

Part 1 General

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM C475/C475M-15, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .2 ASTM C645-14, Non-Structural Steel Framing Members.
 - .3 ASTM C754-15, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 - .4 ASTM C840-13, Standard Specification for Application and Finishing of Gypsum Board.
 - .5 ASTM C954-11, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
 - .6 ASTM C1002-14, 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.
 - .7 ASTM C1325-08, Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units.
- .2 Gypsum Association (GA)
 - .1 GA-214-15, Recommended Levels of Finish for Gypsum Board, Glass Mat, and Fiber-Reinforced Gypsum Panels.
 - .2 GA-216-13, Application and Finishing of Gypsum Panel Products.

1.2 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; include product characteristics, performance criteria, physical size, finish, and limitations.

1.3 REGULATORY REQUIREMENTS

- .1 Conform to applicable code for fire rated assemblies in conjunction with Section 09 22 16 as follows:
 - .1 Fire resistance classifications to CAN/ULC S102.
 - .2 Fire rated Design Assembly No. as listed on Drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

- .2 Deliver materials to site in original packaging, labelled with manufacturer's name and identification.
- .3 Storage and Handling Requirements:
 - .1 Store gypsum board assemblies materials level off ground and indoors 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.

1.5 AMBIENT CONDITIONS

- .1 Maintain temperature 10°C minimum, 21°C maximum for 48 hours prior to and during application of gypsum boards and joint treatment, and for 48 hours minimum after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost-free surfaces.
- .3 Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material, immediately after its application.

Part 2 Products

2.1 MATERIALS

- .1 Cementitious Backer Board: ASTM C1325 or ANSI A118.9, high density, fibre reinforced cementitious board, thickness as shown on Drawings; maximum available size in place; smoothed edges, ends square cut.
- .2 Carrying Channels: Cold rolled steel to ASTM C645, galvanized.
- .3 Tie Wire: To ASTM C754.
- .4 Hangers: To ASTM C754, galvanized.
- .5 Steel drill screws: ASTM C1002.
- .6 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, metal, zinc-coated by hot-dip process, 0.5 mm base thickness, perforated flanges, one piece length per location.
- .7 Sealants: In accordance with Section 07 92 00 - Joint Sealants.
 - .1 Acoustic sealant: In accordance with Section 07 92 00 - Joint Sealants.
- .8 Joint tape: ASTM C475, 52 mm wide fibre paper tape.
- .9 Joint compound: ASTM C475, asbestos-free.

2.2 FRAMING MATERIALS

- .1 Studs and Tracks: As specified in Section 09 22 16.
- .2 Furring, framing, and accessories: ASTM C645.
- .3 Anchorage to substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application, and to rigidly secure materials in place.
 - .1 Tie wire: To ASTM C754.
 - .2 Hangers: To ASTM C754, galvanized.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify conditions of substrates are acceptable for installation of gypsum board assemblies in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate.
 - .2 Inform Departmental Representative of unacceptable conditions.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 ERECTION

- .1 Apply and finish gypsum board to ASTM C840 or GA-216 except where specified otherwise.
- .2 Install furring as required for fire resistance ratings indicated.
- .3 Furr openings and around built-in equipment, cabinets, and access panels on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .4 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- .5 Erect drywall resilient furring transversely across studs, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with drywall screws.
- .6 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.3 APPLICATION

- .1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical work, and mechanical work have been approved.
- .2 Apply cementitious backer board where coating to be applied. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads.
- .3 Do not install damaged boards.

- .4 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.4 INSTALLATION - GENERAL

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges.
- .2 Splice corners and intersections together and secure to each member with 3 screws.
- .3 Install access doors to electrical and mechanical fixtures as specified in their respective sections.
 - .1 Rigidly secure frames to furring or framing systems.
- .4 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.
- .5 Finish gypsum board walls and ceilings to following levels in accordance with GA-214:
 - .1 Levels of finish:
 - .1 Level 3: embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
- .6 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board to be invisible after surface finish is completed.
- .7 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .8 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- .9 Treat cut edges and holes in moisture resistant gypsum board with sealant.

3.5 CEILING INSTALLATION

- .1 Install to ASTM C754 or GA-216.
- .2 Erect hangers and runner channels for suspended gypsum board ceilings to ASTM C840 except where specified otherwise.
- .3 Install ceiling framing independent of walls, columns, and above ceiling work.
- .4 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .5 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

- .6 Install work level, to tolerance of 1:1200.
- .7 Coordinate location of hangers with other work.
- .8 Reinforce openings in ceiling suspension system that interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 600 mm past each end of openings.
- .9 Laterally brace entire suspension system.

3.6 TOLERANCES

- .1 Maximum variation of finished gypsum board surface from true flatness: 3 mm in 3 m, in any direction.

3.7 CLEANING

- .1 Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning. Leave Work area clean at end of each day.
- .2 Final Cleaning: Upon completion, remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.8 PROTECTION

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

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM C645-14, Standard Specification for Nonstructural Steel Framing Members.
 - .2 ASTM C754-11, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.181-99, Ready-Mixed Zinc-Rich Coating.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.2 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 metal framing. Include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
 - .1 Submit duplicate 300 mm long samples of non-structural metal framing.

1.3 QUALITY ASSURANCE

- .1 Certificates: Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect metal framing from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Non-load bearing channel stud framing: To ASTM C645, stud size as shown on drawings, roll formed from hot dipped galvanized steel sheet, for screw attachment of gypsum board.
 - .1 Base steel thickness unless otherwise indicated in drawings:
 - .1 General wall construction: Minimum 0.46 mm (25 gauge).
 - .2 For attachment of cement board: Minimum 0.91 mm (20 gauge).
 - .3 Single studs at jambs: Minimum 0.91 mm (20 gauge).
 - .2 Knock-out service holes at 460 mm centres.
 - .3 Floor and ceiling tracks: In widths to suit stud sizes, 32 mm flange height.
- .2 Touch-up primer for galvanized surfaces: CAN/CGSB 1.181.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that conditions of substrate are acceptable for non-structural metal framing application in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate.
 - .2 Inform Departmental Representative of unacceptable conditions.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 ERECTION

- .1 Align partition tracks at floor and ceiling and secure at maximum 600 mm on centre.

Place studs vertically at 400 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners.

 - .1 Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .2 Erect metal studding to tolerance of 1:1000.
- .3 Attach studs to bottom track using screws.
- .4 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .5 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
- .6 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified.

- .1 Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .7 Erect track at head of door/window openings to accommodate intermediate studs.
 - .1 Secure track to studs at each end, in accordance with manufacturer's instructions.
 - .2 Install intermediate studs above and below openings in same manner and spacing as wall studs.
- .8 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
- .9 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .10 Extend partitions to ceiling height except where noted otherwise on drawings.
- .11 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs.
 - .1 Use double track slip joint as indicated.

3.3 CLEANING

- .1 Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Leave Work area clean at end of each day.
- .3 Final Cleaning: Upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .4 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by non-structural metal framing application.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
- .2 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specifications Manual, current edition.
 - .2 MPI Maintenance Repainting Manual, current edition.
- .4 National Fire Code of Canada - 2010.
- .5 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

1.2 QUALITY ASSURANCE

- .1 Pre-Installation Meeting:
 - .1 Convene pre-installation meeting one week prior to beginning work of this Section in accordance with Section 01 32 16 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Coordination with other building sub-trades.
 - .4 Review installation instructions and warranty requirements.

1.3 SCHEDULING

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

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit product data and instructions for each paint and coating product to be used.

- .2 Submit product data for the use and application of paint thinner.
- .3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS). Indicate VOCs during application and curing.
- .3 Samples:
 - .1 Submit full range colour sample chips to indicate where colour availability is restricted.
 - .2 Submit duplicate 200 x 300 mm sample panels of each paint and stain with specified paint or coating in colours, gloss/sheen, and textures required, to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:
 - .1 3 mm plate steel for finishes over metal surfaces.
 - .2 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
 - .3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
 - .4 Certificates: Submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.
 - .5 Manufacturer's Instructions:
 - .1 Submit manufacturer's application instructions.
 - .6 Closeout Submittals: Submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals include following:
 - .1 Product name, type, and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.

1.5 MAINTENANCE

- .1 Extra Materials:
 - .1 Deliver to extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Section 01 78 00 - Closeout Submittals.
 - .2 Quantity: Provide one 4 litre can of each type and colour of primer, stain, and finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Pack, ship, handle, and unload materials in accordance with Section 01 61 00 - Common Product Requirements and manufacturer's written instructions.
- .2 Identify products and materials with labels indicating:
 - .1 Manufacturer's name and address.

- .2 Type of paint or coating.
- .3 Compliance with applicable standard.
- .4 Colour number in accordance with established colour schedule.
- .3 Remove damaged, opened, and rejected materials from site.
- .4 Storage and Protection:
 - .1 Provide and maintain dry, temperature controlled, secure storage.
 - .2 Store materials and supplies away from heat generating devices.
 - .3 Store materials and equipment in well-ventilated area with temperature range 7°C to 30°C.
- .5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.
- .7 Remove paint materials from storage only in quantities required for same day use.
- .8 Fire Safety Requirements:
 - .1 Provide one 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.
- .9 Waste Management and Disposal:
 - .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Place materials defined as hazardous or toxic in designated containers.
 - .4 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional, and Municipal regulations.
 - .5 Ensure emptied containers are sealed and stored safely.
 - .6 Dispose of unused paint and coating materials at official hazardous material collections site.
 - .7 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.
 - .8 Material that cannot be reused is to be treated as hazardous waste and disposed of in an appropriate manner.

- .9 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .10 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into ground follow these procedures:
 - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out.
 - .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 - .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 - .4 Dispose of contaminants in approved legal manner in accordance with hazardous waste regulations.
 - .5 Empty paint cans are to be dry prior to disposal or recycling (where available).
- .11 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

1.7 SITE CONDITIONS

- .1 Heating, Ventilation, and Lighting:
 - .1 Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
 - .2 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
 - .3 Provide minimum lighting level of 323 Lux on surfaces to be painted.
- .2 Temperature, Humidity, and Substrate Moisture Content Levels:
 - .1 Unless pre-approved written approval by Specifying body and product manufacturer, perform no painting when:
 - .1 Ambient air and substrate temperatures are below 10°C.
 - .2 Substrate temperature is above 32°C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.
 - .4 Relative humidity is under 85% or when the dew point is more than 3°C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3°C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.

- .5 Ensure conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.
- .2 Perform painting work when maximum moisture content of the substrate is below:
 - .1 12% for plaster and gypsum board.
 - .2 15% for wood.
- .3 Test for moisture using calibrated electronic Moisture Meter.
- .4 Test plaster surfaces for alkalinity as required.
- .3 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.
- .4 Additional interior application requirements:
 - .1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

Part 2 Products

2.1 MATERIALS

- .1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Conform to latest MPI requirements for interior painting work including preparation and priming.
- .4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.
- .5 Linseed oil, shellac, and turpentine: Highest quality product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.
- .6 Use MPI listed materials having minimum E2 rating where indoor air quality (odour) requirements exist.
- .7 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
 - .1 Manufactured without compounds that contribute to ozone depletion in the upper atmosphere.

- .2 Manufactured without compounds that contribute to smog in the lower atmosphere.
- .3 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
- .8 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
- .9 Flash point: 61.0°C or greater for water-borne surface coatings and recycled water-borne surface coatings.
- .10 Water-borne paints and stains, recycled water-borne surface coatings, and water borne varnishes to meet minimum "Environmentally Friendly" rating.

2.2 COLOURS

- .1 Selection of colours from manufacturers' full range of colours.
- .2 Where specific products are available in restricted range of colours, selection based on limited range.
- .3 Second coat in three-coat system to be tinted slightly lighter colour than topcoat to show visible difference between coats.
- .4 Colours: Confirm colours with Departmental Representative:

2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Departmental Representative for tinting of painting materials.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
- .4 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

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

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like	20 to 35	min. 35

Finish		
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

- .2 Gloss level ratings of painted surfaces as noted on Finish Schedule.

2.5 INTERIOR PAINTING SYSTEMS

- .1 Concrete Unit Masonry:
 - .1 INT 4.2D – High performance architectural latex, G3.
 - .1 Coat 1: Latex block filler, MPI #4.
 - .2 Coats 2 and 3: HIPAC latex, MPI #139.
 - .2 Galvanized metal: Doors and door frames.
 - .1 INT 5.3M – High performance architectural latex, G5 finish.
 - .1 Coat 1: Water based primer, MPI #134.
 - .2 Coats 2 and 3: HIPAC latex, MPI #141.

2.6 INTERIOR REPAINTING

- .1 Concrete Unit Masonry:
 - .1 RIN 4.2K – High performance architectural latex, G3.
 - .1 Touch-up, spot prime: MPI #139.
 - .2 Coats 1 and 2: MPI #139.
 - .2 Galvanized metal: Doors and door frames.
 - .1 RIN 5.3J – High performance architectural latex, G5 finish.
 - .1 Coat 1: Touch-up, MPI #141.
 - .2 Coats 2 and 3: HIPAC latex, MPI #141.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 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.

3.3 EXAMINATION

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
 - .1 Plaster and gypsum board: 12%.

3.4 PREPARATION

- .1 Protection:
 - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
 - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
 - .3 Protect factory finished products and equipment.
 - .4 Protect, building occupants and general public in and about the building.
- .2 Surface Preparation:
 - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, surface mounted equipment, fittings, and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
 - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
 - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.
- .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and other surface debris by vacuuming, and wiping with dry, clean cloths.
 - .2 Wash surfaces with a biodegradable detergent and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .4 Allow surfaces to drain completely and allow to dry thoroughly.
 - .5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
 - .6 Use trigger operated spray nozzles for water hoses.
 - .7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.
- 4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.
 - .5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
 - .2 Apply wood filler to nail holes and cracks.
 - .3 Tint filler to match stains for stained woodwork.
 - .6 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.
 - .7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes and vacuum cleaning.
 - .8 Touch up of shop primers with primer as specified.
 - .9 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

3.5 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush and roller. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
 - .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
 - .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
 - .5 Remove runs, sags and brush marks from finished work and repaint.

- .3 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .4 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .6 Sand and dust between coats to remove visible defects.
- .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 cut-outs of doors after fitting as specified for door surfaces.

3.6 SITE TOLERANCES

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

3.7 RESTORATION

- .1 Clean and re-install hardware items removed before undertaken painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing, and handling of paint to clean condition as approved by Departmental Representative.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM D412-06ae2, Standard Test Method for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
 - .2 ASTM D570—98 (2010)e1, Water Absorption of Plastics.
 - .3 ASTM D2240-05 (2010), Rubber Property – Durometer Hardness.
- .2 Underwriters' Laboratories of Canada (ULC)

1.2 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 elastomeric coating application; include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS MSDS in accordance with Section 01 35 29 - Health and Safety Requirements.
- .3 Samples:
 - .1 Submit duplicate 200 x 200 mm samples of each colour and texture of wall coating applied to cement board.
 - .2 Prior to commencing application, prepare wall and apply sample of wall coating to full wall panels, for Departmental Representative's approval.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: Submit operation and maintenance data for elastomeric coatings for incorporation into manual.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.

1.5 SITE CONDITIONS

- .1 Environmental Requirements:
 - .1 Temperature: minimum temperature of substrate 15°C. Maintain temperature during and for 48 hours before and after coating is applied.
- .2 Ventilation:
 - .1 Provide continuous ventilation during and after coating application.

Part 2 Products

2.1 MATERIALS

- .1 Coating: Two-component, 100% solids elastomeric polyurea hybrid lining, minimum dry film thickness 3.0 mm.
 - .1 Colour: As selected by Departmental Representative from manufacturer's standard range.
 - .2 Hardness to ASTM D2240, Shore D: 55 ± 5.
 - .3 Elongation to ASTM D412: 100%.
 - .4 Tensile strength to ASTM D412: 13.8 MPa (2000 psi).
 - .5 Water absorption to ASTM D570: ≤ 1.5%.
- .2 Substrate filler: Cement/sand/polymer or latex type.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for elastomeric coating application in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate.
 - .2 Ensure that items penetrating coating are placed before application of coating.
 - .3 Measure moisture and alkalinity of concrete substrate.
 - .4 Inform Departmental Representative of unacceptable conditions.
 - .5 Proceed with installation only after unacceptable conditions have been remedied.

3.2 PREPARATION

- .1 Protect adjacent surfaces and equipment from damage by over spray, fall-out and dusting.
- .2 Clean substrate of matter which would affect bond of applied coating.

3.3 APPLICATION

- .1 Manufacturer's Instructions: Comply with manufacturer's written application recommendations.
- .2 Apply substrate filler coat over completely dry concrete, concrete masonry, and other coarse surfaces as required to achieve a 100% filled, smooth surface with no pin holes and voids.
- .3 Prime surfaces to manufacturer's directions, allow to dry.
- .4 Apply coating employing trained applicators, using equipment specifically designed for this purpose, by spray.
- .5 Apply coating to a small test area and allow to set. Notify Departmental Representative to inspect mock-up.
- .6 Minimum dry film thickness: 3.0 mm. Verify film thickness of completed coating system in field.
- .7 Apply additional coats as required to achieve specified dry film thickness.
- .8 Finished work: to match approved samples, be uniform in thickness, sheen, colour and texture and to be free from marks, dirt particles, runs, crawls, drips, sags, brush marks, curling, holes, air pockets and other defects.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: Upon completion, remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.5 PROTECTION

- .1 Repair damage to adjacent materials caused by elastomeric coating application.

END OF SECTION