

Part 1 General

1.1	REFERENCES	.1	American Society for Testing and Materials International (ASTM)
		.1	ASTM C36/C36M-01, Specification for Gypsum Wallboard.
		.2	ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
		.3	ASTM C645-00, Specification for Non-structural Steel Framing Members.
		.4	ASTM C754-00, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
		.5	ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
		.6	ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
		.7	ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
		.2	Underwriters' Laboratories of Canada (ULC)
		.1	CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.
1.2	SUBMITTALS	.1	Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
1.3	DESIGN REQUIREMENTS	.1	Partition assembly to be non-combustible construction.
		.2	Minimum sound transmission rating of installed panel partition to be STC 50, tested to ASTM E90.
1.4	STORAGE AND HANDLING	.1	Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
		.2	Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.

Part 2 Products

2.1 NON-STRUCTURAL  
METAL FRAMING

- .1 Non-load bearing channel stud framing: to ASTM C645, 92 mm stud size, roll formed from 0.53 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: 19 x 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

2.2 GYPSUM BOARD

- .1 Standard board: to ASTM C36/C36M regular, 15.9 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges tapered.
- .2 Metal furring runners, hangers, tie wires, inserts, anchors: to ASTM C645.
- .3 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .4 Steel drill screws: to ASTM C1002.
- .5 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, metal, zinc-coated by electrolytic process, 0.5 mm base thickness, perforated flanges, one piece length per location.
- .6 Joint compound: to ASTM C475, asbestos-free.

2.3 ACCESSORIES

- .1 Acoustical insulation and sealant: type recommended by manufacturer to achieve STC rating specified.
- .2 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene, with self sticking permanent adhesive on one face, widths and lengths as required.

Part 3 Execution

3.1 ERECTION OF  
FRAMING

- .1 Install steel framing members to receive screw-attached gypsum board in accordance with ASTM C754 except where specified otherwise.

- .2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.
- .3 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.
- .4 Erect metal studding to tolerance of 1:1000.
- .5 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .6 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.
- .7 Install heavy gauge single jamb studs at openings.
- .8 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. 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.
- .9 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
- .10 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .11 Extend partitions to ceiling height except where noted otherwise on drawings.
- .12 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.
- .13 Install continuous insulating strips to isolate studs from uninsulated surfaces.
- .14 Install insulating strip under studs and tracks around perimeter of sound control partitions.

3.2 ERECTION OF  
GYPSUM BOARD AND  
ACCESSORIES

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .3 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles and similar.
- .5 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .9 Install acoustical insulation and sealant in sound rated partitions to correspond with tested assembly.
- .10 Install gypsum boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.

3.3 APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical works are approved.
- .2 Apply single and double layer gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.

3.4 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. Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .4 Install access doors to electrical and mechanical fixtures specified in respective sections.
  - .1 Rigidly secure frames to furring or framing systems.
- .5 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .6 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.
- .7 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.
- .8 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

PART 1 - GENERAL

1.1 RELATED  
SECTIONS

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 09 65 19 – Resilient Flooring
- .3 Section 09 21 99 - Partitions For Minor Works

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
  - .2 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
  - .3 CAN/CGSB-75.1-M88, Tile, Ceramic.
  - .4 CAN/CGSB-25.20-95, Surface Sealer for Floors.
- .2 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .3 Terrazzo Tile and Marble Association of Canada (TTMAC)
  - .1 Tile Specification Guide 09 30 00 2012/2014, Tile Installation Manual.
  - .2 Tile Maintenance Guide 2000.

1.3 ACTION AND  
INFORMATIONAL  
SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Include manufacturer's information on:
    - .1 Ceramic tile, marked to show each type, size, and shape required.
    - .2 Chemical resistant mortar and grout (Epoxy and Furan).
    - .3 Commercial cement grout.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Wall tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
  - .3 Trim system: Submit 300mm length of each type or trim used for caps, coves and transition in specified finish.

1.4 QUALITY  
ASSURANCE

- .1 Quality Assurance Submittals:
  - .1 Manufacturer's Instructions: manufacturer's installation

instructions.

.2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.5 DELIVERY,  
STORAGE AND  
HANDLING

.1 Packing, shipping, handling and unloading:

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

.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.

1.6 AMBIENT  
CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 18 degrees C for 48 hours before, during, and 48 hours after, installation.

.2 Do not install tiles at temperatures less than 12 degrees C or above 28 degrees C.

.3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.

PART 2 - PRODUCTS

2.1 WALL AND  
CEILING TILE

.1 Ceramic tile WT-1 To be used for all new kitchenette's backsplash, as indicated on drawings. Glass tile, 50mm x 305mm (2" x 12"), polished edges, clear glass with colored back, glazed surface.  
Glass tile to have 20% post-consumer content.  
Standard of Acceptance: Manufacturer: Keen, Series: Ocean 2" x 12" glass, Distributor: Elegant Flooring. Product must have a selection of a minimum of 8 colors. Allow for the selection of two colors by Departmental Representative.

2.2 TRIM SHAPES

.1 Conform to applicable requirements of adjoining floor and wall tile.

.2 Use trim shapes sizes conforming to size of adjoining field wall tile, including existing spaces, unless specified otherwise.

.3 At all vertical ends / exposed tile edges, provide metal trim  
Standard of Acceptance: Schluter Strip, style: Rondec 80 AE  
Satin anodized aluminum.

2.3 MORTAR AND  
ADHESIVE MATERIALS

.1 Adhesives: As per manufacturer's recommendation.

	.2	Dry set cement mortar to: ANSI A108.1.
	.3	Acceptable manufacturer of mortar systems for glass tile listed below. Use material from one manufacturer for the entire project. Do not interchange systems products.
	.4	Standard of Acceptance: Kiesel .1 Mortar material for walls: Keisel Servolight 52 thinset mortar.
<u>2.4 GROUT</u>	.1	Colouring Pigments: .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C 979. .2 Colouring pigments to be added to grout by manufacturer. .3 Job coloured grout are not acceptable. .4 Use in Commercial Cement Grout, Dry-Set Grout, and Latex Cement Grout.
	.2	Cement Grout: to ANSI A108.1. .1 Use one part white cement to one part white sand passing a number 30 screen.
	.3	Commercial Cement Grout: to CTI A118.6.
	.4	Dry-Set Grout: to CTI A118.6.
	.5	Latex Cement Grout: to ANSI A108.1, fast curing, high early strength, polymer-modified, stain resistant, sanded mix for floors, unsanded mix for walls and floors with polished tiles commercial tile grout.
<u>PART 3 – EXECUTION</u>		
<u>3.1 MANUFACTURER'S INSTRUCTIONS</u>	.1	Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.
<u>3.2 WORKMANSHIP</u>	.1	Do tile work in accordance with TTMAC Tile Installation Manual 2012-2014, "Ceramic Tile", except where specified otherwise.
	.2	Apply tile or backing coats to clean and sound surfaces.
	.3	Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.



- .4 Maximum surface tolerance 1:800.
- .5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.
- .6 Lay out tiles so perimeter tiles are minimum 1/2 size.
- .7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .8 Make internal angles square. Use Schluter trim on external angles.
- .9 Use Schluter trim at termination of wall tile panels, except where panel abuts projecting surface or differing plane.
- .10 Allow minimum 24 hours after installation of tiles, before grouting.
- .11 Clean installed tile surfaces after installation and grouting cured.

### 3.3 WALL TILE

- .1 Install in accordance with TTMAC details.

### 3.4 FIELD QUALITY CONTROL

- .1 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.

### 3.5 CLEANING

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

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 01 74 21 – Construction /Demolition Waste Management and Disposal
- .3 Section 00 78 00 - Closeout Submittals
- .4 Section 09 53 00 – Acoustical Suspension

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM C 423-02a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
  - .2 ASTM E 1264-98, Standard Classification for Acoustical Ceiling Products.
  - .3 ASTM E 1477-98a(2003), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
- .3 Canadian Standards Association (CSA International)
  - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .5 Underwriter's Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-[2003], Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate 300mm x 3000mm samples of each type acoustical units.

1.4 DELIVERY, STORAGE AND HANDLING

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

- .2 Store extra materials required for maintenance, where directed by Departmental Representative.
- .3 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, metal, pallets, packaging material, in appropriate on-site containers for recycling in accordance with Waste Management Plan (WMP).
  - .4 Place materials defined as hazardous or toxic in designated containers in accordance with Section 01 35 43 - Environmental Procedures.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

- .1 Permit wet work to dry before beginning to install.
- .2 Maintain uniform minimum temperature of 15]degrees C and humidity of 20-40% before and during installation.
- .3 Store materials in work area 48 hours prior to installation.

#### 1.6 EXTRA MATERIALS

- .1 Provide extra materials of acoustic units in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.
- .3 Ensure extra materials are from same production run as installed materials.
- .4 Clearly identify each type of acoustic unit, including colour and texture.
- .5 Deliver to Departmental, upon completion of the work of this section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- .1 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1.
  - .1 Mineral Fiber, wet-formed
  - .2 Fine texture, no pattern, unperforated design
  - .3 Factory-applied latex paint on Durabright acoustically transparent membrane

- .4 Weight: 1.025 (lbs/sq.ft.)
- .5 ASTM Classification: Type: IV, Form: 2, Pattern: E
- .6 Flame Spread: Class A (UL), in accordance with CAN/ULC-S102.
- .7 Light Reflectance: 0.87, as per ASTM E 1477
- .8 Acoustic NRC: 0.80 or greater
- .9 Color: White
- .10 Edge Profile: Square Lay-in
- .11 Size: 610mm x 1219mm (24" x 48") Contractor responsible to confirm compatibility with existing grid.
- .12 Standard of Acceptance: Armstrong, Series: Ultima High-NRC #1943

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- .1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Departmental Representative.

#### 3.2 INSTALLATION

- .1 Install acoustical panels and tiles in ceiling suspension system.

#### 3.3 APPLICATION

- .1 Install acoustic units as per reflected ceiling plans.
- .2 Install acoustical units parallel to building lines with edge unit not less than 50% of unit width, with directional pattern running in same direction. Refer to reflected ceiling plan.
- .3 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moldings.

#### 3.4 INTERFACE WITH OTHER WORK

- .1 Co-ordinate with Section 09 53 00 - Acoustical Suspension.
- .2 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

PART 1 - GENERAL

1.1 RELATED  
REQUIREMENTS

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 01 74 21 – Construction /Demolition Waste Management and Disposal
- .3 Section 00 78 00 - Closeout Submittals
- .4 Section 09 21 99 – Partitions For Minor Works
- .5 Section 09 53 13 – Acoustic Panel Ceilings

1.2 REFERENCES

- .1 ASTM International
  - .1 ASTM C 635/C 635M-, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
  - .2 ASTM C 636/C 636M-, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

1.3 ACTION AND  
INFORMATIONAL  
SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for acoustical suspension and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 CLOSEOUT  
SUBMITTALS

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

1.5 DELIVERY,  
STORAGE AND  
HANDLING

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

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labeled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect acoustical ceiling tiles and tracks from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## PART 2 - PRODUCTS

### 2.2 MATERIALS

- .1 Heavy duty system to ASTM C 635/ASTM C635M.
- .2 Basic materials for suspension system: commercial quality cold rolled steel, zinc coated.
- .3 Suspension system: non fire rated, made up as follows:  
Exposed tee bar grid components; shop painted satin sheen colour. Components die cut. Main tee with double web, rectangular bulb and 25mm rolled cap on exposed face of ceiling. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection. Provide grid as shown on reflected ceiling plans
- .4 Hanger wire shall be #12 SWG galvanized soft annealed steel wire twist-tied to steel joists, installed in accordance with UL Design G205.
- .5 Hanger inserts: purpose made.
- .6 Accessories: splices, clips, wire ties, retainers and wall molding flush, to complement suspension system components, as recommended by system manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for acoustical ceiling tile and track installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.

### 3.2 INSTALLATION

- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Installation: to ASTM C 636/C 636M except where specified otherwise.
- .3 Do not erect ceiling suspension system until work above ceiling has been inspected and approved by Departmental Representative.
- .4 Secure hangers to overhead structure using attachment methods as acceptable to Departmental Representative.
- .5 Install hangers spaced at maximum 1200 mm centers and within 150 mm from ends of main tees.
- .6 Lay out centre line of ceiling both ways, to provide balanced borders at room perimeter with border units not less than 50% of standard unit width or according to reflected ceiling plan layouts.
- .7 Ensure suspension system is coordinated with location of related components.
- .8 Install wall molding to provide correct ceiling height.
- .9 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.
- .10 Support at light fixtures and diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .11 Interlock cross member to main runner to provide rigid assembly.
- .12 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.
- .13 Finished ceiling system to be square with adjoining walls and level within 1:1000.

### 3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .1 Touch up scratches, abrasions, voids and other defects in painted surfaces.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal

### 3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by acoustical suspension installation.



PART 1 - GENERAL

1.1 RELATED  
REQUIREMENTS

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 01 35 30 – Health & Safety
- .3 Section 01 74 21 – Construction /Demolition Waste Management and Disposal
- .4 Section 00 78 00 - Closeout Submittals

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM f970-07 (2011), Standard test Method for Static Load Limit
  - .2 ASTM F 1344-12, Standard Specification for Rubber Floor Tile.
  - .3 ASTM F1861-08 (2012), Standard Specification for Resilient Wall Base
  - .4 ASTM F2034-08 Standard Specification for Sheet Linoleum Floor Covering.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102.2-10, Method of Test for Surface Burning Characteristics of Floor Covering and Miscellaneous Materials and Assemblies.

1.3 ACTION AND  
INFORMATIONAL  
SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide manufacturer's product data and installation instructions in accordance with Section 01 33 00 - Submittal Procedures for all resilient flooring product.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Submit duplicate 300 mm x 300mm sample pieces of each color of sheet material.
  - .2 Submit 300mm long sample of each color of base, nosing and edge strips.
- .4 Closeout Submittals:
  - .1 Provide maintenance data for resilient flooring products for incorporation into manual specified in Section 01 78 00 -

Closeout Submittals.

1.4 DELIVERY,  
STORAGE AND  
HANDLING

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

1.5 ENVIRONMENTAL  
REQUIREMENTS

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

1.6 MAINTENANCE

- .1 Extra Materials:
  - .1 Provide 50 sq. meters and 10 square meters of two colors of flooring material used for this project for future Owner use, locations as identified in drawings, complete with sufficient adhesive and welding rod to install product on Owner's filing platforms.
  - .2 Extra materials from same production run as installed materials. Material to be provided in one continuous piece.
  - .3 Identify each bundle of floor material, each bundle of welding rod and each container of adhesive.
  - .4 Deliver to Departmental Representative upon completion of the work of this section.
  - .5 Store where directed by Departmental.

PART 2 - PRODUCTS

2.1 MATERIALS

- 1 General: Colors of all materials to be selected and approved by Consultant.
- .2 Linoleum sheet flooring:
  - .1 Homogenous mixture of primary natural materials consisting of linseed oil, rosin binders, wood flour, limestone and color pigments, mixed and calendared on to a natural jute backing.
  - .2 Meets or exceeds ASTM F2034 Standard Specifications for Linoleum Sheet Flooring, Type 1
  - .3 Slip Resistance: Meets or exceeds 0.6 for flat surfaces in accordance to ASTM D 2047
  - .4 Fire Resistance: ASTM E648/NFPA 253 – Class 1, ASTM E

- 662/NFPA 258 (Smoke Density) 450 or less.
  - .5 Width: 2 meters
  - .6 Gauge (Thickness) 2.5mm
  - .7 Pattern: Marbleized pattern using a minimum of 6 colors in one pattern
  - .8 Top coat / finish: Product to have manufacturer factory applied high performance coating / water base finish and not require any stripping once installed (occupancy ready).
  - .9 Seams: Heat Welding Rod: to be multi-colored to match floor colors selected by Departmental Representative
  - .10 Colour: Product to have a minimum 12 color selections for selection by Departmental Representative. Four different colors will be used in the project
  - .11 Standard of Acceptance: Marmoleum Vivace Series
- .3 Vinyl Tile:
- .1 Solid vinyl floor tile comprised of a vinyl wear layer with a high performance top coat with a thick glass veil interlayer to provide dimensional stability and a calendared backing to support the wear layer
  - .2 Meets or exceeds ASTM F 1700 Standard Specification for Solid Vinyl Tile, Class III, Type B
  - .3 Slip Resistance: Meets or exceeds 0.6 for flat surfaces in accordance to ASTM D 2047
  - .4. Fire Resistance: ASTM E648/NFPA 253 – Class 1, ASTM E 662/NFPA 258 (Smoke Density) 450 or less.
  - .5 Size: 150 – 200mm x 1000 – 12000mm
  - .6 Gauge (Thickness): 2.2 mm
  - .7 Wear Layer: 0.55 mm minimum
  - .8 Pattern: Wood grain pattern
  - .9 Colour: Product to have a minimum 30 color selections for selection by Departmental Representative. Three different colors will be used in the project
  - .10 Standard of Acceptance: Forbo Allura LVTHQ
- .4 Resilient base: Rubber, coved, minimum 1200 mm length and 152 mm high x 3.17 mm thick. Five colours to be selected by Departmental Representative for use throughout the project.
- .5 Primers and adhesives: As recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.
- .1 Sheet floor and tile adhesives: maximum VOC limit 60 g/L to SCAQMD Rule 1168.
  - .2 Rubber base adhesives: maximum VOC limit 50g/L to SCAQMD Rule 1168.
- .6 Sub-floor filler and leveler: white premix latex requiring water only to produce cementitious paste as recommended by

flooring manufacturer for use with their product.

- .7 Edge strips: Vinyl reducers / transitions to be installed at changes of all resilient flooring materials to existing flooring material, or concrete flooring, with lip to extend under floor finish, shoulder flush with top of adjacent floor 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 INSPECTION

- .1 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer.
- .2 Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that may prevent adhesive bond or impair durability or appearance of the flooring material.
- .3 Visually inspect for evidence of dusting mold and mildew.
- .4 Report conditions contrary to contract requirements that would prevent a proper installation to Departmental Representative immediately upon discovery.
- .5 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed is received from Departmental Representative
- .6 Failure to identify defects or imperfections will be construed as acceptance and approval of subfloor. Installation indicates acceptance of substrates with regards to conditions existing at the time of installation.

#### 3.3 SUB-FLOOR TREATMENT

- .1 Remove existing resilient flooring.
- .2 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.
- .3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
- .4 Remove sub-floor ridges and bumps. Fill low spots, cracks,

### 3.4 SHEET AND TILE APPLICATION

joints, holes and other defects with sub-floor filler.

- .5 Prime and seal concrete sub-floor according to flooring manufacturer's printed instructions.
- .1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system.
- .2 Install flooring in strict adherence with the latest addition of the manufacturer's printed installation guidelines
- .3 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .4 Install flooring with joints parallel to building lines. Install flooring wall to wall, flooring patterns shown on drawings. Extend flooring into toe spaces, door recesses, closets and similar openings.
- .5 If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to the covers.
- .6 Adhere flooring to the subfloor without cracks, voids, raising or puckering at the seams. As installation progresses, and after installation, roll flooring in 2 directions, except vinyl tile with 45 kg minimum roller to ensure full adhesion. Hand roll flooring at perimeter and the seams to assure adhesion. Refer to specific rolling instructions of the flooring manufacturer.
- .7 Lay flooring with a minimum number of seams. Avoid cross seams, filler pieces and strips. Match edges for color shading and pattern at the seams in compliance with the manufacturer's recommendations.
- .8 Cut tile and fit neatly around fixed objects.
- .9 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
- .10 For sheet flooring, prepare heat-welded seams with specialized routing tool intended for this procedure and heat weld with vinyl welding rods in seams. Use method and sequence of work in conformance with written instructions of

the flooring manufacturer. Finish all seams flush and free from voids, recesses and raised areas.

- .11 Install vinyl transition edge strips at unprotected or exposed edges where floor terminates.

### 3.5 BASE APPLICATION

- .1 Lay out base to keep number of joints at minimum. Base joints at maximum length.
- .2 Clean substrate and prime with one coat of adhesive.
- .3 Apply adhesive to back of base.
- .4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.
- .5 Install straight and level to variation of 1:1000.
- .6 Scribe and fit to door frames and other obstructions.
- .7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles, minimum 300mm each leg..
- .8 Apply base to all built-in millwork as indicated.

### 3.6 FIELD QUALITY CONTROL

- .1 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.

### 3.7 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Remove excess adhesive from floor, base and wall surfaces without damage.
- .3 Perform initial maintenance in accordance with manufacturer's written instructions. Contact manufacturer's technical representative prior to initial clean.
- 4. Dry buff flooring with a 100 rpm plus rotary machine fitted with a suitable clean pad at completion.

### 3.8 PROTECTION

- .1 Protect new floors from time of final initial cleaning until final inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.

## 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
  - .2 MPI Green Performance Standard.
- .5 National Fire Code of Canada - 2005
- .6 Society for Protective Coatings (SSPC)
  - .1 SSPC Painting Manual, Volume Two, 2008 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 2500,, x 2500mm 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, and 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 by Departmental Representative
    - .4 Allow 48 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 remain as part of finished work.

- .2 Pre-Installation Meeting:
  - .1 Convene pre-installation meeting two weeks prior to beginning work of this Section.
    - .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 29.06 - Health and Safety Requirements.

### 1.3 SCHEDULING

- .1 Submit work schedule for various stages of painting to Departmental Representative for review. Submit schedule minimum of 72 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 three 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.
- .4 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation and application instructions.



- .5 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittal: include following:
  - .1 Product name, type and use.
  - .2 Manufacturer's product number.
  - .3 Colour number[s].
  - .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 - four litre can of each type and colour of primer and finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
  - .3 Delivery, storage and protection: comply with Departmental Representative requirements for delivery and storage of extra materials.

#### 1.6 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 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 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 and corrugated cardboard packaging material 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 appropriate regulations.
  - .7 Ensure emptied containers are sealed and stored safely.
  - .8 Unused paint 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 organizations for verifiable re-use or re-manufacturing.

## 1.7 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:

.1 Ventilate enclosed spaces.

.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 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 manufacturers 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 All site applied interior paints must conform to VOC content requirements in MPOI Green Performance Standard GPS-1-2 and GPS-2-12
- .2 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .3 Provide paint materials for paint systems from single manufacturer.
- .5 Conform to latest MPI requirements for interior painting work including preparation and priming.
- .6 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.

### 2.2 COLOURS

- .1 Departmental Representative will provide Colour Schedule after Contract award.
- .2 Colour schedule will be based upon selection of eight wall colors, two door and frame colors and two bulkhead colors. No more than twelve colours will be selected for entire project and no more than four colours will be selected in each area.
- .3 Selection of colours from manufacturer's 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] [DCC Representative] [Consultant] for tinting of painting materials.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic

solvents to thin water-based paints.

- .4 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

#### 2.4 INTERIOR PAINTING SYSTEMS

- .1 The following interior paint formula types are based on the following manufacturer's products and intended for coverage over non-alkyd based pre-painted surfaces.
  - .1 BM: Benjamin Moore Paints
  - .2 ICI: ICI, Glidden or Devoe
  - .3 PPG: Pittsburgh Paints
- .2 For gypsum board walls, apply;
  - .1 Two coats gloss water based epoxy (PPG Code 98 Line) @ 2.0 to 3.0 mils DFT per coat.
  - .2 Two coats gloss water based epoxy (BM M43-44) @ 2.0 to 3.0 mils DFT per coat.
  - .3 Two coats gloss water based epoxy (ICI 4408) @ 2.0 to 3.0 mils DFT per coat.
  - .4 Additional coats will be required for the deeper colored selections.
- .3 For gypsum board ceilings and bulkheads, apply;
  - .1 Two coats of acrylic latex eggshell (PPG Code 89-Line) @ 1.5 to 2.0 mils DFT per coat.
  - .2 Two coats of acrylic latex eggshell (BM 223) @ 1.5 to 2.0 mils DFT per coat.
  - .3 One coat latex primer (ICI 36600). Two coats of acrylic latex eggshell (ICI 59325) @ 1.5 to 2.0 mils DFT per coat.
  - .4 Additional coats will be required for the deeper colored selections.
- .4 For steel doors and frames and glazing frames (interior), apply;
  - .1 Two coats of scrubable gloss 100% acrylic (PPG Code 90-374 series) @ 2.0 to 3.0 mils DFT per coat.
  - .2 Two coats of scrubable gloss 100% acrylic BM m-29) @ 2.0 to 3.0 mils DFT per coat.
  - .3 Two coats of scrubable gloss 100% acrylic (ICI 4216) @ 2.0 to 3.0 mils DFT per coat.
  - .4 Additional coats will be required for the deeper colored selections.

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 preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Report instances of alkyd or epoxy based existing coating before proceeding with work.
- .3 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.
- .4 Maximum moisture content as follows:
  - .1 Stucco, plaster and gypsum board: 12%.
  - .2 Concrete: 12%.
  - .3 Concrete Block/Brick: 12%.
  - .4 Wood: 15%.

3.4 PREPARATION

- .1 Protection:
  - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
  - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
  - .3 Protect factory finished products and equipment.
  - .4 Protect building occupants in and about the building.
- .2 Surface Preparation:
  - .1 Remove electrical cover plates, light fixtures, surface

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

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

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to 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 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.

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

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

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



- .7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes or blowing with clean dry compressed air or vacuum cleaning.
- .8 Touch up of shop primers with primer as specified.
- .9 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

### 3.5 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, air sprayer or 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 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 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

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- .1 In unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .2 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .3 Do not paint over nameplates.
- .4 Keep sprinkler heads free of paint.
- .5 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

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.
- .4 Advise Departmental Representative when surfaces and first applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .5 Cooperate with inspection firm and provide access to areas of work.
- .6 Retain purchase orders, invoices and other documents to prove

conformance with noted MPI requirements when requested by Departmental Representative.

### 3.8 RESTORATION

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