

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 09 22 16 - Non Structural Metal Framing.
- .2 Section 09 91 23 - Interior Painting.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C475/C475M-12. Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .2 ASTM C840-11. Standard Specification for Application and Finishing of Gypsum Board.
 - .3 ASTM C954-11. Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
 - .4 ASTM C1047-10a. Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - .5 ASTM C1177/C1177M-13. Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - .6 ASTM C1280-13. Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing.
 - .7 ASTM C1396/C1396M-13. Standard Specification for Gypsum Board.
- .2 Association of the Wall and Ceilings Industry (AWCI).
 - .1 AWCI 101a-1997. Recommended Levels of Gypsum Board Finish - Matrix Edition.
- .3 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-51.34-M86(R1988). Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
- .2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
- .3 Handle gypsum board panels to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

GYP SUM BOARD ASSEMBLIES**1.4 SITE ENVIRONMENTAL REQUIREMENTS**

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

1.5 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate 300 x 300 mm size samples. Submit 300 mm long samples of corner bead, casing bead.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Waste Management and Disposal plan as specified in 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 and corrugated cardboard packaging material in appropriate on-site containers for recycling in accordance with Waste Management Plan.
- .4 Divert unused gypsum, metal and wood components from landfill to appropriate recycling facility for disposal approved by Departmental Representative.

Part 2 Products**2.1 MATERIALS**

- .1 Standard board: to ASTM C1396/C1396M. Type X, 15.9 mm thick and 25mm thick, 1200 mm wide x maximum practical length. Ends square cut, edges bevelled.
- .2 Exterior glass mat gypsum sheathing board: to ASTM C1177/C1177M. 15.9 mm thick. 1200 mm wide x maximum practical length. Water resistant, non-combustible, treated gypsum core with water and weather resistant, glass matt facing both sides. Weight: 12.21 kg/square meter.
- .3 Metal furring runners, hangers, tie wires, inserts, anchors: manufacturer's standard profiles to suit specific requirements.
- .4 Drywall furring channels: 0.5 mm core thickness, galvanized steel channels for screw attachment of gypsum board.

GYPSUM BOARD ASSEMBLIES

- .5 Steel drill screws: for application of gypsum board with steel drill screws into heavier gauge steel studs: to ASTM C954.
- .6 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, zinc coated by electrolytic process. 0.5 mm base thickness, perforated flanges, one piece length per location.
- .7 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
- .8 Acoustic sealant: as specified in Section 07 92 00 - Joint Sealants.
- .9 Polyethylene: to CAN/CGSB-51.34, Type 2.
- .10 Joint compound: to ASTM C475, asbestos-free. Manufacturer's premixed commercial grade compound.

Part 3 Execution**3.1 ERECTION**

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Exterior Sheathing Application. Apply glass matt faced gypsum panels to exterior of studs in accordance with ASTM C1280. Apply sheets with vertical joints to minimize joints. Butt panels tightly and seal joints as recommended by manufacturer.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .5 Install work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers and grilles. Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .7 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .8 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .9 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .10 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .11 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

GYPSUM BOARD ASSEMBLIES**3.2 APPLICATION**

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single and double layer gypsum board to metal furring or framing using screw fasteners for first layer and screw fasteners for second layer. Maximum spacing of screws 300 mm on centre.
- .3 Single-Layer Application:
 - .1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
 - .2 Apply gypsum board to walls vertically or horizontally, providing sheet lengths that will minimize end joints.
- .4 Double-Layer Application:
 - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
 - .2 Apply base layer to ceilings prior to base layer application on walls. Apply face layers in same sequence. Offset joints between layers at least 250 mm.
 - .3 Apply base layers at right angles to supports unless otherwise indicated.
 - .4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
- .5 Apply 2 rows of 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, and ducts in partitions where perimeter sealed with acoustic sealant.
- .6 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .7 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
- .8 Install gypsum board with face side out. Do not install damaged or damp boards.
- .9 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

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 on centre.
- .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.

GYPSUM BOARD ASSEMBLIES

- .4 Provide continuous polyethylene dust barrier behind and across control joints.
- .5 Construct control joints of two back-to-back casing beads set in joint compound and supported independently on both sides of joint.
- .6 Locate control joints where indicated or at changes in substrate construction, at approximate 10 m spacing on long corridor runs and at approximate 15 m spacing on ceilings. Install control joints straight and true.
- .7 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier. Install expansion joint straight and true.
- .8 Splice corners and intersections together and secure to each member with 3 screws.
- .9 Install access doors to electrical and mechanical fixtures. Rigidly secure frames to furring or framing systems.

3.4 FINISHING

- .1 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.
- .2 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with AWCI 101a Recommended Levels of Gypsum Board Finish:
 - .1 Level 3: Embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories. Surfaces smooth and free of tool marks and ridges.
 - .1 Use this system where surfaces are to receive a heavy or medium coat of textured material, or where heavy grade wall coverings are to be applied. Do not use where smooth painted surfaces or light to medium weight wall coverings are specified.
 - .2 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
 - .1 Use this system where a uniform surface is mandatory and to minimize the possibility of joint photographing and of fasteners showing through the final decoration. Use where gloss, semi-gloss, enamel or non-textural flat paints are specified or where severe lighting conditions occur.
 - .3 Level 5: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories. Apply a thin skim coat of joint compound to entire surface as follows: Mix joint compound slightly thinner than for joint taping. Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks. Tool entire surface smooth and free of tool marks and ridges. Allow skim coat to dry completely. Remove final ridges by light sanding or wiping with damp cloth.
 - .1 Use where high gloss paint coatings are specified and where lighting conditions are critical. Use for all gypsum board ceilings.

GYPSUM BOARD ASSEMBLIES

- .3 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.
- .4 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.
- .5 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .6 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- .7 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

3.5 FIRE RATED ASSEMBLIES

- .1 Construct fire rated assemblies where indicated.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 09 21 16 - Gypsum Board Assemblies.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C645-13. Standard Specification for Nonstructural Steel Framing Members.
 - .2 ASTM C754-11. Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

1.3 QUALITY ASSURANCE

- .1 Submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction / Demolition Waste Management and Disposal.
- .2 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.
- .3 Divert unused gypsum materials from landfill to recycling facility approved by Departmental Representative.

Part 2 Products**2.1 MATERIALS**

- .1 Non-load bearing channel stud framing: to ASTM C645, 42mm, 64mm, 91mm and 152 mm stud size, roll formed from 0.91 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
- .2 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
- .3 Metal channel stiffener: manufacturer's standard sizes, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

NON-STRUCTURAL METAL FRAMING

- .4 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 19 mm wide, with self sticking adhesive on one face.

Part 3 Execution**3.1 ERECTION**

- .1 Install steel stud systems in accordance with ASTM C754 and manufacturers written instructions.
- .2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.
- .3 Install damp proof course under stud shoe tracks of partitions on slabs on grade.
- .4 Extend partitions to ceiling height except where noted otherwise on drawings. Construct full height partitions where indicated on drawings tight to underside of structure above.
- .5 Place studs vertically at 400 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .6 Erect metal studding to tolerance of 1:1000.
- .7 Attach studs to floor and ceiling track using screws.
- .8 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .9 Co-ordinate erection of studs with installation of door frames and special supports or anchorage for work specified in other Sections.
- .10 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .11 Install heavy gauge single jamb studs at openings.
- .12 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
- .13 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
- .14 Provide solid wooden blocking secured between studs where noted on drawings, attached millwork, other fixtures as indicated. Secure between studs through webs and through face flange of stud.

NON-STRUCTURAL METAL FRAMING

- .15 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .16 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50 mm leg ceiling tracks. Use double track slip joint as indicated.
- .17 Install continuous insulating strips to isolate studs from uninsulated surfaces.
- .18 Install two continuous beads of acoustical sealant or insulating strip under studs and tracks around perimeter of sound control partitions.

3.2 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

INTERIOR PAINTING**Part 1 General****1.1 REFERENCES**

- .1 Architectural Painting Specifications Manual, Master Painters Institute (MPI) 2010.
- .2 The Society for Protective Coatings. (SSPC). Systems and Specifications. SSPC Painting Manual, Volume 2, 2012 Edition.
- .3 National Fire Code of Canada 2010.

1.2 QUALITY ASSURANCE

- .1 Conform to latest MPI requirements for interior painting work including preparation and priming.
- .2 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with MPI Painting Specification Manual "Approved Product" listing and shall be from a single manufacturer for each system used.
- .3 Other paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and shall be compatible with other coating materials as required.
- .4 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
- .5 Standard of Acceptance:
 - .1 Walls: No defects visible from a distance of 1000 mm at 90° to surface.
 - .2 Ceilings: No defects visible from floor at 45° to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.3 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

- .1 Use only paint products meeting MPI "Environmentally Friendly" E3 ratings based on VOC (EPA Method 24) content levels.

1.4 INSPECTION REQUIREMENTS

- .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.

INTERIOR PAINTING

- .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.
- .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.

1.5 SCHEDULING OF WORK

- .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 any changes in work schedule.
- .3 Schedule painting operations to prevent disruption of occupants in and about the building.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be used in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit WHMIS MSDS.- Material Safety Data Sheets in accordance with Section 01 00 10 - General Instructions.
- .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 number.
 - .4 MPI Environmentally Friendly classification system rating.
 - .5 Manufacturer's Material Safety Data Sheets (MSDS).

1.7 SAMPLES

- .1 Submit full range colour sample chips in accordance with Section 01 33 00 - Submittal Procedures. Indicate where colour availability is restricted.
- .2 Submit duplicate 200 x 300 mm sample panels of each paint, stain, clear coating and 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.

INTERIOR PAINTING

- .2 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
- .3 When approved, sample panels shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.8 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 (in each colour scheme) to requirements specified herein, with specified paint or coating showing selected colours, 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.

1.9 EXTRA MATERIALS

- .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit one - one litre can of each type and colour of primer, stain or finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
- .3 Deliver to Departmental Representative and store where directed.

1.10 DELIVERY, HANDLING AND STORAGE

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Labels shall clearly 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.
- .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 a well ventilated area with temperature range 7 °C to 30 °C.

INTERIOR PAINTING

- .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.

1.11 SITE REQUIREMENTS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .2 Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 °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 painting.
 - .4 Operate ventilation system continuously 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.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:
 - .1 Ambient air and substrate temperatures are below 10 °C.
 - .2 Substrate temperature is over 32 °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.

INTERIOR PAINTING

- .4 The relative humidity is above 85 % or when the dew point is less than 3 °C variance between the air/surface temperature.
- .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
- .2 Perform no painting work when the maximum moisture content of the substrate exceeds:
 - .1 12 % for concrete and brick masonry.
 - .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 only 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 only to adequately prepared surfaces and to surfaces within moisture limits noted herein.
 - .3 Apply paint only when previous coat of paint is dry or adequately cured.
- .4 Additional Interior Application Requirements:
 - .1 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

1.12 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials 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 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.

INTERIOR PAINTING

- .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 an approved legal manner in accordance with hazardous waste regulations.
- .5 Empty paint cans are to be dry prior to disposal or recycling.
- .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 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.

Part 2 Products**2.1 MATERIALS**

- .1 Only paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Paint materials for paint systems shall be products of a single manufacturer.
- .3 Only qualified products with an E3 rating are acceptable for use on this project.
- .4 Water-borne paints and stains, water-borne surface coatings and water borne varnishes must meet a minimum E3 rating.

2.2 COLOURS

- .1 Departmental Representative will provide Colour Schedule after award.
- .2 Colour schedule will be based upon the selection of five base colours and two accent colours. No more than seven colours will be selected for the entire project and no more than four colours will be selected in each area.
- .3 Selection of colours will be from manufacturer's full range of colours.
- .4 Where specific products are available in a restricted range of colours, selection will be based on the limited range.
- .5 Second coat in a 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 not allowed.

INTERIOR PAINTING

- .2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.
- .3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.
- .4 Thin paint for spraying according in strict 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 shall be defined as the sheen rating of applied paint, in accordance with the following values:

Gloss Level Category	Units @ 60E	Units @ 85E
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	35 to 70	
G6 - Gloss finish	70 to 85	

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

2.5 INTERIOR PAINTING SYSTEMS

- .1 Apply all paint systems in accordance with MPI Premium grade. Apply one primer coat and two finish coats for all systems.
- .2 INTERIOR Metal Fabrications: columns, beams, joists, misc metal fabrications, etc.
 - .1 INT 5.1S Institutional low odour/low VOC. G3 eggshell finish.
- .3 INTERIOR Galvanized Metal: miscellaneous steel, metal doors, pressed metal frames, pipes, ducts, etc.
 - .1 INT 5.3N Institutional low odour/low VOC. G5 semi gloss finish
- .4 Stucco Plaster and Gypsum Board: gypsum wallboard, drywall type material and textured finishes.
 - .1 WALLS. INT 9.2M Institutional low odour/low VOC. G3 eggshell finish.
 - .2 CEILINGS. INT 9.2M Institutional low odour/low VOC. G1 matte finish.
- .5 Plywood electrical panel backer board:
 - .1 INT 6.2F. Pigmented fire retardant coating. Gloss level G1. Intumescent coating. ULC rated.

INTERIOR PAINTING**Part 3 Execution****3.1 GENERAL**

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

3.2 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 Gypsum Board: 12 %.
 - .2 Concrete: 12 %.
 - .3 Concrete Block: 12 %.
 - .4 Wood: 15 %.

3.3 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 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking any painting operations. Store items securely and re-install after painting is completed.

3.4 CLEANING AND PREPARATION

- .1 Clean and prepare surfaces in accordance with MPI 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.

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- .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. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.
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- .2 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.
 - .3 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.
 - .4 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, blowing with clean dry compressed air or vacuum cleaning.
 - .5 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.
 - .6 Do not apply paint until prepared surfaces have been accepted by Inspecting Agency or Departmental Representative.

3.5 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, air sprayer or airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.
- .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.

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- .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 all 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 only when no other method is practical in places of difficult access and only when specifically authorized by Departmental Representative.
- .5 Apply coats of paint as a 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 closets and alcoves as specified for adjoining rooms.
- .10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

- .1 Unless otherwise specified, paint finished area exposed ductwork, conduits, piping, hangers and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as noted otherwise.
- .2 Boiler room, mechanical and electrical rooms: paint exposed ductwork, piping, and hangers. Do not paint actual mechanical equipment and electrical equipment.
- .3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical/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.

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- .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 exposed fire protection piping red. Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .9 Paint exposed natural gas piping yellow.
- .10 Pre-paint both sides and edges of backboards for telephone and electrical equipment before installation with ULC rated intumescent paint. Leave equipment in original finish except for touch-up as required, paint mounting accessories and any unfinished items.
- .11 Do not paint interior transformers and substation equipment.
- .12 Repaint exterior prefinished mechanical equipment. Custom colours as selected by Departmental Representative.

3.7 FIELD QUALITY CONTROL

- .1 Field inspection of painting operations to be carried out by independent inspection firm as designated by Departmental Representative. Co-operate with inspection firm and provide access to areas of work. Advise Departmental Representative when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat is approved.

3.8 RESTORATION

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

END OF SECTION

