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 C754-11, 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 C1002-07, 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 C1047-14a, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

.8 ASTM C1396/C1396M-14, Standard Specification for Gypsum Wallboard.

.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.

.3 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC S102-07, Standard Method of Fire Endurance Tests of Building Construction and Materials.

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, 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 Standard gypsum board: ASTM C1396/C1396M, Type X, thickness as shown on Drawings, 1200 mm wide x maximum practical length, ends square cut, edges squared.

.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 Stud adhesive: ASTM C557.

.7 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.

.8 Sealants: In accordance with Section 07 92 00 - Joint Sealants.

.9 Joint tape: ASTM C475, 52 mm wide fibre paper tape.

.10 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 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.3 Furr above suspended ceilings for gypsum board fire and sound stops, and to form plenum areas as indicated.

.4 Install wall furring for gypsum board wall finishes to ASTM C840, except where specified otherwise.

.5 Install furring as required for fire resistance ratings indicated.

.6 Furr openings and around built-in equipment, cabinets, and access panels on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.7 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.3 APPLICATION

.1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical work, and mechanical work have been approved.

.2 Apply single layer standard gypsum board in most economical direction, with ends and edges occurring over firm bearing.

.3 Apply board using stud adhesive on framing.

.4 Install gypsum board on walls 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 or fire-rated assemblies require vertical application.

.5 Install gypsum board with face side out.

.6 Do not install damaged or damp boards.

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

3.4 INSTALLATION - GENERAL

.1 Install casing beads around perimeter of suspended ceilings.

.2 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.3 Splice corners and intersections together and secure to each member with 3 screws.

.4 Install access doors to electrical and mechanical fixtures as specified in their respective sections.

.1 Rigidly secure frames to furring or framing systems.

.5 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.

.6 Place corner beads at external corners.

.1 Use longest practical length.

.2 Place edge trim where gypsum board abuts dissimilar materials.

.7 Finish gypsum board walls to following levels in accordance with GA-214:

.1 Level 4: 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; surfaces smooth and free of tool marks and ridges.

.8 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.

.9 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.

.10 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.11 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.5 TOLERANCES

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

3.6 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.

3.7 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.

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 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.

.3 Acoustical sealant: In accordance with Section 07 92 00 - Joint Sealants.

.4 Sill gasket: Rubberized, moisture resistant 3 mm thick foam strip, 12 mm (1/2 inch) wide, with adhesive on one face, lengths as required.

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 600 mm on centre maximum.

.2 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.

.3 Erect metal studding to tolerance of 1:1000.

.4 Attach studs to bottom track using screws.

.5 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.6 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.7 Install heavy gauge single jamb studs at openings.

.8 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs.

.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.

.9 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.10 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.11 Extend partitions to ceiling height except where noted otherwise on drawings.

.12 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs.

.1 Use double track slip joint as indicated.

.13 Install sill gasket or two continuous 12 mm wide beads of acoustical sealant under studs and tracks around perimeter of sound control partitions.

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 ASTM International

.1 ASTM A641/A641M-09a (2014) – Standard Specification for Zinc-Coated/Galvanized Carbon Steel Wire.

.2 ASTM C423-09a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

.3 ASTM C635/C635M-13a, Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.

.4 ASTM C636/C636M-13, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

.5 ASTM E1264-14, Standard Classification for Acoustical Ceiling Products.

.6 ASTM E1477-98a (2013) - Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.

.3 Canadian Standards Association (CSA)

.1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.5 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC S102-07, Surface Burning Characteristics of Building Materials and Assemblies.

1.2 SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications, and data sheets.

.2 Submit WHMIS MSDS for products used on project.

.3 Installation Data: Provide manufacturer's special installation requirements.

.4 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.3 QUALITY ASSURANCE

.1 Regulatory Requirements:

.1 Fire-resistance rated floor/ceiling and roof/ceiling assembly: certified by Canadian Certification Organization accredited by Standards Council of Canada.

.2 Health and Safety:

.1 Perform construction occupational health and safety in accordance with Section 01 35 29 - Health and Safety Requirements.

.3 Extra Stock Materials:

.1 Provide extra materials of acoustic units in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.

.3 Ensure extra materials are from same production run as installed materials.

.4 Clearly identify each type of acoustic unit, including colour and texture.

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

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver acoustical ceiling units to project site in unopened manufacturer's packaging. Store in enclosed space and protect from damage.

.2 Protect on-site stored or installed absorptive material from moisture damage.

.3 Store extra materials required for maintenance, where directed by Departmental Representative.

.4 Waste Management and Disposal: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before beginning installation.

.2 Maintain uniform minimum temperature of 15°C and humidity of 20% before and during installation.

.3 Store materials in work area 48 hours prior to installation.

Part 2 Products

2.1 MATERIALS

.1 Acoustic Ceiling Tile Suspension System:

.1 Non-fire Rated Grid: ASTM C635/C635M, intermediate duty cold rolled steel with hot dipped galvanized coating; components die cut and interlocking.

.2 Fire Rated Grid: ASTM C635/C635M, intermediate duty cold rolled steel with hot dipped galvanized coating; listed by ULC/UL for use in fire-rated assembly; components die cut and interlocking.

.3 Grid Materials: Commercial quality cold rolled steel with galvanized coating.

.4 Edge Profile: Inverted 'T'.

.5 Grid Finish: Painted white.

.2 Acoustic units for suspended ceiling system: To CAN/CGSB 92.1 and ASTM E1264.

.1 Type III, Form 2, Pattern C E.

.2 Composition: Wet-formed mineral fibre.Texture: Medium.

.4 Fire ratings to CAN/ULC S102:

.1 Flame spread: 25 or less.

.2 Smoke developed: 50 or less.

.5 Noise Reduction Coefficient (NRC): 0.70.

.6 Ceiling Attenuation Class (CAC): Minimum 35.

.7 Light Reflectance: 0.85.

.8 Edge type: Square.

.9 Colour: White.

.10 Size 610 x 610 x 19 mm thick.

.11 Surface coverings: Factory applied paint.

.3 Adhesive: Low VOC type recommended by acoustic unit manufacturer.

.4 Staples, nails and screws: To CSA B111 non-corrosive finish as recommended by acoustic unit manufacturer.

.5 Hold down clips: Purpose made clips to secure tile to suspension system, approved for use in fire-rated systems.

.6 Adhesives and mounting accessories as recommended by manufacturer.

.7 Attachment devices: Size for five times design load indicated in ASTM C635/C635M, Table 1, Direct Hung, unless otherwise indicated.

.8 Wire for hangers and ties: To ASTM A641/A641M, Class 1 zinc coating, soft annealed, with yield stress load at least 3 times design load, but not less than 12 gauge.

.9 Touch-Up Paint: Type and colour to match acoustic and grid units.

Part 3 Execution

3.1 EXAMINATION

.1 Verify conditions of substrates are acceptable for acoustical ceiling tile and track installation in accordance with manufacturer's written instructions.

.2 Ensure following work is completed before installation of ceilings begins.

- .1 Plastering, gypsum board finishing, and painting: completed and dry.
- .2 Mechanical, electrical, other work above ceiling: completed.
- .3 Heating, ventilating and air-conditioning systems: installed and operating.
- .4 Layout light fixture and sprinkler head penetrations at centre of panel width.
- .5 Plan HVAC inlets and outlets to occur within centre of panel system or provide for equal distance on each side parallel to length of panels.

.3 Do not install acoustical panels and tiles until work above ceiling has been reviewed by Departmental Representative.

.4 Verify layout of hangers will not interfere with other work.

.5 Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans.

3.2 INSTALLATION

.1 Manufacturer's Instructions: Comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

.3 Installation: To ASTM C636/C636M except where specified otherwise.

.4 In fire rated ceiling systems, secure lay-in panels with hold-down clips and protect over light fixtures, diffusers, air return grilles and other appurtenances according to Certification Organizations design requirements.

.5 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers. Provide additional suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of each light fixtures and diffusers.

.6 Finished ceiling system to be square with adjoining walls and level within 1:1000.

.7 Expansion joints: As recommended by manufacturer.

.8 Install acoustical units as indicated in reflected ceiling plan.

.9 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moulding.

3.3 APPLICATION

.1 Install lay-in acoustic units to clean, dry and firm substrate.

.2 Installation pattern and direction: Refer to reflected ceiling plan.

.3 Scribe acoustic units to fit adjacent work. Butt joints tight.

3.4 INTERFACE WITH OTHER WORK

.1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

3.5 CLEANING

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

.2 Waste Management: Remove waste material in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.6 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by acoustical ceiling installation.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 ASTM International

.1 ASTM D2047-11, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.

.2 ASTM E662-12, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

.3 ASTM E1155-14/E1155M-14, Standard Test Method for Determining Floor Flatness and Floor Levelness Numbers.

.4 ASTM F970-07 (2011), Standard Test Method for Static Load Limit.

.5 ASTM F1066-04 (2014)e1, Standard Specification for Vinyl Composition Floor Tile.

.6 ASTM F1861-08 (2012)e1 – Standard Specification for Resilient Wall Base.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.2 SUBMITTALS

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

.2 Product data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for tile adhesive, subfloor patching compound. Include product characteristics, performance criteria, physical size, finish, and limitations.

.2 Submit 2 copies of WHMIS MSDS for products to be installed.

.3 Samples:

.1 Submit duplicate sample resilient vinyl tiles, full size, in proposed colours and patterns.

.2 Submit duplicate 150 mm pieces of base, demonstrating profiles.

.3 Submit duplicate 100 mm pieces of transition strip in proposed colours and finish.

.4 Shop Drawings: Indicate:

.1 Tile installation orientation.

.2 Cut-outs: Show locations where cut-outs are required.

.3 Edgings: Show location of edge mouldings.

.5 Closeout Submittals:

.1 Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE, AND HANDLING

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

1.4 AMBIENT CONDITIONS

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

1.5 MAINTENANCE

.1 Extra Materials:

.1 Provide extra materials of resilient tile flooring in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide 10 m^2 of each colour, pattern and type of flooring material required for project for maintenance use.

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

.4 Identify each type of sheet flooring.

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

.6 Store where directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Vinyl composition tile (VCT): To ASTM F1066, homogeneous single-layered vinyl tiles.

.1 Wear layer/Overall thickness: 2.0 mm.

.2 Pattern: Smooth.

.3 Static load limit to ASTM F970: Minimum 125 psi.

.4 Slip resistance to ASTM D2047: Minimum 0.6.

.5 Flame spread to ASTM E648: Class I.

.6 Smoke evolved to ASTM E662: 450 or less.

.7 Tile dimensions: 450 x 450 mm.

.8 Colour: As selected by Departmental Representative.

.2 Resilient base: Continuous, top set, complete with premoulded end stops and external corners:

.1 Type: Rubber.

.2 Thickness: 3.17 mm.

.3 Height: 101.6 mm.

.4 Lengths: cut lengths minimum 2400 mm.

.5 Profile:

.1 Cove with toe: For resilient floor [and rubber floor].

.2 Straight (toeless): For carpeted floor.

.6 Colour: As selected by Departmental Representative.

.3 Primers and adhesives: Types recommended by resilient flooring manufacturer for specific material on applicable substrate.

.4 Sub-floor filler and leveller: Self-levelling cementitious compound capable of bonding to properly prepared substrate surfaces.

.1 Compressive strength: Minimum 36.5 MPa (5300 psi) at 28 days.

.2 Capable of being walked on without damage after 3 hours.

.3 Capable of being coated after 24 hours at 21°C.

.5 Metal edge strips:

.1 Aluminum extruded, smooth, [mill finish] [polished] stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

.6 External corner protectors: [stainless steel], type recommended by flooring manufacturer.

.7 Edging to floor penetrations: [stainless steel] [aluminum], type recommended by flooring manufacturer.

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 datasheets.

3.2 EXAMINATION

.1 Verify conditions of substrates are acceptable for product installation 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.

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

.3 Confirm flatness of substrate by measurements taken in accordance with ASTM E1155/E1155M.

.1 Composite flatness (F_F): Minimum 36.

.2 Composite levelness (F_L): Minimum 20.

3.3 PREPARATION

.1 Remove existing resilient flooring.

.2 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.

.3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.4 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

.5 Prime concrete slab to resilient flooring manufacturer's printed instructions.

3.4 APPLICATION: FLOORING

.1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation.

.2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with perimeter tiles minimum 1/3 width of full material.

.4 As installation progresses, and after installation, roll flooring with 45 kg minimum roller to ensure full adhesion.

.5 Cut flooring around fixed objects.

.6 Continue flooring over areas that will be under built-in furniture.

.7 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.

.8 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.5 APPLICATION: BASE

.1 Clean substrate.

.2 Install preformed corners before installing straight pieces.

.3 Use preformed corner units for corners.

.4 Install resilient base in lengths as long as practicable, without gaps at seams, and with tops of adjacent pieces aligned.

.5 Do not stretch resilient base during installation.

.6 Set base against wall and floor surfaces tightly by using 3 kg hand roller.

.7 Install base straight and level, with base in continuous contact with horizontal and vertical substrates.

.8 Scribe and fit to door frames and other obstructions. Use pre-moulded end pieces at flush door frames.

3.6 CLEANING

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

.2 Waste Management and Disposal: Remove waste material in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Remove excess adhesive from floor, base and wall surfaces without damage.

.4 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 ASTM C307-03 (2012), Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacings.

.2 ASTM C413-01 (2012), Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.

.3 ASTM C579-01 (2012), Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.

.4 ASTM C580-02 (2012), Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.

.5 ASTM D1360-98 (2011), Standard Test Method for Fire Retardancy of Paints (Cabinet Method).

.6 ASTM D2240-05 (2012), Standard Test Method for Rubber Property-Durometer Hardness.

.7 ASTM D2794-93 (2010), Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

.8 ASTM D4060-10, Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

.9 ASTM D7234-12, Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.

.10 ASTM F1679-04e1, Standard Test Method for Using a Variable Incidence Tribometer (VIT).

1.2 SUBMITTALS

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on specified products, describing performance characteristics; sizes, patterns and colours available.

.1 Samples: Submit duplicate samples, 150 x 150 mm (6 x 6 inches) in size, illustrating colour and pattern for each floor material for each colour specified.

.2 Installation Data: Manufacturer's special installation requirements indicating special procedures, perimeter conditions requiring special attention.

1.3 CLOSEOUT SUBMITTALS

.1 Section 01 78 00: Submission procedures.

.2 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, procedures for stain removal, repairing surface, and suggested schedule for cleaning.

1.4 MAINTENANCE MATERIAL SUBMITTALS

.1 Section 01 78 00: Maintenance and extra material requirements.

.2 Extra Stock Materials: Provide 8 L (2 gal) of flooring material, of each colour selected, for building maintenance purposes.

1.5 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 61 00: Transport, handle, store, and protect products.

.2 Store resin materials in a dry, secure area.

.3 Maintain minimum temperature of 16°C.

.4 Store materials for three days prior to installation in area of installation to achieve temperature stability.

1.6 ENVIRONMENTAL REQUIREMENTS

.1 Maintain ambient temperature required by manufacturer three days prior to, during, and 24 hours after installation of materials.

Part 2 Products

2.1 MATERIALS

.1 Primer: As recommended by manufacturer.

.2 Base: Epoxy resin, curing agent, with finely graded silica aggregate, trowel applied.

.3 Undercoat: Epoxy resin, curing agent, pigment, and fine aggregate.

.4 Aggregate: Coloured quartz aggregate.

.1 Colour and pattern: As selected by Departmental Representative.

.5 Sealer: High performance epoxy, clear, UV-resistant.

.6 Flooring: To meet the following:

Property	ASTM Standard	Test Result
Tensile Strength	C307	13.75 MPa (2000 psi)
Compressive Strength	C579	68.9 MPa (10,000 psi)
Flexural Strength	C580	29.6 MPa (4300 psi)
Hardness	D2240, Shore D	85 to 90
Water Absorption	C413	0.1%
Coefficient of Friction, dry and wet	F1679	Minimum 1.0
Fire Resistance	D1360	Weight loss not to exceed limit for non-combustibility
Bond Strength	D7234	2.76 MPa (400 psi) minimum
Abrasion Resistance	D4060, CS-17	Maximum weight loss 0.06 g
Impact Resistance	D2794	Minimum 18 N.m (160 in.lb)

2.2 ACCESSORIES

.1 Cove base filler: As recommended by manufacturer, to seal joint between floor and wall cove. Height: 102 mm.

.2 Cove strips: 3 mm (1/8 inch) extruded aluminum or stainless steel.

.3 Subfloor Filler: Type recommended by flooring material manufacturer.

.4 Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

Part 3 Execution

3.1 EXAMINATION

.1 Verify existing conditions before starting work.

.2 Verify that surfaces are smooth and flat with maximum variation of 6 mm in 3 m (1/4 inch in 10 ft) and are ready to receive work.

.3 Verify concrete floors are dry to maximum moisture content recommended by resinous flooring manufacturer, and exhibit negative alkalinity, carbonization, or dusting.

.4 Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

.5 Ensure substrate and air temperatures are within ranges recommended by manufacturer for proper curing of resinous flooring components.

3.2 PREPARATION

.1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.

.2 Apply, trowel, and float filler to achieve smooth, flat, hard surface. Grind irregularities above the surface level. Prohibit traffic until filler is cured.

.3 Vacuum clean substrate.

3.3 INSTALLATION - FLOORING

.1 Install flooring to manufacturer's written instructions.

.2 Apply to a minimum thickness of 5 mm (3/16 inch).

.3 Finish to smooth level surface.

.4 Fillet and cove at vertical surfaces.

.5 Securely install cove strips straight and level to locations indicated.

3.4 PROTECTION OF FINISHED WORK

.1 Prohibit traffic on floor finish for 48 hours after installation.

.2 Barricade area to protect flooring until cured.

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 Environmental Protection Agency (EPA)

.1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings).

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 Master Painters Institute (MPI)

.1 MPI Architectural Painting Specifications Manual, 2014.

.2 MPI Maintenance Repainting Manual, 2015.

.3 MPI Approved Products List, 2016.

.5 National Fire Code of Canada 2015.

.6 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

1.2 QUALITY ASSURANCE

.1 Health and Safety: Perform construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety 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] [stain] [clear coating] [special finish] 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 50 mm concrete block for finishes over concrete or concrete masonry surfaces.

.3 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.4 10 mm hardboard for finishes over wood 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 that 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 MOCK-UPS

.1 Mock-ups: Apply mock-ups of each paint system indicated, in each colour and finish selected, to verify preliminary selections made under sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.

.2 Departmental Representative will select surfaces to represent surfaces and conditions for application of each paint system specified.

.1 Vertical and Horizontal Surfaces: Provide samples of at least 9 m^2 (100 ft^2).

.2 Other Items: Departmental Representative will designate items or areas required.

.3 Apply mock-up samples after permanent lighting and other environmental services have been activated.

.4 Final approval of colour selections will be based on mock-ups.

.1 If preliminary colour selections are not approved, apply additional mock-ups of additional colours selected by Departmental Representative at no added cost to contract.

.5 Approved mock-up may remain as part of finished work.

1.6 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 and finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

.3 Delivery, storage and protection: comply with Departmental Representative requirements for delivery and storage of extra materials.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

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

.2 Acceptance at Site:

.1 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 within 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 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 daily.

.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 Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional, and Municipal regulations.

.3 Ensure emptied containers are sealed and stored safely.

.4 Unused paint materials must be disposed of at official hazardous material collections site as approved by Departmental Representative.

.5 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.

.6 Material that cannot be reused is to be treated as hazardous waste and disposed of in an appropriate manner.

.7 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.8 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).

1.8 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 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 The 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.

.5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.

.6 Ensure that 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 Allow new concrete and masonry to cure minimum of 28 days.

.2 15% for wood.

.3 12% for plaster and gypsum board.

.3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".

.4 Test concrete, masonry and 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 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.

2.2 COLOURS

.1 Selection of colours to be from manufacturer’s full range of colours.

.2 Where specific products are available in restricted range of colours, selection to be based on limited range.

.3 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. 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 Finish	20 to 35	min. 35
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 indicated.

2.5 INTERIOR PAINTING SYSTEMS

.1 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 Electrical backboards.

.1 INT 6.4PP – Fire retardant coating, pigmented, waterborne, MPI #64.

.1 Apply in accordance with manufacturer's instructions. Apply to all six sides of plywood electrical backboards.

.3 Gypsum wallboard, include access panels:

.1 INT 9.2B - High performance architectural latex.

.1 Walls: G4 finish.

.1 Coat 1: Latex primer/sealer, MPI #50.

.2 Coats 2 and 3: HIPAC latex, MPI #140.

.2 Ceilings: G3 finish.

.1 Coat 1: Latex primer/sealer, MPI #50.

.2 Coats 2 and 3: HIPAC latex, MPI #139.

.4 Dressed lumber: Trim carpentry, doors.

.1 INT 6.3A – High performance architectural latex over latex primer, G5 finish.

.1 Coat 1: Latex primer, MPI #39.

.2 Coats 2 and 3: HIPAC latex, MPI #141.

2.6 INTERIOR REPAINTING

.1 Masonry: CMU walls.

.1 RIN 4.2D – Epoxy.

.1 Coat 1: Epoxy, MPI 77 as follows:

.1 For DSD 1, Touch up.

.2 For DSD 2, Spot prime.

.3 For DSD 3, Full prime coat.

.2 Coats 2 and 3: Epoxy, MPI 77.

.2 Galvanized metal: High contact/high traffic areas (doors, 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.

.3 Gypsum wallboard:

.1 RIN 9.2B – High performance architectural latex.

.1 Walls: G4 finish.

.1 Coat 1: Touch-up, MPI #140.

.2 Coats 2 and 3: HIPAC latex, MPI #140.

.2 Ceilings: G3 finish.

.1 Coat 1: Touch-up, MPI #139.

.2 Coats 2 and 3: HIPAC latex, MPI #139.

.4 Dressed lumber: Trim carpentry, doors and door frames.

.1 RIN 6.3T – High performance architectural latex over latex primer, semi-gloss finish.

.1 Coat 1:

.1 Touch-up: Latex primer, MPI #141.

.2 Spot prime or full prime: Latex primer, MPI #39.

.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 sheets.

3.2 GENERAL

.1 Perform preparation and operations for painting in accordance with MPI Architectural Painting Specifications Manual and MPI Maintenance Repainting Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

.1 Prior to commencing work, examine site conditions and existing substrates to be painted and repainted. Report to Departmental Representative damages, defects, or unsatisfactory or unfavourable conditions or surfaces that will adversely affect this 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 Do not commence until such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to Painting Subcontractor and Inspection Agency.

.4 Assess degree of surface deterioration for areas to be repainted, using MPI identifiers and assessment criteria indicated in MPI Repainting Manual. MPI DSD ratings and descriptions are as follows:

Condition	Description
DSD-0	Sound Surface (includes visual (aesthetic) defects that do not affect film's protective properties).
DSD-1	Slightly Deteriorated Surface (indicating fading; gloss reduction, slight surface contamination, minor pin holes, scratches).
DSD-2	Moderately Deteriorated Surface (small areas of peeling, flaking, slight cracking, and staining).
DSD-3	Severely Deteriorated Surface (heavy peeling, flaking, cracking, checking, scratches, scuffs, abrasion, small holes and gouges).
DSD-4	Substrate Damage (repair or replacement of surface required).

.5 Where an assessed degree of surface degradation of DSD-1 to DSD-3 before preparation of surfaces for repainting is revealed to be DSD-4 after preparation, repair or replacement of such unforeseen defects discovered are to be corrected, as mutually agreed, before repainting is started.

.6 Maximum moisture content as follows:

.1 Gypsum board, stucco, and plaster: 12%.

.2 Concrete: 12%.

.3 Clay and Concrete Block/Brick: 12%.

.4 Wood: 15%.

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 in and about the building.

.2 Surface Preparation:

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to be to approval of Departmental Representative.

.3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual and Maintenance Repainting Manual requirements. Refer to MPI Manual for specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths.

.2 Wash surfaces with a biodegradable detergent [and bleach where applicable] 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 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 vacuum cleaning.

.5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.6 Touch up of shop primers with primer as specified.

.7 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

.8 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.

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 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 Repaint top, bottom, and vertical edges of doors to be repainted.

.9 Finish closets and alcoves as specified for adjoining rooms.

.10 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 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.

3.7 FIELD QUALITY CONTROL

.1 Standard of Acceptance:

.1 Walls: No defects visible from 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.

.2 Advise Departmental Representative when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

3.8 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