

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C 36-95, Specification for Gypsum Wallboard.
 - .2 ASTM C 475-94, Specification for Joint Compound and Joint Tape for finishing Gypsum Board.
 - .3 ASTM C 630-93, Specification for Water-Resistant Gypsum Backing Board.
 - .4 ASTM C 840-08, Specification for Application and Finishing of Gypsum Board.
 - .5 ASTM C 954-93, Specification for Steel Drill Screws for the Application of Gypsum Board.
 - .6 ASTM C 1047-94, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CAN/CGSB-71.25, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .3 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-1998, Building Materials and Assemblies, Standards Method of Test for Surface Burning Characteristics.

1.2 SAMPLES

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

1.3 SITE ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature minimum 10C, maximum 21C for 48 hours prior to and during application of gypsum boards and joints treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 CGC FibreRock Aqua-Tough Interior Panel, 15.9 mm thick, Type X, 1200 mm wide x maximum practical length, ends square cut, edges beveled.
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- 2 Water-resistant board: to ASTM C 630 15.9 mm thick Type X, 1200 mm wide x maximum practical length.
- .3 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30.
- .4 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .5 Steel drill screws: to ASTM C 1002.
- .6 Laminating compound: as recommended by manufacturer, asbestos-free.
- .7 Casing beads, corner beads, control joints and edge trim: to ASTM C 1047, 0.5mm base thickness, perforated flanges, one piece length per location.
- .8 Polyethylene: to CAN/CGSB-51.34, Type 2 6mil.
- .9 Insulating strip: rubberized, moisture resistant, 3 mm thick cork closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.

PART 3 - EXECUTION

3.1 ERECTION

- .1 Do application and finishing of gypsum board in accordance with ASTM C 840 except where specified otherwise.
 - .2 Do application of gypsum sheathing in accordance with ASTM C 1280.
 - .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C 840 except where specified otherwise.
 - .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
 - .5 Install work level to tolerance of 1:1200.
 - .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, etc.
 - .7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
 - .8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
 - .9 Furr above ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
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- .10 Install wall furring for gypsum board wall finishes in accordance with ASTM C 840, except where specified otherwise.
- .11 Furr openings and around built-in equipment, cabinets, access panels,, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- .13 Erect drywall resilient furring transversely across studs and joists between the layers of gypsum board, spaced maximum 600 mm oc and not more than 150 mm from ceiling/wall juncture. Secure to each support with 25 mm drywall screw.

3.2 APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work have been approved.
- .2 Apply single double layer gypsum board to furring or framing using screw fasteners, for second layer. Maximum spacing of screws 300 mm oc.
- .3 Apply water-resistant gypsum board where indicated. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads.
- .4 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts,, in partitions where perimeter sealed with acoustic sealant.

3.3 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm oc. Full length.
 - .2 Install casing beads around perimeter of suspended ceilings.
 - .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
 - .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
 - .5 Construct control joints of preformed units set in gypsum board facing and supported independently on both sides of joint.
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- .6 Provide continuous polyethylene dust barrier behind and across control joints.
- .7 Splice corners and intersections together and secure to each member with 3 screws.
- .8 Install access doors to electrical and mechanical fixtures specified in respective sections.
 - .1 Rigidly secure frames to furring or framing systems.
- .9 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.
- .10 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.
- .11 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.
- .12 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .13 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.4 SCHEDULES

- .1 Construct fire rated assemblies where indicated.
 - .1 1 hour fire rated partition assembly, as shown.

PART 1 - GENERAL

1.1 REFERENCES

- .1 Environmental Protection Agency (EPA)
 - .1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - February 2004.
 - .2 Standard GPS-1-05, MPI Green Performance Standard for Painting and Coatings.
- .4 National Fire Code of Canada.
- .5 Society for Protective Coatings (SSPC)
 - .1 Systems and Specifications, SSPC Painting Manual 2005.

1.2 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Contractor: to have proven satisfactory experience. When requested, provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
 - .2 Qualified journeypersons as defined by local jurisdiction to be engaged in painting work
 - .3 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.
 - .4 Conform to latest MPI requirements for exterior painting work including preparation and priming.
 - .5 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.
 - .6 Paint materials such as linseed oil, shellac, and turpentine to be highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and to be compatible with other coating materials as required.
 - .7 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
 - .8 Standard of Acceptance:
 - .1 Walls: No defects visible from a distance of 1000 mm at 90

- degrees to surface.
- .2 Soffits: 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.

1.3 PERFORMANCE REQUIREMENTS

- .1 Environmental Performance Requirements:
 - .1 Provide paint products meeting MPI "Environmentally Friendly" E1 E2 E3 ratings based on VOC (EPA Method 24) content levels.

1.4 SCHEDULING

- .1 Submit work schedule for various stages of painting to Departmental Representative for approval. 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 in and about building.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Upon completion, submit records of products used. List products in relation to finish system and include the following:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 MPI Environmentally Friendly classification system rating.
 - .5 Manufacturer's Material Safety Data Sheets (MSDS).
- .4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit duplicate 200 x 300 mm sample panels of each paint stainclear coating special finish with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:
 - .1 3 mm plate steel for finishes over metal surfaces.
 - .2 13 mm birch plywood for finishes over wood surfaces.

- .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
- .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
- .5 10 mm cedar hardboard siding plywood for finishes over wood surfaces.
- .2 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.
- .3 Submit full range of available colours where colour availability is restricted.

1.6 QUALITY CONTROL

- .1 Provide mock-up in accordance with Section 01 45 00 - Quality Control.
- .2 When requested by Departmental Representative or Paint Inspection Agency, prepare and paint designated surface, area, room or item to requirements specified herein, with specified paint or coating showing selected colours, number of coats, gloss/sheen, textures and workmanship to MPI Painting Specification Manual standards for review and approval. When approved, surface, area, room and/or items shall become acceptable standard of finish quality and workmanship for similar on-site work.

1.7 MAINTENANCE

- .1 Extra Materials:
 - .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit one, one four litre can of each type and colour of primer stain finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
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1.8 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:
 - .1 Deliver and store materials in original containers, sealed, with labels intact.
 - .2 Labels: to indicate:
 - .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 Provide and maintain dry, temperature controlled, secure storage.
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- .5 Observe manufacturer's recommendations for storage and handling.
 - .6 Store materials and supplies away from heat generating devices.
 - .7 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
 - .8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
 - .9 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative. After completion of operations, return areas to clean condition to approval of Departmental Representative.
 - .10 Remove paint materials from storage only in quantities required for same day use.
 - .11 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
 - .12 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 the National Fire Code of Canada.
 - .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) 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.
 - .3 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
 - .4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
 - .5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
 - .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
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- for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
- .4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
- .5 Empty paint cans are to be dry prior to disposal or recycling (where available).
- .6 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
- .7 Set aside and protect surplus and uncontaminated finish materials:. Deliver to or arrange collection by employees, individuals, or organizations for verifiable re-use or re-manufacturing.
- .8 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

1.9 AMBIENT CONDITIONS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces in accordance with Section.
 - .2 Do not perform painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .3 Where required, provide continuous ventilation for seven days after completion of application of paint.
 - .4 Co-ordinate use of existing ventilation system with Owner General Contractor Departmental Representative and ensure its operation during and after application of paint as required.
 - .5 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.
 - .6 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities to be provided by General Contractor.
 - .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless specifically pre-approved by specifying body, Paint Inspection Agency and, applied product manufacturer, perform no painting work when:
 - .1 Ambient air and substrate temperatures are below 10 degrees C.
 - .2 Substrate temperature is over 32 degrees C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.
 - .4 Relative humidity is above 85 % or when dew point is less than 3 degrees C variance between air/surface temperature.
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- .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
- .2 Perform no painting work when maximum moisture content of substrate exceeds:
 - .1 12% for concrete and masonry (clay and concrete brick/block).
 - .2 15% for wood.
 - .3 12% for plaster and gypsum board.
- .3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "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 noted herein.
 - .3 Apply paint when previous coat of paint is dry or adequately cured.
 - .4 Apply paint finishes when conditions forecast for entire period of application fall within manufacturer's recommendations.
 - .5 Do not apply paint when:
 - .1 Temperature is expected to drop below 10 degrees C before paint has thoroughly cured.
 - .2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.
 - .3 Surface to be painted is wet, damp or frosted.
 - .6 Provide and maintain cover when paint must be applied in damp or cold weather. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.
 - .7 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
 - .8 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.
 - .9 Paint occupied facilities in accordance with approved schedule only. Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Paint materials listed in latest edition of MPI Approved Products List (APL) are acceptable for use on this project.
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- .2 Paint materials for paint systems: to be products of single manufacturer.
 - .3 Only qualified products with E2 E3 "Environmentally Friendly" ratings are acceptable for use on this project.
 - .4 Use only MPI listed L rated materials.
 - .5 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids, to be as follows:
 - .1 Be water-based water soluble water clean-up.
 - .2 Be non-flammable biodegradable .
 - .3 Be manufactured without compounds which contribute to ozone depletion in upper atmosphere.
 - .4 Be manufactured without compounds which contribute to smog in the lower atmosphere.
 - .5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
 - .6 Have recycled content of% post-consumer have a recycled content of % post-industrial waste, have recycled content: of% waste .
 - .6 Water-borne surface coatings must be manufactured and transported in a manner that steps of processes, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).
 - .7 Water-borne surface coatings must not be formulated or manufactured with aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
 - .8 Water-borne surface coatings and recycled water-borne surface coatings must have flash point of 61.0 degrees C or greater.
 - .9 Both water-borne surface coatings and recycled water-borne surface coatings must be made by a process that does not release:
 - .1 Matter in undiluted production plant effluent generating a 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.
 - .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.
 - .10 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes must meet a minimum "Environmentally Friendly" E2 rating.
 - .11 Recycled water-borne surface coatings must contain 50 % post-consumer material by volume.
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- .12 Recycled water-borne surface coatings must not contain:
 - .1 Lead in excess of 600.0 ppm weight/weight total solids.
 - .2 Mercury in excess of 50.0ppm weight/weight total product.
 - .3 Cadmium in excess of 1.0ppm weight/weight total product.
 - .4 Hexavalent chromium in excess of 3.0 ppm weight/weight total product.
 - .5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.
- .13 The following must be performed on each batch of consolidated post-consumer material before surface coating is reformulated and canned. These tests must be performed at a laboratory or facility which has been accredited by the Standards Council of Canada.
 - .1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
 - .2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
 - .3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

2.2 COLOURS

- .1 Departmental Representative will provide Colour Schedule after Contract award. Submit proposed Colour Schedule to Departmental Representative for approval.
- .2 Colour schedule will be based upon selection of five base colours and three accent colours. No more than eight colours will be selected for entire project and no more than three colours will be selected in each area.
- .3 Selection of colours will be from manufacturers full range of colours.
- .4 Where specific products are available in restricted range of colours, selection will be based on limited range.
- .5 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. On-site tinting of painting materials is allowed only with Departmental Representative's written permission.
 - .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
 - .3 Add thinner to paint manufacturer's recommendations. Do not use kerosene or organic solvents to thin water-based paints.
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- .4 Thin paint for spraying according in accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Departmental Representative.
- .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: defined as sheen rating of applied paint, in accordance with following values:

Gloss Level Category/	Units @ 60 Degrees/	Units @ 85 Degrees/
G1 - matte finish	0 to 5	max. 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high <u>gloss finish</u>	> 85	

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

2.5 EXTERIOR PAINTING SYSTEMS

- .1 Asphalt Surfaces: zone/traffic marking for drive and parking areas, etc.
 - .1 EXT 2.1A - Latex zone/traffic marking finish.
 - .2 EXT 2.1B - Alkyd zone/traffic marking finish.
 - .2 Concrete Vertical Surfaces: (including horizontal soffits)
 - .1 EXT 3.1A - Latex insert gloss level finish.
 - .2 EXT 3.1B - Latex insert texture type aggregate/insert gloss level latex finish.
 - .3 EXT 3.1C - Waterborne light industrial insert gloss level coating.
 - .4 EXT 3.1D - Epoxy finish for chemical resistance.
 - .5 EXT 3.1E - Waterborne epoxy finish for chemical resistance.
 - .6 EXT 3.1F - Elastomeric coating.
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- .7 EXT 3.1G - Water repellent non-paintable finish.
 - .8 EXT 3.1H - Water repellent paintable finish.
 - .9 EXT 3.1J - Concrete stain finish.
 - .10 EXT 3.1K - Latex insert gloss level finish (over alkali resistant primer).
 - .11 EXT 3.1L - High-build latex insert gloss level finish.
 - .12 EXT 3.1M - Pigmented polyurethane finish (over epoxy).
 - .13 EXT 3.1N - Latex insert gloss level insert texture type aggregate finish.
 - .3 Concrete Horizontal Surfaces: decks
 - .1 EXT 3.2A - Latex floor paint gloss low gloss finish.
 - .2 EXT 3.2B - Latex deck coating.
 - .3 EXT 3.2C - Epoxy non-slip deck coating.
 - .4 EXT 3.2D - Alkyd floor enamel insert gloss level finish.
 - .5 EXT 3.2E - Latex zone/traffic marking finish for parking lines, etc..
 - .6 EXT 3.2F - Alkyd zone/traffic marking finish for parking lines, etc..
 - .7 EXT 3.2G - Clear sealer.
 - .8 EXT 3.2H - Clear waterborne sealer.
 - .9 EXT 3.2J - Concrete stain finish.
 - .4 Cementitious Composition Board Surfaces: (vertical surfaces, horizontal soffits)
 - .1 EXT 3.3A - Latex insert gloss level finish.
 - .2 EXT 3.3B - Alkyd insert gloss level finish.
 - .3 EXT 3.3C - Waterborne light industrial insert gloss level coating.
 - .4 EXT 3.3D - Waterborne epoxy finish.
 - .5 EXT 3.3E - Epoxy finish.
 - .6 EXT 3.3F - Pigmented polyurethane finish (over epoxy).
 - .7 EXT 3.3G - Latex insert gloss level insert texture type aggregate finish.
 - .8 EXT 3.3H - High-build latex finish.
 - .9 EXT 3.3J - Latex insert gloss level finish (over alkali resistant primer).
 - .5 Clay Masonry Units: (pressed and extruded brick)
 - .1 EXT 4.1A - Latex insert gloss level finish.
 - .2 EXT 4.1B - Latex insert gloss level insert texture type aggregate finish.
 - .3 EXT 4.1C - Waterborne light industrial insert gloss level coating.
 - .4 EXT 4.1D - Epoxy finish for smooth brick.
 - .5 EXT 4.1E - Waterborne epoxy finish for smooth brick.
 - .6 EXT 4.1F - Water repellent non-paintable finish.
 - .7 EXT 4.1G - Water repellent paintable finish.
 - .8 EXT 4.1H - High-build latex finish.
 - .9 EXT 4.1J - Pigmented polyurethane finish (over epoxy).
 - .6 Concrete Masonry Units: smooth and split face block and brick
 - .1 EXT 4.2A - Latex insert gloss level finish.
 - .2 EXT 4.2B - Latex insert gloss level insert texture type aggregate finish.
 - .3 EXT 4.2C - Waterborne light industrial insert gloss level coating.
 - .4 EXT 4.2D - Elastomeric finish.
 - .5 EXT 4.2E - Epoxy finish.
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- .6 EXT 4.2F - Waterborne epoxy finish.
 - .7 EXT 4.2G - Pigmented polyurethane finish (over high build epoxy).
 - .8 EXT 4.2H - Water repellent non-paintable finish not for use on light weight block.
 - .9 EXT 4.2J - Water repellent paintable finish not for use on light weight block.
 - .10 EXT 4.2K - High-build latex finish.
 - .11 EXT 4.2L - Latex insert gloss level finish (over alkali resistant primer).
 - .7 Structural Steel and Metal Fabrications:
 - .1 EXT 5.1A - Quick dry enamel insert gloss level finish.
 - .2 EXT 5.1B - Waterborne light industrial insert gloss level coating (over inorganic zinc).
 - .3 EXT 5.1C - Waterborne light industrial insert gloss level coating (over alkyd primer).
 - .4 EXT 5.1D - Alkyd insert gloss level finish.
 - .5 EXT 5.1E - Waterborne epoxy finish.
 - .6 EXT 5.1F - Epoxy finish.
 - .7 EXT 5.1G - Pigmented polyurethane finish (over epoxy zinc rich primer and high build epoxy).
 - .8 EXT 5.1H - Pigmented polyurethane finish (over epoxy).
 - .9 EXT 5.1J - Pigmented polyurethane finish (over high build epoxy).
 - .10 EXT 5.1K - Aluminum paint finish.
 - .11 EXT 5.1L - Pigmented polyurethane finish (over inorganic zinc primer and high build epoxy).
 - .12 EXT 5.1M - Waterborne light industrial insert gloss level coating (over waterborne primer).
 - .13 EXT 5.1N - Waterborne light industrial insert gloss level coating (over epoxy primer).
 - .14 EXT 5.1P - Pigmented polyurethane finish (over epoxy zinc rich primer).
 - .8 Steel - High Heat: heat exchangers, breeching, pipes, flues, stacks, etc., with temperature range as noted
 - .1 EXT 5.2A - Heat resistant enamel finish, maximum 205 degrees C
 - .2 EXT 5.2B - Heat resistant aluminum enamel finish, maximum 427 degrees C
 - .3 EXT 5.2C - Inorganic zinc rich coating, maximum 400 degrees C
 - .4 EXT 5.2D - High heat resistant coating, maximum 593 degrees C
 - .9 Galvanized Metal: not chromate passivated
 - .1 EXT 5.3A - Latex insert gloss level finish.
 - .2 EXT 5.3B - Alkyd insert gloss level finish.
 - .3 EXT 5.3C - Epoxy finish for use in high contact/high traffic areas.
 - .4 EXT 5.3D - Pigmented polyurethane finish for use in high contact/high traffic areas.
 - .5 EXT 5.3E - Bituminous finish for use in low contact/low traffic areas, e.g.
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- unexposed galvanized metal next to concrete, masonry, etc..
 - .6 EXT 5.3F - Aluminum paint finish for use in low contact/low traffic areas only.
 - .7 EXT 5.3G - Waterborne light industrial insert gloss level coating for moderate chemical resistance.
 - .8 EXT 5.3H - Latex insert gloss level finish (over waterborne primer) for use in low contact/low traffic areas do not use flat finish on doors/door frames.
 - .9 EXT 5.3J - Waterborne light industrial insert gloss level coating (over waterborne primer) for moderate chemical resistance.
 - .10 Aluminum: sash, sills and frames, flashing, posts and railings, downpipes, etc.
 - .1 EXT 5.4A - Alkyd insert gloss level finish (over vinyl wash primer and quick dry primer).
 - .2 EXT 5.4B - Pigmented polyurethane finish (over epoxy).
 - .3 EXT 5.4C - Aluminum paint finish for exposed aluminum.
 - .4 EXT 5.4D - Bituminous finish for unexposed aluminum next to concrete, masonry, etc..
 - .5 EXT 5.4E - Epoxy finish.
 - .6 EXT 5.4F - Alkyd insert gloss level finish.
 - .7 EXT 5.4G - Waterborne light industrial insert gloss level coating.
 - .8 EXT 5.4H - Latex insert gloss level finish.
 - .11 Copper: excluding roofs
 - .1 EXT 5.5A - Alkyd insert gloss level finish (over vinyl wash primer).
 - .2 EXT 5.5B - Pigmented polyurethane finish (over epoxy).
 - .3 EXT 5.5C - Aluminum paint finish.
 - .4 EXT 5.5D - Bituminous finish for unexposed copper next to concrete, masonry, etc.
 - .5 EXT 5.5E - Epoxy finish.
 - .6 EXT 5.5F - Alkyd insert gloss level finish.
 - .7 EXT 5.5G - Waterborne light industrial insert gloss level coating.
 - .8 EXT 5.5H - Latex insert gloss level finish.
 - .12 Stainless Steel: unpolished
 - .1 EXT 5.6A - Alkyd insert gloss level finish.
 - .2 EXT 5.6B - Pigmented polyurethane finish.
 - .3 EXT 5.6C - Aluminum paint finish.
 - .4 EXT 5.6D - Epoxy finish.
 - .5 EXT 5.6E - Waterborne epoxy finish.
 - .6 EXT 5.6F - Latex finish.
 - .7 EXT 5.6G - Waterborne light industrial insert gloss level coating.
 - .13 Glue Laminated Beams and Columns:
 - .1 EXT 6.1A - Latex insert gloss level finish (over alkyd primer).
 - .2 EXT 6.1B - Alkyd insert gloss level finish.
 - .3 EXT 6.1C - Solid colour stain finish.
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- .4 EXT 6.1D - Varnish gloss semi-gloss finish (over stain).
 - .5 EXT 6.1E - Clear (2 component) polyurethane finish (over stain).
 - .6 EXT 6.1F - Pigmented fire retardant coating.
 - .7 EXT 6.1G - Clear fire retardant penetrating wood preservative coating.
 - .8 EXT 6.1H - Clear (2 component) polyurethane finish.
 - .9 EXT 6.1J - Pigmented polyurethane finish.
 - .10 EXT 6.1K - Varnish gloss semi-gloss finish.
 - .11 EXT 6.1L - Latex insert gloss level finish (over latex primer).
 - .14 Dimension Lumber: columns, beams, exposed joists, underside of decking, siding, fencing, etc.
 - .1 EXT 6.2A - Latex insert gloss level finish (over alkyd primer).
 - .2 EXT 6.2B - Waterborne solid colour stain finish.
 - .3 EXT 6.2C - Alkyd insert gloss level finish.
 - .4 EXT 6.2D - Solid colour stain finish.
 - .5 EXT 6.2E - Varnish gloss semi-gloss finish (over stain).
 - .6 EXT 6.2F - Pigmented fire retardant insert gloss level coating.
 - .7 EXT 6.2G - Clear fire retardant penetrating wood preservative coating.
 - .8 EXT 6.2H - Clear (2 component) polyurethane finish.
 - .9 EXT 6.2J - Pigmented polyurethane finish.
 - .10 EXT 6.2K - Varnish gloss semi-gloss finish.
 - .11 EXT 6.2L - Semi-transparent stain finish.
 - .12 EXT 6.2M - Latex insert gloss level finish (over latex primer).
 - .15 Dressed Lumber: doors, door and window frames, casings, battens, smooth facias, etc.
 - .1 EXT 6.3A - Latex insert gloss level finish. do not use flat finish on doors.
 - .2 EXT 6.3B - Alkyd insert gloss level finish do not use flat finish on doors.
 - .3 EXT 6.3C - Solid colour stain finish do not use in high contact areas or on doors.
 - .4 EXT 6.3D - Semi-transparent stain finish do not use on doors.
 - .5 EXT 6.3E - Varnish gloss semi-gloss finish (over stain).
 - .6 EXT 6.3F - Varnish gloss semi-gloss finish.
 - .7 EXT 6.3G - Clear (2 component) polyurethane finish.
 - .8 EXT 6.3H - Pigmented polyurethane finish.
 - .9 EXT 6.3J - Waterborne light industrial insert gloss level coating use gloss or semi-gloss finish on doors and frames only.
 - .10 EXT 6.3K - Waterborne solid colour stain finish do not use flat finish on doors and frames.
 - .11 EXT 6.3L - Latex insert gloss level finish (over latex primer) do not use flat finish on doors.
 - .16 Wood Panelling: plywood siding, fascias, soffits, etc.
 - .1 EXT 6.4A - Waterborne solid colour stain finish.
 - .2 EXT 6.4B - Alkyd insert gloss level finish.
 - .3 EXT 6.4C - Solid colour stain finish.
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- .4 EXT 6.4D - Semi-transparent stain finish.
 - .5 EXT 6.4E - Pigmented fire retardant coating.
 - .6 EXT 6.4F - Clear fire retardant penetrating wood preservative coating.
 - .7 EXT 6.4G - Latex insert gloss level finish (over alkyd primer).
 - .8 EXT 6.4H - Varnish gloss semi-gloss finish.
 - .9 EXT 6.4J - Varnish gloss semi-gloss finish (over stain).
 - .10 EXT 6.4K - Latex insert gloss level finish (over latex primer).
 - .17 Wood Decks and Stairs/Steps: using spaced lumber
 - .1 EXT 6.5A - Latex porch and floor insert gloss level finish with anti-skid additive (over primer).
 - .2 EXT 6.5B - Alkyd floor enamel insert gloss level finish with anti-skid additive.
 - .3 EXT 6.5C - Alkyd floor enamel insert gloss level finish with anti-skid additive (over wood preservative).
 - .4 EXT 6.5D - Deck stain (over wood preservative) for untreated wood.
 - .5 EXT 6.5E - Latex porch and floor insert gloss level finish with anti-skid additive (over latex primer).
 - .6 EXT 6.5F - Deck stain finish.
 - .7 EXT 6.5G - Latex deck coating for plywood decks.
 - .18 Wood Shingle and Shake Siding:
 - .1 EXT 6.6A - Latex insert gloss level finish (over alkyd primer).
 - .2 EXT 6.6B - Alkyd insert gloss level finish
 - .3 EXT 6.6C - Solid colour stain finish.
 - .4 EXT 6.6D - Waterborne solid colour stain finish.
 - .5 EXT 6.6E - Latex insert gloss level finish (over latex primer).
 - .6 EXT 6.6F - Semi-transparent stain finish.
 - .19 Fibreglass: panels, trims, fabrications, etc.
 - .1 EXT 6.7A - Latex insert gloss level finish.
 - .2 EXT 6.7B - Alkyd insert gloss level finish.
 - .3 EXT 6.7C - Waterborne light industrial insert gloss level coating.
 - .4 EXT 6.7D - Pigmented polyurethane finish (over epoxy).
 - .5 EXT 6.7E Waterborne epoxy finish.
 - .6 EXT 6.7F - Epoxy finish.
 - .20 Plastic: vinyl siding and trim, ABS/PVA/PVC materials, fabrications, etc.
 - .1 EXT 6.8A - Latex insert gloss level finish.
 - .2 EXT 6.8B - Alkyd insert gloss level finish.
 - .3 EXT 6.8C - Waterborne light industrial insert gloss level coating.
 - .21 Stucco: walls and soffits
 - .1 EXT 9.1A - Latex insert gloss level finish
 - .2 EXT 9.1B - Waterborne light industrial insert gloss level coating.
 - .3 EXT 9.1C - Elastomeric coating.
 - .4 EXT 9.1D - Epoxy finish.
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- .5 EXT 9.1E - Waterborne epoxy finish.
- .6 EXT 9.1F - Water repellent non-paintable finish.
- .7 EXT 9.1G - Water repellent paintable finish.
- .8 EXT 9.1H - High-build latex finish.
- .9 EXT 9.1J - Latex insert gloss level finish (over alkali resistant primer).

- .22 Canvas and Cotton Coverings: pipes, ductwork, etc.
 - .1 EXT 10.1A - Latex insert gloss level finish.
 - .2 EXT 10.1B - Waterborne light industrial insert gloss level coating.
 - .3 EXT 10.1C - Alkyd insert gloss level finish.
 - .4 EXT 10.1D - Aluminum paint finish.

- .23 Bituminous Coated Surfaces: cast iron pipe, concrete, etc.
 - .1 EXT 10.2A - Latex insert gloss level finish.
 - .2 EXT 10.2B - Latex insert gloss level insert texture type aggregate finish.
 - .3 EXT 10.2C - Alkyd insert gloss level finish.
 - .4 EXT 10.2D - Aluminum paint finish.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 EXAMINATION

- .1 Exterior repainting work: inspected by MPI Accredited Paint Inspection Agency (inspector) acceptable to specifying authority. Painting contractor to notify Paint Inspection Agency minimum of one week prior to commencement of work and provide copy of project repainting specification and Finish Schedule.
 - .2 Exterior surfaces requiring repainting: inspected by both painting contractor and Paint Inspection Agency who will notify Departmental Representative in writing of defects or problems, prior to commencing repainting work, or after surface preparation if unseen substrate damage is discovered.
 - .3 Where 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.
 - .4 Where "special" repainting or recoating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer to provide as part of work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision,
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inspection and approval of their paint or coating system application as required at no additional cost to Departmental Representative.

3.3 PREPARATION

- .1 Perform preparation and operations for exterior painting in accordance with MPI Maintenance Repainting Manual except where specified otherwise.
 - .2 Apply paint materials in accordance with paint manufacturer's written application instructions.
 - .3 Clean and prepare exterior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to the MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
 - .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. Allow sufficient drying time and test surfaces using electronic moisture meter before commencing work.
 - .5 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.
 - .6 Many water-based paints cannot be removed with water once dried. Minimize use of kerosene or such organic solvents to clean up water-based paints.
 - .4 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such contaminants from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.
 - .5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
 - .6 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.
 - .7 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.
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3.4 EXISTING CONDITIONS

- .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 a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple "cover patch test" and report findings to Departmental Representative. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
 - .1 Stucco: 12%.
 - .2 Concrete: 12%.
 - .3 Clay and Concrete Block/Brick: 12%.
 - .4 Wood: 15%.

3.5 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 such 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 passing pedestrians, building occupants and general public in and about building.
- .5 Remove light fixtures, surface hardware on doors, and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Store items and re-install after painting is completed.
- .6 Move and cover exterior furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
- .7 As painting operations progress, place "WET PAINT" signs in pedestrian and vehicle traffic areas to approval of Departmental Representative.

3.6 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush roller air sprayer airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.
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- .2 Brush and Roller Application:
 - .1 Apply paint in a uniform layer using brush and/or roller of types 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 shall be free of roller tracking and heavy stipple unless approved by Departmental Representative.
 - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Spray Application:
 - .1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 - .3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
 - .4 Brush out immediately runs and sags.
 - .5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.
- .4 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Departmental Representative.
- .5 Apply coats of paint as continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.
- .9 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.7 MECHANICAL/ ELECTRICAL EQUIPMENT

- .1 Unless otherwise specified, paint exterior exposed conduits, piping, hangers, duct work and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as noted otherwise.
 - .2 Touch up scratches and marks on factory painted finishes and equipment with
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paint as supplied by manufacturer of equipment.

- .3 Do not paint over nameplates.
- .4 Paint fire protection piping red.
- .5 Paint steel electrical light standards. Do not paint outdoor transformers and substation equipment.

3.8 FIELD QUALITY CONTROL

- .1 Inspection:
 - .1 Field inspection of exterior painting operations to be carried out by independent inspection firm as designated by Departmental Representative.
 - .2 Advise Departmental Representative when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
 - .3 Co-operate with inspection firm and provide access to areas of work.
- .2 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.9 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

3.10 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.

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, 2004.
- .5 National Fire Code of Canada - 1995
- .6 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.
- .7 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34 .

1.2 QUALITY ASSURANCE

- .1 Mock-Ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .1 Provide mm x mm mock-up. Prepare and paint designated surface, area, room or item (in each colour scheme) to specified requirements, with specified paint or coating showing selected colours, gloss/sheen, textures.
 - .2 Mock-up will be used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application and workmanship to MPI Architectural Painting Specification Manual standards.
 - .3 Locate where directed where indicated
 - .4 Allow 24 hours for inspection of mock-up before proceeding with work.
 - .5 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may not remain as part of finished work. Remove mock-up and dispose of materials when no longer required and when directed by

Departmental Representative.

- .2 Pre-Installation Meeting:
 - .1 Convene pre-installation meeting one week prior to beginning work of this Section and on-site installations in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Coordination with other building subtrades.
 - .4 Review manufacturer's installation instructions and warranty requirements.
- .3 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29 - 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 ACTION AND INFORMATIONAL 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) in accordance with Section 01 33 00 - Submittal Procedures. 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:
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- .1 3 mm plate steel for finishes over metal surfaces.
- .2 13 mm birch plywood for finishes over wood surfaces.
- .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
- .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
- .5 10 mm cedar hardboard siding plywood for finishes over wood surfaces.
- .3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
- .4 Test reports: submit certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
 - .1 Lead, cadmium and chromium: presence of and amounts.
 - .2 Mercury: presence of and amounts.
 - .3 Organochlorines and PCBs: presence of and amounts.
- .5 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .6 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation and application instructions.
- .7 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.
 - .4 MPI Environmentally Friendly classification system rating.

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 - one four litre can of each type and colour of primer stain 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.

1.6 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
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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 with temperature range 7 degrees C to 30 degrees 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 for reuse and recycling 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 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan (WMP).
 - .4 Separate for reuse and recycling and place in designated containers Steel Metal Plastic waste in accordance with Waste Management Plan (WMP).
 - .5 Place materials defined as hazardous or toxic in designated containers.
 - .6 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal, regulations.
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- .7 Ensure emptied containers are sealed and stored safely.
- .8 Unused paint coating materials must be disposed of at official hazardous material collections site as approved by Departmental Representative.
- .9 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.
- .10 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
- .11 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .12 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).
- .13 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
- .14 Set aside and protect surplus and uncontaminated finish materials:. Deliver to or arrange collection by employees, individuals, or organizations for verifiable re-use or re-manufacturing.

1.7 SITE CONDITIONS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces in accordance with Section.
 - .2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .3 Provide continuous ventilation for seven days after completion of application of paint.
 - .4 Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
 - .5 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.
- .6 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 Paint Inspection Agency Authority and product manufacturer, perform no painting when:
 - .1 Ambient air and substrate temperatures are below 10 degrees C.
 - .2 Substrate temperature is above 32 degrees 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 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
 - .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.
 - .2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are

affected.

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 Only qualified products with E2 E3 "Environmentally Friendly" rating are acceptable for use on this project.
 - .4 Conform to latest MPI requirements for interior painting work including preparation and priming.
 - .5 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.
 - .6 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.
 - .7 Provide paint products meeting MPI "Environmentally Friendly" E1, E2 E3 ratings based on VOC (EPA Method 24) content levels.
 - .8 Use MPI listed materials having minimum E2 E3 rating where indoor air quality (odour) requirements exist.
 - .9 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
 - .1 Water-based Water soluble Water clean-up.
 - .2 non-flammable biodegradable.
 - .3 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
 - .4 Manufactured without compounds which contribute to smog in the lower atmosphere.
 - .5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
 - .6 Recycled content of % post-consumer or post-industrial waste; recycled content: of % waste.
 - .10 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
 - .11 Flash point: 61.0 degrees C or greater for water-borne surface coatings and
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recycled water-borne surface coatings.

- .12 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:
 - .1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
 - .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.
- .13 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.
- .14 Recycled water-borne surface coatings to contain 50 % post-consumer material by volume.
- .15 Recycled water-borne surface coatings must not contain:
 - .1 Lead in excess of 600.0 ppm weight/weight total solids.
 - .2 Mercury in excess of 50.0ppm weight/weight total product.
 - .3 Cadmium in excess of 1.0ppm weight/weight total product.
 - .4 Hexavalent chromium in excess of 3.0 ppm weight/weight total product.
 - .5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.

2.2 COLOURS

- .1 Departmental Representative will provide Colour Schedule after Contract award Submit proposed Colour Schedule to Departmental Representative for review.
- .2 Colour schedule will be based upon selection of five base colours and three accent colours. No more than eight colours will be selected for entire project and no more than three colours will be selected in each area.
- .3 Selection of colours from manufacturers full range of colours.
- .4 Where specific products are available in restricted range of colours, selection based on limited range.
- .5 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.
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- .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:

	<u>Gloss @ 60</u> <u>degrees</u>	<u>Sheen @ 85</u> <u>degrees</u>
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 <u>Finish</u>	More than 85	

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

2.5 INTERIOR PAINTING SYSTEMS

- .1 Asphalt surfaces: zone/traffic marking of interior drive and parking areas:
 - .1 INT 2.1A - Latex zone/traffic marking finish.
 - .2 INT 2.1B - Alkyd zone/traffic marking finish.
- .2 Concrete vertical surfaces: including horizontal soffits:
 - .1 INT 3. 1A - Latex insert gloss level finish (over sealer).

- .2 INT 3.1B - Latex insert texture type aggregate/latex/ insert gloss level finish.
 - .3 INT 3.1C - High performance architectural latex insert gloss level finish.
 - .4 INT 3.1D - Alkyd insert gloss level finish.
 - .5 INT 3.1E - Latex insert gloss level finish.
 - .6 INT 3.1F - Epoxy (tile-like) finish for smooth concrete.
 - .7 INT 3.1G - Waterborne epoxy (tile-like) finish for smooth concrete.
 - .8 INT 3.1H - Multicolour finish.
 - .9 INT 3.1J - Water repellent paintable finish.
 - .10 INT 3.1K - Concrete stain finish.
 - .11 INT 3.1L - Waterborne light industrial insert gloss level coating.
 - .12 INT 3.1M - Institutional low odour/low VOC insert gloss level finish.
 - .13 INT 3.1N - Latex insert gloss level/insert texture type aggregate coating.
 - .3 Concrete horizontal surfaces: floors and stairs:
 - .1 INT 3.2A - Latex floor enamel gloss low gloss finish.
 - .2 INT 3.2B - Alkyd floor enamel gloss low gloss finish.
 - .3 INT 3.2C - Epoxy finish.
 - .4 INT 3.2D - Pigmented polyurethane finish.
 - .5 INT 3.2E - Concrete stain finish.
 - .6 INT 3.2F - Concrete floor sealer.
 - .7 INT 3.2G - Waterborne concrete floor sealer.
 - .8 INT 3.2H - Latex zone/traffic marking finish for parking lines, etc..
 - .9 INT 3.2J - Alkyd zone/traffic marking finish for parking lines, etc..
 - .10 INT 3.2K - Clear (2 component) polyurethane finish.
 - .11 INT 3.2L - Waterborne epoxy floor finish.
 - .4 Cementitious composition board surfaces:
 - .1 INT 3.3A - Latex insert gloss level finish.
 - .2 INT 3.3B - High performance architectural latex insert gloss level finish.
 - .3 INT 3.3C - Alkyd insert gloss level finish.
 - .4 INT 3.3D - Waterborne epoxy (tile like) finish.
 - .5 INT 3.3E - Epoxy (tile like) finish.
 - .6 INT 3.3F - Multicolour finish.
 - .7 INT 3.3G - Institutional low odour/low VOC insert gloss level finish.
 - .8 INT 3.3H - Waterborne light industrial insert gloss level coating.
 - .5 Clay masonry units: pressed and extruded brick:
 - .1 INT 4.1A - Latex insert gloss level finish.
 - .2 INT 4.1B - Latex insert gloss level/insert texture type aggregate coating.
 - .3 INT 4.1C - Waterborne light industrial insert gloss level coating.
 - .4 INT 4.1D - Alkyd insert gloss level finish.
 - .5 INT 4.1F - Epoxy (tile like) finish for smooth brick.
 - .6 INT 4.1G - Waterborne epoxy (tile-like) finish for smooth brick.
 - .7 INT 4.1H - Multicolour finish.
 - .8 INT 4.1J - Clear water repellent paintable finish.
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- .9 INT 4.1K - Clear (2 component) polyurethane finish.
 - .10 INT 4.1L - High performance architectural latex insert gloss level finish.
 - .11 INT 4.1M - Institutional low odour/low VOC insert gloss level finish.
 - .6 Concrete masonry units: smooth and split face block and brick:
 - .1 INT 4.2A - Latex insert gloss level finish.
 - .2 INT 4.2B - Latex insert gloss level/insert texture type aggregate coating.
 - .3 INT 4.2C - Alkyd insert gloss level finish.
 - .4 INT 4.2D - High performance architectural latex insert gloss level finish.
 - .5 INT 4.2E - Institutional low odour/low VOC insert gloss level finish.
 - .6 INT 4.2F - Epoxy (tile-like) finish for dry environments.
 - .7 INT 4.2G - Epoxy (tile-like) finish for wet environments.
 - .8 INT 4.2H - Multicolour finish.
 - .9 INT 4.2J - Waterborne epoxy (tile-like) finish for dry environments.
 - .10 INT 4.2K - Waterborne light industrial insert gloss level coating.
 - .11 INT 4.2L - Water repellent non-paintable finish do not use on light weight block.
 - .12 INT 4.2M - Water repellent paintable finish do not use on light weight block.
 - .13 INT 4.2N - Alkyd insert gloss level finish (over latex sealer).
 - .7 Structural steel and metal fabrications: columns, beams, joists:
 - .1 INT 5.1A - Quick dry enamel gloss semi-gloss finish.
 - .2 INT 5.1B - Waterborne light industrial insert gloss level coating.
 - .3 INT 5.1C - Waterborne dry wall finish.
 - .4 INT 5.1CC - Waterborne dry wall finish (over quick dry shop primer) for dry locations only.
 - .5 INT 5.1D - Alkyd dry wall finish.
 - .6 INT 5.1DD - Alkyd dry wall finish (over quick dry shop primer)for dry locations only .
 - .7 INT 5.1E Alkyd - insert gloss level finish.
 - .8 INT 5.1F - Pigmented polyurethane finish (over epoxy primer).
 - .9 INT 5.1G - Pigmented polyurethane finish (over high-build epoxy).
 - .10 INT 5.1H - Pigmented polyurethane finish (over epoxy and inorganic zinc).
 - .11 INT 5.1J - Pigmented polyurethane finish (over epoxy and epoxy zinc rich primer).
 - .12 INT 5.1K - Waterborne epoxy finish.
 - .13 INT 5.1L - Epoxy finish.
 - .14 INT 5.1M - Aluminum paint finish.
 - .15 INT 5.1N - Waterborne light industrial insert gloss level coating (over epoxy primer).
 - .16 INT 5.1P - High build epoxy (over epoxy zinc rich primer).
 - .17 INT 5.1Q - Latex insert gloss level finish (over alkyd primer).
 - .18 INT 5.1R - High performance architectural latex insert gloss level finish.
 - .19 INT 5.1S - Institutional low odour/low VOC insert gloss level finish.
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- .20 INT 5.1T - Alkyd insert gloss level finish (over surface tolerant primer).
 - .21 INT 5.1U - Epoxy finish (over self-priming epoxy).
 - .22 INT 5.1V - Pigmented polyurethane finish (over self-priming epoxy).
 - .23 INT 5.1W - Alkyd insert gloss level finish (over quick dry shop primer) for dry locations only.
 - .24 INT 5.1X - Latex insert gloss level finish (over quick dry shop primer) for dry locations only.
 - .25 INT 5.1Y - Not Applicable.
 - .26 INT 5.1Z - Quick dry shop paint finish (for dry locations only) do not topcoat.
 - .8 Steel - high heat: (boilers, furnaces, heat exchangers, breeching, pipes, flues, stacks, etc., with temperature range as noted):
 - .1 INT 5.2A - Heat resistant enamel finish, maximum 205 degrees C.
 - .2 INT 5.2B - Heat resistant aluminum paint finish, maximum 427 degrees C.
 - .3 INT 5.2C - Inorganic zinc rich coating, maximum 400 degrees C.
 - .4 INT 5.2D - High heat resistant coating, maximum 593 degrees C.
 - .9 Galvanized metal: doors, frames, railings, misc. steel, pipes, overhead decking, and ducts.
 - .1 INT 5.3A - Latex insert gloss level finish.
 - .2 INT 5.3B - Waterborne light industrial insert gloss level coating.
 - .3 INT 5.3C - Alkyd insert gloss level finish (over cementitious primer).
 - .4 INT 5.3D - Epoxy finish (over epoxy primer).
 - .5 INT 5.3E - Epoxy finish (over vinyl wash primer and epoxy primer).
 - .6 INT 5.3F - Alkyd dry wall finish for use in low contact/low traffic areas only.
 - .7 INT 5.3G - Aluminum paint finish.
 - .8 INT 5.3H - Waterborne dry wall finish for use in low contact/low traffic areas only.
 - .9 INT 5.3J - Latex insert gloss level finish (over waterborne primer).
 - .10 INT 5.3K - Waterborne light industrial insert gloss level coating (over waterborne primer).
 - .11 INT 5.3L - Alkyd insert gloss level finish (over non-cementitious primer).
 - .12 INT 5.3M - High performance architectural latex insert gloss level finish.
 - .13 INT 5.3N - Institutional low odour/low VOC insert gloss level finish.
 - .10 Aluminum: unanodized:
 - .1 INT 5.4A - Alkyd insert gloss level finish.
 - .2 INT 5.4B - Epoxy finish.
 - .3 INT 5.4C - Pigmented polyurethane finish.
 - .4 INT 5.4D - Aluminum paint finish (for exposed aluminum).
 - .5 INT 5.4E - Waterborne light industrial insert gloss level coating.
 - .6 INT 5.4F - High performance architectural latex insert gloss level finish.
 - .7 INT 5.4G - Institutional low odour/low VOC insert gloss level finish.
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- .8 INT 5.4H - Latex insert gloss level finish.
 - .9 INT 5.4J - Alkyd insert gloss level finish (over quick dry primer).
 - .11 Copper:
 - .1 INT 5.5A - Alkyd insert gloss level for Premium Grade only finish.
 - .2 INT 5.5B - Epoxy finish.
 - .3 INT 5.5C - Pigmented polyurethane finish.
 - .4 INT 5.5D - Aluminum paint finish.
 - .5 INT 5.5E - Waterborne light industrial insert gloss level coating.
 - .6 INT 5.5F - High performance architectural latex insert gloss level finish.
 - .7 INT 5.5G - Institutional low odour/low VOC insert gloss level finish.
 - .8 INT 5.5H - Latex insert gloss level finish.
 - .12 Stainless steel: unpolished:
 - .1 INT 5.6A - Waterborne light industrial insert gloss level coating (over bonding primer).
 - .2 INT 5.6B - Alkyd insert gloss level finish.
 - .3 INT 5.6C - Epoxy finish.
 - .4 INT 5.6D - Pigmented polyurethane finish.
 - .5 INT 5.6E - Aluminum paint finish.
 - .6 INT 5.6F - Waterborne light industrial insert gloss level coating (over quick dry primer).
 - .7 INT 5.6G - High performance architectural latex insert gloss level finish.
 - .8 INT 5.6H - Latex insert gloss level finish.
 - .13 Glue laminated beams and columns:
 - .1 INT 6.1A - Latex insert gloss level finish (over alkyd primer).
 - .2 INT 6.1B - Alkyd insert gloss level finish.
 - .3 INT 6.1C - Alkyd varnish insert gloss level finish.
 - .4 INT 6.1D - Polyurethane varnish insert gloss level finish.
 - .5 INT 6.1E - Pigmented polyurethane insert gloss level finish.
 - .6 INT 6.1F - Waterborne clear acrylic insert gloss level finish.
 - .7 INT 6.1G - Semi transparent stain finish.
 - .8 INT 6.1H - Alkyd solid colour stain finish.
 - .9 INT 6.1J - Polyurethane varnish gloss satin finish (over stain).
 - .10 INT 6.1K - Alkyd varnish insert gloss level finish (over stain).
 - .11 INT 6.1L - Epoxy finish.
 - .12 INT 6.1M - Latex insert gloss level finish (over latex primer).
 - .13 INT 6.1N - High performance architectural latex insert gloss level finish.
 - .14 INT 6.1P - Alkyd varnish insert gloss level finish (over stain and sealer).
 - .15 INT 6.1Q - Institutional low odour/low VOC insert gloss level finish.
 - .16 INT 6.1R - Waterborne clear acrylic insert gloss level finish (over stain).
 - .17 INT 6.1S - Clear moisture cured polyurethane gloss flat finish (over stain).
 - .18 INT 6.1T - Latex solid colour stain finish.
 - .19 INT 6.1U - Pigmented fire retardant coating (ULC rated).
 - .20 INT 6.1V - Clear fire retardant coating (ULC rated).
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- .14 Dimension lumber: columns, beams, exposed joists, underside of decking:
 - .1 INT 6.2A - Latex insert gloss level finish (over alkyd primer).
 - .2 INT 6.2B - High performance architectural latex insert gloss level finish.
 - .3 INT 6.2C - Alkyd insert gloss level finish.
 - .4 INT 6.2D - Latex insert gloss level finish (over latex primer).
 - .5 INT 6.2E - Multicolour finish.
 - .6 INT 6.2F - Pigmented fire retardant insert gloss level coating (ULC rated).
 - .7 INT 6.2G - Clear fire retardant insert gloss level coating (ULC rated).
 - .8 INT 6.2H - Polyurethane varnish insert gloss level finish.
 - .9 INT 6.2J - Polyurethane varnish insert gloss level finish (over stain).
 - .10 INT 6.2K - Alkyd varnish insert gloss level finish (over stain and sealer).
 - .11 INT 6.2L - Institutional low odour/low VOC insert gloss level finish.
 - .12 INT 6.2M - Waterborne clear acrylic insert gloss level finish (over stain).
 - .13 INT 6.2N - Clear moisture cured polyurethane gloss flat finish.
 - .14 INT 6.2P - Alkyd varnish insert gloss level finish.
 - .15 Dressed lumber: including doors, door and window frames, casings, mouldings:
 - .1 INT 6.3A - High performance architectural latex insert gloss level finish.
 - .2 INT 6.3B - Alkyd insert gloss level finish.
 - .3 INT 6.3BB - Waterborne alkyd gloss finish interior doors and frames in non-humid locations only.
 - .4 INT 6.3C - Semi-transparent stain finish do not use on doors.
 - .5 INT 6.3D - Alkyd varnish insert gloss level finish (over stain).
 - .6 INT 6.3E - Polyurethane varnish insert gloss level finish (over stain).
 - .7 INT 6.3F - Lacquer insert gloss level finish (over stain).
 - .8 INT 6.3G - Pigmented lacquer insert gloss level finish.
 - .9 INT 6.3H - Clear lacquer insert gloss level finish.
 - .10 INT 6.3J - Alkyd varnish insert gloss level finish.
 - .11 INT 6.3K - Polyurethane varnish insert gloss level finish.
 - .12 INT 6.3L - Epoxy finish.
 - .13 INT 6.3M - Danish oil finish.
 - .14 INT 6.3N - Multicolour finish.
 - .15 INT 6.3P - Waterborne light industrial insert gloss level coating.
 - .16 INT 6.3Q - Waterborne clear acrylic insert gloss level finish.
 - .17 INT 6.3R - Pigmented fire retardant insert gloss level finish (ULC rated).
 - .18 INT 6.3S - Clear fire retardant finish (ULC rated).
 - .19 INT 6.3T - Latex semi-gloss gloss finish (over latex primer).
 - .20 INT 6.3U - Latex semi-gloss gloss finish (over alkyd primer).
 - .21 INT 6.3V - Institutional low odour/low VOC insert gloss level finish.
 - .22 INT 6.3W - Waterborne clear acrylic insert gloss level finish (over stain).
 - .23 INT 6.3X - Clear moisture cured polyurethane gloss flat finish.
 - .24 INT 6.3Y - Clear moisture cured polyurethane gloss flat finish (over stain).
 - .25 INT 6.3Z - Clear (2 component) polyurethane finish.
 - .16 Wood paneling and casework: partitions, panels, shelving, millwork:
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- .1 INT 6.4A - Latex insert gloss level finish (over alkyd sealer).
 - .2 INT 6.4B - Alkyd insert gloss level finish (over alkyd sealer).
 - .3 INT 6.4C - Semi-Transparent stain finish.
 - .4 INT 6.4D - Alkyd varnish insert gloss level finish (over stain).
 - .5 INT 6.4E - Polyurethane varnish insert gloss level finish (over stain).
 - .6 INT 6.4F - Lacquer insert gloss level finish (over stain).
 - .7 INT 6.4G - Alkyd varnish insert gloss level finish.
 - .8 INT 6.4H - Pigmented lacquer insert gloss level finish.
 - .9 INT 6.4J - Polyurethane varnish insert gloss level finish.
 - .10 INT 6.4K - Danish oil finish.
 - .11 INT 6.4L - Multicolour finish.
 - .12 INT 6.4M - Waterborne clear acrylic insert gloss level finish.
 - .13 INT 6.4N - Waterborne light industrial insert gloss level coating.
 - .14 INT 6.4P - Pigmented fire retardant insert gloss level coating (ULC rated).
 - .15 INT 6.4Q - Clear fire retardant coating (ULC rated).
 - .16 INT 6.4R - Latex semi-gloss gloss finish (over latex primer).
 - .17 INT 6.4S - High performance architectural latex insert gloss level finish.
 - .18 INT - 6.4T Institutional low odour/low VOC insert gloss level finish.
 - .19 INT 6.4U - Waterborne clear acrylic insert gloss level finish (over stain).
 - .20 INT 6.4V - Clear moisture cured polyurethane gloss flat finish (over stain).
 - .21 INT 6.4W - Lacquer insert gloss level finish (over wood stain).
 - .22 INT 6.4X - Pigmented lacquer insert gloss level finish.
 - .23 INT 6.4Y - Clear lacquer insert gloss level finish.
 - .17 Wood floors and stairs: including hardwood flooring:
 - .1 INT 6.5A - Alkyd floor enamel low gloss gloss finish.
 - .2 INT 6.5B - Polyurethane varnish gloss finish (over stain).
 - .3 INT 6.5C - Polyurethane varnish gloss finish.
 - .4 INT 6.5D - Not applicable.
 - .5 INT 6.5E - Alkyd game line marking.
 - .6 INT 6.5F - Epoxy game line marking.
 - .7 INT 6.5G - Latex porch and floor low gloss gloss enamel finish.
 - .8 INT 6.5H - Waterborne epoxy floor finish.
 - .9 INT 6.5J - Moisture cured polyurethane gloss flat finish (over stain).
 - .10 INT 6.5K - Moisture cured polyurethane gloss finish.
 - .18 Wood shingle and shake siding:
 - .1 INT 6.6A - Latex insert gloss level finish.
 - .2 INT 6.6B - Alkyd insert gloss level finish.
 - .3 INT 6.6C - Semi-transparent stain finish.
 - .4 INT 6.6D - Alkyd solid colour stain finish.
 - .5 INT 6.6E - Latex solid colour stain finish.
 - .6 INT 6.6F - Latex insert gloss level finish (over latex primer).
 - .7 INT 6.6G - Pigmented fire retardant insert gloss level coating (ULC rated).
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- .8 INT 6.6H - Clear fire retardant insert gloss level coating (ULC rated).
 - .19 Fibreglass: panels, trims, fabrications:
 - .1 INT 6.7A - Latex insert gloss level finish.
 - .2 INT 6.7B - Alkyd insert gloss level finish.
 - .3 INT 6.7C - Waterborne light industrial insert gloss level coating.
 - .4 INT 6.7D - Epoxy finish.
 - .5 INT 6.7E - Pigmented polyurethane finish.
 - .6 INT 6.7F - Waterborne epoxy insert gloss level finish.
 - .7 INT 6.7G - Multicolour finish.
 - .8 INT 6.7H - High performance acrylic latex insert gloss level finish.
 - .9 INT 6.7J - Institutional low odour/low VOC insert gloss level finish.
 - .20 Plastic: lumber, panels, trims, fabrications, vinyl wall covering, PVA/PVC materials:
 - .1 INT 6.8A - High performance architectural latex insert gloss level finish.
 - .2 INT 6.8B - Alkyd insert gloss level finish.
 - .3 INT 6.8C - Waterborne light industrial insert gloss level coating.
 - .4 INT 6.8D - Multicolour finish.
 - .5 INT 6.8E - Latex insert gloss level finish.
 - .6 INT 6.8F - Institutional low odour/low VOC insert gloss level finish.
 - .21 Spray textured surfaces: ceilings:
 - .1 INT 9.1A - Latex flat finish spray application only.
 - .2 INT 9.1B - Latex insert gloss level finish (over alkyd sealer).
 - .3 INT 9.1C - Alkyd flat finish.
 - .4 INT 9.1D - Alkyd insert gloss level finish (over alkyd sealer).
 - .5 INT 9.1E - Latex finish spray application only.
 - .22 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:
 - .1 INT 9.2A - Latex insert gloss level finish (over latex sealer).
 - .2 INT 9.2B - High performance architectural latex insert gloss level finish.
 - .3 INT 9.2C - Alkyd insert gloss level finish (over latex sealer).
 - .4 INT 9.2E - Epoxy (tile-like) finish.
 - .5 INT 9.2F - Waterborne epoxy (tile-like) finish.
 - .6 INT 9.2G - Multicolour finish.
 - .7 INT 9.2H - Clear Pigmented fire retardant coating (ULC rated).
 - .8 INT 9.2J - Waterborne fire retardant coating (ULC rated).
 - .9 INT 9.2K - Latex insert gloss level finish (over alkyd primer) for plaster surfaces only.
 - .10 INT 9.2L - Waterborne light industrial insert gloss level coating.
 - .11 INT 9.2M - Institutional low odour/low VOC insert gloss level finish.
 - .23 Acoustic panels and tiles:
 - .1 INT 9.3A - Latex flat finish.
 - .2 INT 9.3B - Latex insert gloss level finish (over alkyd sealer).
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- .3 INT 9.3C - Alkyd flat finish.
- .4 INT 9.3D - Institutional low odour/low VOC insert gloss level finish.
- .5 INT 9.3E High performance architectural latex insert gloss level finish.

- .24 Canvas and cotton coverings.
 - .1 INT 10.1A - Latex insert gloss level finish.
 - .2 INT 10.1B - Alkyd insert gloss level finish.
 - .3 INT 10.1C - Aluminum paint finish.
 - .4 INT 10.1D - Institutional low odour/low VOC insert gloss level finish.

- .25 Bituminous coated surfaces: cast iron pipe, concrete, etc.:
 - .1 INT 10.2A - Latex insert gloss level finish.
 - .2 INT 10.2B - Alkyd insert gloss level finish.
 - .3 INT 10.2C - Aluminum paint finish.

2.6 SOURCE QUALITY CONTROL

- .1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.
 - .1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
 - .2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
 - .3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 GENERAL

- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

- .1 Investigate existing substrates for problems related to proper and complete
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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 Stucco, plaster and gypsum board: 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 passing pedestrians, building occupants and general public 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 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, wiping with dry, clean cloths or compressed air.
 - .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 following surfaces with high pressure water washing:.
- .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 pretreatment as soon as possible after cleaning and before deterioration occurs.
- .6 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.
- .7 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.
- .8 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 blowing with clean dry compressed air or vacuum cleaning.
- .9 Touch up of shop primers with primer as specified.
- .10 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 roller air sprayer airless sprayer. 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
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- 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 Spray application:
 - .1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 - .3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
 - .4 Brush out immediately all runs and sags.
 - .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.
- .4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 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.
- .9 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .10 Finish closets and alcoves as specified for adjoining rooms.
- .11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ ELECTRICAL EQUIPMENT

- .1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
 - .2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
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- .3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Keep sprinkler heads free of paint.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
- .8 Paint fire protection piping red.
- .9 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .10 Paint natural gas piping yellow.
- .11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
- .12 Do not paint interior transformers and substation equipment.

3.7 SITE TOLERANCES

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

3.8 FIELD QUALITY CONTROL

- .1 Interior painting and decorating work shall be inspected by a Paint Inspection Agency (inspector) acceptable to the specifying authority and local Painting Contractor's Association. Painting contractor shall notify Paint Inspection Agency a minimum of one week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.
 - .2 Interior surfaces requiring painting shall be inspected by Paint Inspection Agency who shall notify Departmental Representative and General Contractor in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate.
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- .3 Where "special" painting, coating or decorating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer shall provide as part of this work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to Departmental Representative.
- .4 Standard of Acceptance:
 - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.
- .5 Field inspection of painting operations to be carried out by independent inspection firm as designated by Departmental Representative.
- .6 Advise Departmental Representative when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .7 Cooperate with inspection firm and provide access to areas of work.
- .8 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.

3.9 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.