 mm thick and Type X, 12 mm thick, maximum practical length.
- .4 Nails: to ASTM C 514.
- .5 Steel drill screws: to ASTM C 1002.
- .6 Stud adhesive: to CAN/CGSB-71.25.
- .7 Laminating compound: as recommended by manufacturer, asbestos-free.
- .8 Sealants: in accordance with Section 07 92 00.
- .9 Acoustic sealant: See Section 07 92 00.
- .10 Polyethylene: to CAN/CGSB-51.34, Type 2.
- .11 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.
- .12 Joint compound: to ASTM C 475, asbestos-free.

**PART 3 EXECUTION**

3.1 Erection

- .1 Do application and finishing of gypsum board in accordance with ASTM C 840 except where specified otherwise.
- .2 Do application of gypsum board sheathing in accordance with ASTM C 1280.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C 840 except where specified otherwise.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .5 Install Work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, and grilles.
- .7 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .8 Frame above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .9 Install wall furring for gypsum board wall finished in accordance with ASTM C 840, except where specified otherwise.
- .10 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .11 Frame duct shafts, beams, columns, pipes, and exposed services where indicated.
- .12 Erect drywall resilient furring transversely across studs, spaced maximum 600 mm O.C. and not more than 150 mm from ceiling/wall juncture. Secure to each support with 38 mm common nail or 25 mm drywall screw.
- .13 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.2 Application

- .1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical Work are approved.
- .2 Apply single or double layer gypsum board to wood or metal furring or framing using screw fasteners for first layer, screw fasteners for second layer. Maximum spacing using screws 300 mm O.C.
- .3 Apply single or double layer gypsum board to concrete or concrete block surfaces, where indicated, using laminating adhesive. Brace or fasten gypsum board until fastening adhesive has set. Gypsum board shall be mechanically fastened at top and bottom of each sheet.
- .4 Apply water-resistant gypsum board where wall tiles to be applied and adjacent to slop sinks, janitor closets, washrooms, sinks and showers. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.
- .5 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut boxed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.
- .6 On ceilings: Apply base layer prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 300 mm.
- .7 Apply base layers at right angles to supports unless otherwise indicated.

3.3 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 fir corners accurately and free from rough edges. Secure at 150 mm.
- .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.
- .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 Provide continuous polyethylene dust barrier behind and across control joints.
- .6 Locate control joints where indicated on drawings and at a maximum 6 m.
- .7 Install control joints straight and true.
- .8 Apply Fast-Mask trim to all visible surfaces of dissimilar materials: i.e. to timber, PVC, metal, masonry, glass, etc.
- .9 Install access doors to electrical and mechanical fixtures specified in respective Sections.
  - .1 Rigidly secure frames to furring or framing systems.
- .10 Finish face panel joints and internal angles with joint systems consisting of joint compound, joint tape, and taping compound installed according to manufacturer's directions and feathered onto panel faces.
- .11 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.

- .12 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.
- .13 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .14 Completed installation to be smooth, level or plumb, free from wavers and other defects and ready for surface finish.
- .15 Remove ridges by light sanding or wiping with damp cloth.
- .16 Install sound attenuation blankets where indicated.
- .17 Install ceiling boards in the direction that will minimize the number of end-but joints. Stagger end joints at least 300 mm.
- .18 Install gypsum board on wall vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes for fire-rated assemblies require vertical application.
- .19 Install gypsum board with face side out. Do not install damaged or damp boards.
- .20 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite wall.
- .21 Construct fire rated assemblies where indicated.

**PART 1 GENERAL**

1.1 Related Sections

- .1 Vapour and Air Barriers Section 07 27 00
- .2 Sheet Metal Flashings and Trim Section 07 62 00

1.2 References

- .1 Portland Cement Plaster Stucco Manual.

1.3 Samples

- .1 Submit 610 x 610 mm samples illustrating varying surface finishes and colours.

1.4 Environmental Requirements

- .1 Do not apply stucco when substrate or ambient air temperature is less than 10 degrees C.
- .2 Maintain minimum ambient temperature of 10 degrees C during and after installation of stucco.

**PART 2 PRODUCTS**

2.1 Types

- .1 Stucco type: Knock Down light dash stucco texture.

2.2 Materials

- .1 Cement: CAN3-A5M, Portland Type, Symbol 10, White or grey as selected by Contract Administrator.
- .2 Lime: Hydrated finishing lime conforming with current CSA Specification
- .3 Sand: CSA A.82.57 – 1954; clean, coarse, sharp, well screened.
- .4 Water: Clean, fresh, potable and free of mineral or organic matter which can affect stucco.
- .5 Imasco colour: Colour to match 1XL 287 Buckskin. Stucco colour to be approved by Contract Administrator.

2.3 Accessories

- .1 Sheet Air Barrier/Building Paper: DuPont Tyvek Housewrap as per Section 07 27 00.
- .2 Wire Mesh Reinforcement: 38 x 38 mm hot dipped galvanized steel 0.6 mm wire, woven mesh, self furring type.
- .3 Corner Beads, Base Screeds, Casing Beads, Stops, Control Joints: Formed steel, minimum 0.5 mm thick, expanded metal flanges, hot dipped galvanized finish; thickness to suit stucco thickness.
- .4 Flashings: As specified in Section 07 62 00.

Anchorage: Nails, staples, or other approved metal supports, of type and size to suit application, hot dipped galvanized, to rigidly secure reinforcement and associated metal accessories in place.

Aluminum Wall Trims: Gordon Inc. 2" Reveal – clear anodized.

- 2.4 Mix Design
  - .1 Develop stucco mix design in accordance with CSA A82.30M.
  - .2 Mix materials dry, to uniform colour and consistency, before adding water unless manufacturers written recommendation states otherwise.
  - .3 Protect mixtures from frost, contamination and evaporation.
  - .4 Do not retemper mixes after initial set has occurred.
- PART 3 EXECUTION**
- 3.1 Examination
  - .1 Verify that surfaces and site conditions are ready to receive Work.
  - .2 Grounds and Blocking: Verify items within walls for other sections of Work have been installed.
  - .3 Mechanical and Electrical: Verify services within walls have been tested and approved.
  - .4 Beginning of installation means acceptance of existing conditions.
- 3.2 Preparation
  - .1 Protect surfaces near the Work of this section from damage or disfiguration.
- 3.3 Installation – Reinforcement
  - .1 Wrap exterior of structure with sheet air barrier/building paper to areas indicated on the drawings. Secure to substrate with staples as sheet barrier is being unrolled to prevent billowing. Lap horizontal and vertical joints minimum 300 mm. At openings in the exterior wall cut an 'X' through the sheet barrier and return the sheet barrier to the inside framing.
  - .2 At external and internal corners, install a 150 mm wide strip of expanded metal lath bent to conform to angle or corner, with equal legs each side of corner.
  - .3 Install reinforcement over underlayment, with long dimension horizontal, lapping joints not less than 25 mm, lapping upper courses over lower courses, and lapping ends.
  - .4 Install casing beads, control joints, stops and screeds at locations as shown on drawings. Install straight, plumb, level, rigid and in the proper plane. Use full length pieces to minimize joints. Fit lengths together without gaps, accurately align and rigidly secure each side of joints. Mitre and fit corners accurately, without rough edges.
- 3.4 Stucco Application
  - .1 Apply scratch coat to a nominal thickness of 9 mm with sufficient material and force to form good key. Moist cure.
  - .2 Apply brown coat to nominal thickness of 9 mm, bring out grounds, straighten to true surface, float and compact. Moist cure.
  - .3 After curing, dampen brown coat prior to applying finish coat.
  - .4 Apply float finish coat to a nominal thickness of 6 mm. Float/trowel to reach desired surface texture. Avoid excessive working of surface. Delay towelling as long as possible to avoid drawing excess fines to surface.
  - .5 Moist cure finish coat for minimum period of 48 hours.
- 3.5 Tolerances
  - .1 Maximum variation from true flatness: 3 mm in 3m.

**PART 1 GENERAL**

1.1 Related Sections

- .1 Gypsum Board Section 09 21 16
- .2 Toilet and Bath Accessories Section 10 28 14

1.2 References

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 75.1-M88, Ceramic Tile
  - .2 American National Standard Specifications for the Installation of Ceramic Tile (ANSI)
  - .3 ANSI A 137.1-88, Ceramic Tile.
  - .4 ANSI A 108.4-92, Ceramic Tile, Installed with Organic Adhesives or Water Cleanable Tile Setting Epoxy Adhesive.
  - .5 ANSI A 108.10-92, Installation of Grout in Tile work.
  - .6 ANSI A 108.6-92, Ceramic Tile Installed with Chemical-Resistant, Water-Cleanable Tile-Setting and Grouting Epoxy.
  - .7 ANSI A 118.3-92, Water Cleanable Tile Setting and Grouting Epoxy.
  - .8 ANSI A 136.1-92, Organic Adhesive.
  - .9 Terrazzo Tile and Marble Association of Canada (TTMAC), Tile Installation Manual 2000.

1.3 Submittals

- .1 Samples
  - .1 Submit 300 mm x 300 mm sample panels of each colour, texture, size and pattern of tile.
  - .2 Adhere tile samples to 19 mm thick plywood and grout joints to represent project installation.
- .2 Closeout Submittals
  - .1 Provide product maintenance data for ceramic tile work for incorporation into Maintenance Manual specified in General Requirements.

1.4 Delivery, Storage, And Handling

- .1 Deliver all material to the installation site in the manufacturer's original packaging. Packaging to contain manufacturer's name, product name, and identification number and other related information.
- .2 Store packaged material in original containers or wrapping with manufacturer's seals and labels intact.
- .3 Prevent damage to materials during handling and storage. Keep material under cover and free from dampness.
- .4 Maintain temperature of storeroom at minimum of 20°C, for at least 24 hours immediately before installation.

- .5 Materials must be available for inspection as required by the City of Winnipeg, Contract Administrator, Contractor, or Manufacturer.
- 1.5 Site Conditions
  - .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials.
  - .2 Provide continuous ventilation during and after ceramic tile installation. Run ventilation system 24 hours per day during installation and provide continuous ventilation and for 48 to 72 hours after installation. Do not let contaminated air re-circulate through existing building air distribution system.
  - .3 Maintain air temperature at ceramic tile installation area above 20°C, and relative humidity between 10% and 30% for 48 hours before, during, and 48 hours after installation.
- 1.6 Maintenance
  - .1 Provide maintenance materials for ceramic tile and adhesive in accordance with General Requirements. Extra materials to be from same production run as installed materials. Clearly identify each type of ceramic tile and each container of adhesive.
  - .2 Provide whole tiles, minimum 2% of each type and colour required for project for maintenance use. Store where directed.

**PART 2 PRODUCTS**

- 2.1 Manufacturers
  - .1 Acceptable Products
  - .2 Ceramic Wall Tile (CT)
  - .3 Olympia Tile Excellence, Excellence 6" x 6" – Ames Bros. – Trims – Imperial 3" x 3" bright glazed.
  - .4 Organic Adhesive
  - .5 Flextile Duoflex 90 Type 1, Premium.
  - .6 Chembond 1640 Type 1, Ceramic Wall Adhesive.
  - .7 Laticrete #15 premium Organic Adhesive.
  - .8 Custom Building Products Reliabond Type 1 Mastic.
  - .9 Field colour and two accent colour tiles. (see interior elevation drawings)
  - .10 Supply similar products from a single manufacturer.
- 2.2 Materials
  - .1 Ceramic wall tile (CT): to ANSI A-137.1-88 and CAN/CGSB 75.1-M88, matte white, 6" x 6" and 3" x 3", square edge tiles, colour as selected. Allow for bullnose corner at edges except where otherwise detailed.
  - .2 Organic Adhesive: ceramic floor and wall tile adhesive to ANSI A136.1 Type 1.
  - .3 Polymer modified/unsanded (1/16" joint). Colour to be selected.
  - .4 Joint Sealants and caulking: in accordance with Section 07 92 00.
  - .5 Metal Trim: Purpose made tile trim by Schluter Systems (Canada). Suit to tile thickness: on all exposed edges – finish and colour to be determined by Contract Administrator.



**PART 3 EXECUTION**

**3.1 Preparation**

- .1 Ensure surfaces are plumb, level, true with square corners, smooth and dry, free of paint, grease, sealers, irregularities or loose material, and meet all the requirements listed in the TTMAC Tile Installation Manual 2000.
- .2 Work penetrating substance to be completed before installing ceramic tile.
- .3 Seal and prime wall surface to receive ceramic tile in accordance with manufacturer's instructions.

**3.2 Installation**

- .1 Do tile Work in accordance with TTMAC, Tile Installation Manual 2000 and manufacturer's printed instructions.
- .2 Lay out all tilework according to drawings and patterns so that perimeter and all cut tiles are no less than one half in size and locate cuts so as to be least conspicuous.
- .3 Align all joints to give straight grout lines parallel to walls. Make internal angles square, external angles bullnosed.
- .4 Make joints between tile sheets same as widths within sheets.
- .5 Use bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.
- .6 Leave min. 3 mm gap whenever a horizontal plane abuts a vertical plane. To be filled with flexible sealant. Scribe as necessary around obstacles and to produce neat joints, and in straight uniform lines.
- .7 Fit tile around corners, fitments, fixtures, and other built- in objects to maintain uniform joint appearance. Make cut edges smooth, even and free from chipping. Edges resulting from splitting not acceptable.
- .8 When appropriate, mix tiles from several boxes prior to installation to assure that colour variations from tile to tile are evenly distributed throughout the field.
- .9 For tile with raised or textured backs, bonding material must be pressed into the back of the tile to ensure a minimum of 95% coverage. Set tile in place while bond coat is wet and tacky, prior to skinning over. Slide tile back and forth to ensure a proper bond and level surface. Avoid lippage by levelling tiles to conform to a 1 mm tolerance over a 3 mm joint. Backbutter as required, to ensure 95% bond coverage (backbutter by applying adhesive to the back of the tile using the flat edge of the trowel). Clean backs of tiles to ensure proper bonding. Clean excess mortar from surface, prior to mortar setting. Sound tiles after setting and replace any hollow sounding tiles before grouting.
- .10 Follow grout manufacturer's recommendations as to grouting procedures and precautions.
- .11 Test grout on a sample of tile prior to installation to determine need for special sealers, grout releases, or cleaning procedures.
- .12 Clean all surfaces after completion of grouting and remove any grout haze.

**3.3 Protection**

- .1 Protect wall tiles and bases from impact, vibration, heavy hammering on adjacent and opposite walls for at least 14 days after installation.

**PART 1 GENERAL**

1.1 Related Documents

- .1 Drawings and general provisions of Contract, including General and Supplementary Conditions.

1.2 Summary

- .1 The floor to have a two-component general service 100% solids epoxy coating with a decorative broadcast flakes, a two-component 100% solids clear sealer to be applied afterwards. Resinous coves includes penetrating, moisture tolerant, two-component epoxy primer, a high performance, three-component mortar consisting of epoxy resin, curing agent and selected, graded aggregates blended with inorganic pigments and a two-component, general service epoxy coating. Decorative flakes to be broadcasted within the epoxy coating.

1.3 Submittals

- .1 Product Data: Submit manufacturer's technical data, installation instructions, and general recommendations for each resinous flooring material required. Include certification indicating compliance of materials with requirements.
- .2 Samples: Submit, for verification purposes, 4-inch square samples of each type of resinous flooring required, applied to a rigid backing, in color and finish indicated.
  - .1 For initial selection of colors and finishes, submit manufacturer's color charts showing full range of colors and finishes available.

1.4 Quality Assurance

- .1 Single Source Responsibility: Obtain primary resinous flooring materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Contractor shall have completed at least five projects of similar size and complexity; Stonhard or approved equal. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.
- .2 Pre-Installation Conference
  - .1 Contractor shall arrange a meeting not less than thirty days prior to starting Work.
  - .2 Attendance
    - .1 Contractor
    - .2 Contract Administrator/Contract Administrator's Representative
    - .3 Manufacturer/Installer's Representative
- .3 ISO 9002: All materials, including primers, resins, curing agents, finish coats, aggregates and sealants are manufactured and tested under an ISO 9002 registered quality system.

1.5 Delivery, Storage And Handling

- .1 Material shall be delivered to job site and checked by flooring Contractor for completeness and shipping damage prior to job start.
- .2 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.

- .3 Material shall be stored in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 60 and 85°F/16 and 30°C.
- 1.6 Project Conditions
  - .1 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.
  - .2 Utilities, including electric, water, heat (air temperature between 60 and 85°F/16 and 30°C) and finished lighting to be supplied by Contractor.
  - .3 Job area to be free of other trades during, and for a period of 24 hours, after floor installation.
  - .4 Protection of finished floor from damage by subsequent trades shall be the responsibility of the Contractor.
- 1.7 Warranty
  - .1 Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation.

**PART 2 PRODUCTS**

- 2.1 Colours
  - .1 Colours: As selected by Contract Administrator from manufacturer's standard colours.
- 2.2 Epoxy Flooring
  - .1 Stonkote GS4, with Stontec decorative flakes with Stonshield Sealer as manufactured by Stonhard, Inc., (204) 782-0638, is a 30 mils DFT thick system comprised of a two-component, 100% solids, general service, epoxy coating, decorative epoxy flakes, and a two-component 100% solids high performance epoxy sealer.
  - .2 Coves to consist of a two component epoxy primer to be applied at 6" height, with Stonclad GS which is a three component trowelled epoxy mortar applied vertically to install trowelled coves then finished with Stonkote GS4, Stontec flakes and Stonshield sealer as stated above.
  - .3 Janitor's sink to consist of a two component epoxy primer, with Stonclad GS which is a three component trowelled epoxy mortar applied vertically to install trowelled coves and walls as indicated on drawings then finished with Stonkote GS4, Stontec flakes and Stonshiled sealer as stated above.
  - .4 Physical Properties: Provide flooring system in which physical properties of topping including aggregate, when tested in accordance with standards or procedures referenced below, are as follows:

Compressive Strength.....	10,000 psi
(ASTM C-579)	
Tensile Strength .....	1,750 psi
(ASTM C-307)	
Flexural Strength.....	4,000 psi
(ASTM C-580)	
Hardness .....	85-90
(ASTM D-2240/Shore D)	
Bond Strength .....	>400 psi
(ASTM D-4541)	(100% concrete failure)

Impact Resistance.....	> 160 in. lbs.
(ASTM D-4226)	
Abrasion Resistance .....	0.08 gm max. weight loss
(ASTM D-4060, Taber Abrader CS-17 wheel)	
Coefficient of Friction .....	0.75
(ASTM D-2047)	
Flexural Modulus of Elasticity .....	2.0 x 10 <sup>6</sup> psi
(ASTM C-580)	
Flammability .....	Self Extinguishing
(ASTM D-635)	Extent of burning 0.25 inches max.
Thermal Coefficient of Linear Expansion .....	1.5 x 10 <sup>-5</sup> in/in°C
(ASTM C-531)	
Water Absorption .....	0.2%
(ASTM C-413)	
Heat Resistance Limitation .....	140°F/60°C
	(for continuous exposure)
	.....200°F/93°C
	(for intermittent spills)
Cure Rate allow.....	8 hours for foot traffic
(at 77°F/25°C)	24 hours for normal operations

2.3 Joint Sealant Materials

- .1 Type produced by manufacturer of resinous flooring system for type of service and joint condition indicated.

**PART 3 EXECUTION**

3.1 Preparation

- .1 Substrate: Concrete preparation shall be by mechanical means and include use of a scabbler, scarifier or shot blast machine for removal of bond inhibiting materials such as curing compounds or laitance.

3.2 Application

- .1 General: Apply each component of resinous flooring system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawn joints or other types of joints (if any), indicated or required.
- .2 Primer: Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates. Coordinate timing of primer application with application of troweled mortar to ensure optimum adhesion between resinous flooring materials and substrate.
- .3 Troweled Mortar: Mix mortar material according to manufacturer's recommended procedures. Uniformly spread mortar over substrate using manufacturer's specially designed screed box adjusted to manufacturer's recommended height. Hand trowel apply mixed material over freshly primed substrate using stainless steel finishing trowels.
- .4 Coating: Remove any surface imperfections by lightly abrading and vacuuming the floor surface. Mix, squeegee apply and backroll coating with strict adherence to manufacturer's installation procedures and coverage rates.

3.3 Field Quality Control

- .1 The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of flooring application.
- .2 The City will engage service of an independent testing laboratory to sample materials being used on the job site. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.
- .3 Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures referenced herein, or if none referenced, in manufacturer's product data.
- .4 If test results show materials being used do not comply with specified requirements, Contractor may be directed by City to stop Work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.

3.4 Curing, Protection And Cleaning

- .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 24 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. 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**

- 1.4 This section includes all labour, materials, tools and other equipment, services and supervision required to complete all exterior and interior painting and decorating work as indicated on Finish Schedules and to the full extent of the drawings and specifications.
- 1.5 Related Work
- |    |                          |                  |
|----|--------------------------|------------------|
| .1 | Concrete Unit Masonry    | Section 04 22 00 |
| .2 | Finish Carpentry         | Section 06 20 00 |
| .3 | Architectural Woodwork   | Section 06 41 11 |
| .4 | Steel Doors and Frames   | Section 08 41 13 |
| .5 | Wood Doors               | Section 08 14 16 |
| .6 | Gypsum Board             | Section 09 21 16 |
| .7 | Division 23 – Mechanical |                  |
| .8 | Division 26 – Electrical |                  |
- 1.6 References
- .1 Architectural Painting Specifications Manual, Master Painters Institute (MPI)
- 1.7 Samples
- .1 Submit samples in accordance with section 01 33 00 – Submittal Procedures
- .2 Submit samples in duplicate of each colour selected in 300 mm x 300 mm sizes.
- 1.8 Quality Assurance
- .1 Do not apply paint finish in areas where dust is being generated.
- .2 The Contractor shall have a minimum of five (5) years proven satisfactory experience and shall show proof before commencement of Work that he will maintain a qualified crew of painters throughout the duration of the Work. When requested, the Contractor shall provide a list of the last three comparable jobs including name and location, specifying authority/project manager, start/completion dates and value of the painting work.
- .3 Only qualified persons, as defined by local jurisdiction shall be engaged in painting and decorating work.
- .4 All materials, preparation and workmanship shall conform to requirements of the LATEST EDITION of the Architectural Painting Specification Manual by Master Painters Institute (MPI)- hereafter referred to as the MPI Painting Manual- as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.
- .5 All paint manufacturers and products used shall be as listed under the Approved Product List section of the MPI Painting Manual.
- 1.9 Maintenance Materials
- .1 At project completion, provide 5 gallons of each type and colour of paint from the same production run (batch mix) in unopened cans, properly labelled and identified for City's later use in maintenance.

1.10 Guarantee

- .1 Furnish either the local MPI Accredited Quality Assurance Association's two (2) year guarantee, or alternatively, a 100% two (2) year Maintenance Bond- both in accordance with MPI Painting Manual requirements. The Maintenance Bond shall warrant that all painting work has been performed in accordance with MPI Painting Manual requirements.

**PART 2 PRODUCTS**

1.11 Materials

- .1 Paint materials: only materials listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project. All such material shall be a single manufacturer for each system used.
- .2 Acceptable products
  - .1 Benjamin Moore- Cloverdale, ICI Delux Lifemaster.- Low VOC, low odour. Choice of full range of colours.
- .3 Other material such as linseed oil, shellac, thinners, solvents, etc. shall be the highest quality product of an MPI listed manufacturer and shall be compatible with paint materials being used as required.
- .4 All materials used shall be lead and mercury free and shall have low VOC content where possible.
- .5 All paint materials used shall have good flowing and brushing properties and shall dry or cure free of blemishes, sags, air entrapment etc.
- .6 Where required, paints and coatings shall meet flame spread and smoke development ratings designated by local Code requirements and/or authorities having jurisdiction.
- .7 Unless otherwise specified herein, all painting work shall be in accordance with MPI Premium Grade finish requirements.
- .8 Colours shall be as selected by the Contract Administrator from a manufacturer's full range of colour. Refer to finish schedules and drawings for identification and location of colours.

**PART 3 EXECUTION**

1.12 Gloss/Sheen Ratings

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

Gloss Level Category	Units @ 60 deg	Units @ 85 deg
G1- matte finish	0 to 5	Max. 10
G2- velvet finish	0 to 10	10 to 35
G3 – eggshell finish	10 to 25	10 to 35
G4 – satin finish	20 to 35	Min 35
G5 – semi-gloss finish	35 to 70	
G6 – gloss finish	70 to 85	
G7 – high gloss finish	> 85	

1.13 Condition of Surfaces

- .1 Prior to commencement of the Work in this section, thoroughly examine (and test as required) all conditions and surfaces scheduled to be painted and report in writing to the Contractor and the Contract Administrator any conditions or surfaces that will adversely affect work of the section.
- .2 No painting work shall commence until all such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to the Contractor and the Contract Administrator.
- .3 Commencement of the Work shall not be held to imply acceptance of surfaces except as qualified herein. Such surfaces as concrete, masonry, structural steel and miscellaneous metal, wood, gypsum board, and plaster, shall not be the responsibility of the Painting Sub-Contractor.
- .4 The Painting Sub-Contractor shall not be responsible for the condition of the substrate or for correcting defects and deficiencies in the substrate, which may adversely affect the painting work except for minimal work, normally performed by the Painting Sub-trade and as indicated herein. It shall always, however, be the responsibility of the Painting Sub-trade to see that surfaces are properly prepared before any paint or coating is applied.

1.14 Preparation of Surfaces

- .1 Prepare all surfaces in accordance with MPI requirements. Refer to the MPI Painting Manual in regard to specific requirements.
- .2 Sand, clean, dry, etch, neutralize and/or test all surfaces under adequate illumination, ventilation and temperature requirements.
- .3 Remove and securely store all miscellaneous hardware and surface fittings/fastenings {e.g. electrical plates, mechanical louvers, door and window hardware (hinges, knobs, locks, trim, frame stops) removable rating/hazard/instruction labels, washroom accessories, light fixture trim, etc.}, from wall and ceiling surfaces, doors and frames, prior to painting. Carefully clean and replace all such items upon completion of painting work in each area, do not use solvent or reactive cleaning agents on items that will mar or remove finishes (e.g. lacquer finishes). Doors shall be removed before painting to paint bottom and top edges, and then re-hung.
- .4 Protect all adjacent interior surfaces and areas, including rating and instruction labels on doors, frames, equipment, piping, etc., from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.
- .5 Substrate defects shall be made good and sanded by others ready for painting, particularly after the first coat of paint. Start of finish painting of defective surfaces (e.g. Gypsum board) shall indicate acceptance of the substrate and any costs of making good defects shall be borne by the painter, including repainting of entire surface (no touch-up painting).
- .6 Confirm preparation and primer used with fabricator of steel items. Refer to Quality Assurance – Section 01 43 00.

1.15 Application

- .1 Do not paint unless substrates are acceptable and/or until all environmental conditions (heating, ventilation, lighting and completion of other sub trade work) are acceptable for applications of products.



- .2 Apply paint or stain in accordance with MPI Painting Manual Premium Grade finish requirements.
- .3 Apply paint and decorating material in a workmanlike manner using skilled and trade qualified applicators as noted under Quality Assurance.
- .4 Apply paint and coatings within an appropriate time frame after cleaning when environmental conditions encourage flashing-rusting, rusting, contamination or the manufacturer's paint specifications require earlier applications.
- .5 Painting coats specified are intended to cover surfaces satisfactorily when applied at proper consistency and in accordance with manufacturer's recommendations.
- .6 Tint each coat of paint progressively lighter to enable confirmation of number of coats.
- .7 Unless otherwise approved by the Contract Administrator, apply a minimum of four coats of paint where deep or bright colours are used to achieve satisfactory results.
- .8 Sand and dust between each coat to provide an anchor for next coat and to remove defects visible from a distance up to 1000 mm (39").
- .9 Do not apply finishes on surfaces that are not sufficiently dry. Unless manufacturer's directions state otherwise, each coat shall be sufficiently dry and hard before a following coat is applied.
- .10 Prime coat of stain or varnish finishes may be reduced in accordance with manufacturer's directions.
- .11 Paint finish shall continue through behind all wall-mounted items (e.g. chalk and tack boards).

1.16 Mechanical/Electrical Equipment and Related Sections

- .1 Unless otherwise specified or noted, paint all "unfinished" conduits, piping, hangers, ductwork, and other mechanical and electrical equipment with colour and texture to match adjacent surfaces, in the following areas:
  - .1 Where exposed-to-view in all exterior (includes roof-top units) and interior areas.
  - .2 In all interior high humidity interior areas.
  - .3 In all boiler room, mechanical and electrical rooms.
- .2 In unfinished areas, leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .3 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .4 Do not paint over nameplates.
- .5 Paint the inside of all ductwork where visible behind louvers, grilles and diffusers for a minimum of 460 mm (18") or beyond sight line, whichever is greater, with primer and one coat of matt black (non-reflecting) paint.
- .6 Paint the inside of light valances gloss white.
- .7 Paint disconnected switches for fire alarm system and exit light systems in red enamel.
- .8 Paint red or band on all fire protection piping and sprinkler lines in accordance with mechanical specification requirements. Keep sprinkler heads free of paint.

- .9 Paint yellow or band on all natural gas piping in accordance with mechanical specification requirements.
  - .10 Back prime and paint face and edges of plywood service panels for telephone and electrical equipment before installation to match adjacent wall surface. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
  - .11 Paint exterior steel electrical light standards. Do not paint outdoor transformers and substation equipment.
  - .12 Paint parking stall and parking symbol on concrete paving as indicated on drawing.
- 1.17 Field Quality Control and Standard of Acceptance
- .1 All surfaces, preparation and paint applications shall be inspected.
  - .2 Painted exterior and interior surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to the Painting Inspection Agency inspector:
    - .1 Brush/roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, and foreign materials in paint coatings.
    - .2 Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.
    - .3 Damage due to touching before paint is sufficiently dry or any other contributory cause.
    - .4 Damage due to application on moist surfaces or caused by inadequate protection from the weather.
    - .5 Damage and/or contamination of paint due to blown contaminants (dust, spray, paint, etc.)
  - .3 Painted surfaces shall be considered unacceptable if any of the following are evident under natural lighting source for exterior surfaces and final lighting source (including daylight) for interior surfaces:
    - .1 Visible defects are evident on vertical surfaces when viewed at normal viewing angles from a distance of not less than 1000 mm (39").
    - .2 Visible defects are evident on horizontal surfaces when viewed at normal viewing angles from a distance of not less than 1000 mm (39").
    - .3 Visible defects are evident on ceiling, soffit, and other overhead surfaces when viewed at normal viewing angles.
    - .4 When the final coat on any surface exhibits a lack of uniformity of colour, sheen, texture, and hiding across full surface area.
  - .4 Painted surfaces rejected by the Contract Administrator shall be made good at the expense of the Contractor. Small affected areas may be touched up; large affected areas or areas without sufficient dry film thickness of paint shall be repainted. Runs, sags of damaged paint shall be removed by scraper or by sanding prior to application of paint.

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- 1.18 Protection
- .1 Protect all exterior surfaces and areas, including landscaping, walks, drives, all adjacent building surfaces (including glass, aluminum surfaces, etc.) and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.
  - .2 Protect all interior surfaces and areas, including glass, aluminum surfaces, etc., and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.
  - .3 Erect barriers or screens and post signs to warn of or limit or direct traffic away or around Work area as required.
- 1.19 Clean-Up
- .1 Remove all paint where spilled, splashed, splattered, or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.
  - .2 Keep work area free from unnecessary accumulation of tools, equipment, surplus materials and debris.
  - .3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.
  - .4 Clean equipment and dispose of wash water/solvents as well as all other cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paints, thinners, paint removers/strippers in accordance with the safety requirements of authorities having jurisdiction.
- 1.20 Interior Finishes
- .1 For poured concrete walls: Concrete blocks, hollow core ceiling, INT 4.2 Alkyd G5.
  - .2 For plaster and gypsum board walls and ceilings: INT 9.2B Architectural Latex: Walls G3, Ceilings G1.
  - .3 For primed ferrous metal surfaces: INT 5.1E Alkyd G5.
  - .4 For galvanized and zinc-coated metal: INT 5.3C Alkyd G5.
  - .5 For insulation covering: INT 5.5A Alkyd G5.
  - .6 For copper piping and fittings: INT 5.5A Alkyd G5.
- 1.21 Exterior Finishes
- .1 For wood to receive paint finish: Ext 6.3B Alkyd G5.
  - .2 For primed ferrous metal surfaces: Ext 5.1D Alkyd G5
  - .3 For galvanized and zinc-coated metal: Ext 5.3B Alkyd G5.