Part 1   General

1.1   SECTION INCLUDES

.1   Gypsum board and joint treatment.

.2   Light gauge metal framing and suspension systems.

1.2   REFERENCES

.1   ASTM C475/C475M-02 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.2   ASTM C645-04 - Specifications for Non-Structural Steel Framing Members.

.3   ASTM C754-00 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board.

.4   ASTM C840-04a - Standard Specification for Application and Finishing of Gypsum Board.

.5   ASTM C1002-01 - Steel Self-Piercing, Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.6   ASTM C1396/C1396M-04 - Standard Specification for Gypsum Board.

.7   GA-201 (Gypsum Association) - Gypsum Board for Walls and Ceilings.

.8   GA-214 (Gypsum Association) - Recommended Specification: Levels of Gypsum Board Finish.

.9   GA-216 (Gypsum Association) - Application and Finishing of Gypsum Board.

.10   GA-600 (Gypsum Association) - Fire Resistance Design Manual.

.11   GA-801 (Gypsum Association) - Handling Gypsum Board.

.12   ULC - Fire Resistance.

1.3   QUALITY ASSURANCE

.1   Perform Work in accordance with ASTM C840. GA-201, GA-214, GA-216 GA-254 and GA-600.

.2   Applicator Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

.3   Handling Gypsum Board: Comply with GA-801.

Part 2   **Products**

2.1   **FRAMING MATERIALS**

.1   Studs and Tracks: ASTM C645; GA-216 and GA-600; galvanized sheet steel, 0.45 mm thick, C shape, with knurled faces.

.2   Furring, Framing, and Accessories: ASTM C645. GA-216 and GA-600.

.3   Furring Channels: Formed steel, minimum 0.5 mm thick, 10 mm deep x 22 19 mm high, splicing permitted; galvanized. rust inhibitive primer.

.4   Main Ceiling Channels: Formed steel, asphalt coated, minimum 1.2 mm thick, 19 mm deep x 38 mm high, single piece, no splicing; galvanized. rust inhibitive primer.

.5   Hangers: Galvanized Unfinished rolled steel sections, of size and type to suit application, to rigidly support ceiling components in place to deflection limits as indicated; galvanized. rust inhibitive primer.

.6   Lateral Bracing: Formed steel, minimum 1.5 mm thick, size and length as required; galvanized.

.7   Control and Expansion Joint Accessories: Formed sheet steel zinc PVC, accordion profile, 50 mm expanded metal solid flanges each side, galvanized rust inhibitive primer.

.8   Fasteners: ASTM C514. ASTM C1002. GA-216.

.9   Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

.10   Adhesive: ASTM C557. GA-216.

2.2   **GYPSUM BOARD MATERIALS**

.1   Standard Gypsum Board: ASTM C1396/C1396M, 13 and 16 mm thick, maximum available length in place; ends square cut, tapered edges.

.2   Fire Rated Gypsum Board: ASTM C1396/C1396M, fire resistive type, UL, ULC, or ITS rated; 13 and 16 mm thick, maximum available length in place; ends square cut, tapered edges.

2.3   **ACCESSORIES**

.1   Anchorage: Tie wire, nails, and other metal supports, of type and size to suit application; to rigidly secure materials in place, galvanized, unfinished.

.2   Fasteners: ASTM C1002, self-drilling, self-tapping screws.

.3   Polyethylene Sheet: Clear, 0.15 mm thick.

.4   Tie Wire: Annealed galvanized steel.

.5   Corner Beads: GA-216, Metal corner bead.

.6   Edge Trim: GA-216; Type U casing bead

.7   Joint Materials: ASTM C475; GA-201 and GA-216; reinforcing tape, joint compound, adhesive, and water.

.8   Gypsum Board and Sheathing Fasteners: ASTM C1002, Type S12.

Part 3   Execution

3.1   EXAMINATION

.1   Section 01 70 00: Verify existing conditions before starting work.

.2   Verify that surfaces conditions are ready to receive work.

3.2   METAL STUD INSTALLATION

.1   Install studs in accordance with ASTM C754. GA-201, GA-216 and GA-600.

.2   Metal Stud Spacing: 400 mm on centre.

3.3   FURRING FOR FIRE RATINGS

.1   Install furring as required for fire resistance ratings indicated and to GA-600 requirements.

3.4   GYPSUM BOARD INSTALLATION

.1   Install gypsum board in accordance with GA-201, GA-216 and GA-600.

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

.3   Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.

.4   Use screws when fastening gypsum board to metal furring or framing.

.5   Double Layer Applications: Use gypsum backing board for first layer, placed perpendicular parallel to framing or furring members. Use fire rated gypsum backing board for fire rated partitions and ceilings.

.6   Place second layer perpendicular parallel to first layer. Offset joints of second layer from joints of first layer.

.7   Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

3.5   CEILING AND SOFFIT FRAMING

.1   Install furring. Erect after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.

.2   Install furring independent of walls, columns, and above ceiling work.

.3   Securely anchor hangers to structural members or embed in structural slab. Space hangers to achieve deflection limits indicated.

.4   Space main carrying channels at maximum 1200 mm centres; not more than 150 mm from wall surfaces. Lap splice securely. Provide additional carrying channels and support hangers at locations identified to receive additional ceiling loads.

.5   Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.

.6   Place furring channels perpendicular to carrying channels, not more than 50 mm from perimeter walls, and rigidly secure. Lap splice securely.

.7   Reinforce openings in suspension system which interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 600 mm past each opening.

.8   Laterally brace suspension system.

3.6   ACCESS PANELS

.1   Install metal access panels and rigidly secure in place.

.2   Install frames plumb and level in opening. Secure rigidly in place.

.3   Position to provide convenient access to concealed work requiring access

3.7   JOINT TREATMENT

.1   Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

.2   Feather coats on to adjoining surfaces so that camber is maximum 0.8 mm.

3.8   TOLERANCES

.1   Section 01 73 00: Tolerances.

.2   Maximum Variation from True Lines and Levels: 3 mm in 3 m.

.3   Maximum Variation from True Position: 3 mm.

.4   Maximum Variation of Finished Gypsum Board Surface from True Flatness: 3 mm in 3 m in any direction.

END OF SECTION

Part 1   **General**

1.1   **REFERENCES**

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

        .1   Material Safety Data Sheets (MSDS).

    .2   Master Painters Institute (MPI)

        .1   MPI Architectural Painting Specifications Manual, latest version.
        .2   MPI - Maintenance Repainting Manual, latest version.

1.2   **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.
        .4   Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
        .5   Submit manufacturer's installation and application instructions.

1.3   **STORAGE AND HANDLING**

    .1   Storage and Protection:

        .1   Provide and maintain dry, temperature controlled, secure storage.
        .2   Store materials and supplies away from heat generating devices.
        .3   Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.

    .2   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.

1.4   **WASTE MANAGEMENT AND DISPOSAL**

    .1   Separate waste materials for reuse and recycling.

    .2   Remove from site and dispose of packaging materials at appropriate recycling facilities.

    .3   Place materials defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.

.4   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.

1.5   SITE CONDITIONS

.1   Heating, Ventilation and Lighting:

.1   Co-ordinate use of existing ventilation system with Contract Administrator and ensure its operation during and after application of paint as required.

.2   Provide minimum lighting level of 323 Lux on surfaces to be painted.

.2   Temperature, Humidity and Substrate Moisture Content Levels:

.1   Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.

.2   Test concrete, masonry and plaster surfaces for alkalinity as required.

.3   Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.

.3   Additional application requirements:

.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 in occupied facilities during silent hours only. Schedule operations to approval of Contract Administrator, 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 minimum E2 "Environmentally Friendly" rating are acceptable for use on this project.

.4   Conform to latest MPI requirements for all 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 and MPI - Maintenance Repainting Manual "Approved Product" listing.

.6   Provide paint products meeting MPI "Environmentally Friendly" E2 ratings based on VOC (EPA Method 24) content levels.

2.2   FINISH AND COLOURS

.1   All interior painting to be done in accordance with MPI Premium Grade requirements.

    .2   Submit proposed Colour Schedule to Contract Administrator for review.

    .3   Colour schedule to match existing colours.

2.3   **MIXING AND TINTING**

    .1   Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written instructions. Obtain written approval from Contract Administrator for tinting of painting materials.

    .2   Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

    .3   Thin paint for spraying, in accordance with paint manufacturer's instructions.

    .4   Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4   **GLOSS/SHEEN RATINGS**

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

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

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

2.5   **INTERIOR PAINTING**

    .1   Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.

        .1   INT 9.2B – High Performance Architectural Latex, G3 gloss level finish (over latex sealer).

                .1   Approved Products: Dulux 36600 primer, 14220 top coats.

2.6   **INTERIOR RE-PAINTING**

    .1   Concrete Masonry Units:

        .1   RIN 4.2K High Performance Architectural Latex, G5 gloss level finish.

                .1   Approved Products: Dulux 36600 primer, 13210 top coats.

    .2   Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).

        .1   RIN 5.3M – High Performance Architectural Latex, G5 gloss level.

                .1   Approved Products: Devoe 4020 primer, Dulux 13210 top coats.

    .3   Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock" type material, etc.

        .1   RIN 9.2B – High Performance Architectural Latex, G3 gloss level finish.

.1   Approved Products: Dulux 36600 primer, 14220 topcoats.

Part 3   Execution

3.1   GENERAL

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

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

3.2   EXAMINATION

.1   Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Contract Administrator any 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.

3.3   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 Contract Administrator.
  .2   Protect items that are permanently attached such as Fire Labels on doors and frames.
  .3   Protect factory finished products and equipment.

.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 will be to approval of Contract Administrator.

.3   Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations.

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

.5   Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

   .1   Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
   .2   Apply wood filler to nail holes and cracks.
   .3   Tint filler to match stains for stained woodwork.

.6   Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.7   Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.

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

.9   Do not apply paint until prepared surfaces have been accepted by Contract Administrator.

3.4   APPLICATION

.1   Method of application to be as approved by Contract Administrator. Conform to manufacturer's application instructions unless specified otherwise.

.2   Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.3   Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.4   Sand and dust between coats to remove visible defects.

.5   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.

.6   Finish inside of cupboards and cabinets as specified for outside surfaces.

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

.8   Finish top, bottom, edges and cut outs of doors after fitting as specified for door surfaces.

3.5   MECHANICAL/ELECTRICAL EQUIPMENT

.1   Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.

.2   Do not paint over nameplates.

.3   Keep sprinkler heads free of paint.

.4   Paint fire protection piping red.

.5   Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.6   Paint natural gas piping yellow.

.7   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.

END OF SECTION