

## LEGEND

MATERIALS AND FINISH				BASE	
ACT	Acoustic Ceiling Tile	MCP	Metal Cooler Panel	R	Rubber Base
CB	Concrete Block	PLY	19mm Plywood backboard for Electrical and Comm.	CT	Ceramic Tile
CH	Concrete, hardened & sealed	PT	Paint		
CT	Ceramic Tile	RS	Resilient Sheet Flooring		
EXP	Exposed Structure	VTC	Vinyl Tile, Conductive		
GWB	Gypsum Wall Board	LP	Liner Panel		
MRG	Moisture Resistant GWB				

  

<b>General Notes</b>					
1.	All exposed columns, beams, joists, deck, etc. to be painted.				
2.	All plywood backboard to be painted with fire retardant paint. See drawings for locations.				
3.	All PS door frames to be painted.				
4.	All HM/HMI doors to be painted.				
5.	All exposed miscellaneous metal items to be painted, except stainless.				
6.	All GWB bulkheads at ceilings to be painted. See Reflected Ceiling Plans for locations.				

  

<b>SCHEDULE NOTES</b>					
1.	FLOOR BASE TO BE PROVIDED BY COOLER SUPPLIER.				
2.	CERAMIC TILE BACK SPLASH AT CASEWORK. SEE INTERIOR ELEVATIONS.				
3.	SEE INTERIOR ELEVATIONS FOR EXTENT OF CERAMIC WALL TILE.				
4.	PROVIDE APPROPRIATE TRANSITION STRIP AT CHANGE IN FLOOR MATERIALS.				
5.	GWB BULKHEAD, PAINTED, WITH PARABOLIC REFLECTOR. SEE INTERIOR ELEVATIONS.				
6.	4.5 LINEAR METERS OF WALL MOUNTED SHADOW BOARD, PAINTED.				
7.	ROBE HOOK MOUNTED ON DOOR AT 1575mm ABOVE FINISHED FLOOR.				

Room #	ROOM NAME	FLOOR FINISH		WALL FINISH		CEILING FINISH			SCHEDULE NOTES
		FINISH	BASE	MAT.	FIN.	MAT.	FIN.	HT.	
101	Recycling & Sorting Area	CH	R	CB/LP	PT	EXP	PT	5090	
101A	Inmate W/C	CT	CT	CB	PT/CT	EXP	PT	5090	3,4
101B	Entrance	CH	R	CB	PT	EXP	PT	5090	
102	Office	RS	R	CB	PT	EXP	PT	2950	2
103	Staff W/C	CT	CT	CB	PT/CT	ACT	-	2745	3,4,5,7
104	Staff Shower	CT	CT	CB	PT/CT	MRG	PT	2745	3,4,7
105	Secure Storage	CH	R	CB	PT	EXP	PT	5090	6
106	Bin Cooler	CH	-	MCP	-	MCP	-	2490	1
107	Mechanical Room	CH	R	CB	PT	EXP	PT	5090	
108	Communications Closet	VTC	R	CB	PT/PLY	EXP	PT	5090	
109	Electrical Room	CH	R	CB	PT/PLY	EXP	PT	5090	

## PART 1 - GENERAL

<u>1.1 RELATED SECTIONS</u>	.1	Section 09 22 16 - Non-Structural Metal Framing.
	.2	Section 09 91 23 - Interior Painting.
<u>1.2 REFERENCES</u>	.1	American Society for Testing and Materials International, (ASTM)
	.1	ASTM C 36/C36M-03e1, Specification for Gypsum Wallboard.
	.2	ASTM C 79/C79M-04a, Standard Specification for Treated Core and Non-treated Core Gypsum Sheathing Board.
	.3	ASTM C 442/C442M-04e1, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.
	.4	ASTM C 475/C475M-02(2007), Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
	.5	ASTM C 630/C630M-03e1, Specification for Water-Resistant Gypsum Backing Board.
	.6	ASTM C 840-08, Specification for Application and Finishing of Gypsum Board.
	.7	ASTM C 954-07, 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.
	.8	ASTM C 1002-07, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
	.9	ASTM C1177/C1177M-08, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
	.10	ASTM C1178/C1178M-08, Specification for Glass Mat Water-Resistant Gypsum Backing Board.
	.11	ASTM C 1280-09, Specification for Application of Gypsum Sheathing Board.
	.12	ASTM C1396/C1396M-09a, Standard Specification for Gypsum Board.
	.13	C1629/C1629M-06, Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels

1.2 REFERENCES (Cont'd)	.2	Association of the Wall and Ceilings Industries International (AWEI)
	.3	Underwriters' Laboratories of Canada (ULC) .1 CAN/ULC-S102-07, Surface Burning Characteristics of Building Materials and Assemblies.
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 boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.
1.4 SITE ENVIRONMENTAL REQUIREMENTS	.1	Maintain temperature minimum 10° C, maximum 21° C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
	.2	Apply board and joint treatment to dry, frost free surfaces.
	.3	Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.
1.5 WASTE MANAGEMENT AND DISPOSAL	.1	Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
	.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

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|---|----|---|
| 1.5 WASTE<br>MANAGEMENT AND<br>DISPOSAL<br>(Cont'd) | .3 | (Cont'd)<br>packaging material for recycling in accordance with Waste Management Plan.  |
|   | .4 | Divert unused gypsum from landfill to gypsum recycling facility for disposal approved by Departmental Representative.   |
|   | .5 | Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.  |
|   | .6 | Divert unused wood materials from landfill to recycling facility approved by Project Manager.   |
|   | .7 | Divert unused paint and caulking material from landfill to official hazardous material collections site approved by Departmental Representative.                                    |
|   | .8 | Do not dispose of unused paint and caulking materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental hazard. |

## PART 2 - PRODUCTS

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|---------------|----|--|
| 2.1 MATERIALS | .1 | Standard board: to ASTM C36/C36M Type X, 16 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges bevelled. For walls, ceilings and bulkheads in general areas.  |
|               | .2 | Moisture resistant board: paperless, coated glass mat faced water resistant treated core gypsum board; conforming to ASTM C1177M and ASTM C1397; Rating of 10 "No mould Growth" as tested for 4 weeks according to ASTM D3273; 16 mm thick. For ceilings in areas where moisture is anticipated (showers). |
|               | .3 | Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30, galvanized.  |
|               | .4 | Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.  |

## 2.1 MATERIALS (Cont'd)

- .5 Steel drill screws: to ASTM C 1002.
- .6 Casing beads, control joints and edge trim: to ASTM C 1047, 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 Sealing.
- .8 Acoustic sealant: in accordance with Section 07 92 00.
- .9 Polyethylene: to CAN/CGSB-51.34, Type 2.
- .10 Acoustic batt insulation: Batt and blanket mineral fibre: to CAN/ULC S702-09.
  - .1 Type: 1.
  - .2 Formaldehyde free, less than 0.022 ppm. Provide testing results.
  - .3 25% minimum recycled content.
  - .4 Thickness: to suit partition thickness, full stud thickness.
- .11 Steel screws, exterior sheathing board: Type S-12 bugle head, self-tapping, rust resistant, fine thread for heavy-gauge steel.
- .12 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .13 Joint compound: to ASTM C475/C475M, asbestos-free.

## PART 3 - EXECUTION

### 3.1 ERECTION

- .1 Do application and finishing of gypsum board in accordance with ASTM C840-08 except where specified otherwise.
- .2 Do application of gypsum sheathing in accordance with ASTM C 1280-09.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840-08 except where specified

- 3.1 ERECTION (Cont'd)
- .3 (Cont'd)  
otherwise. If not connected to structure overhead provide structural steel support for ceilings to satisfaction of structural engineer using channels spanning across space.
  - .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.
  - .7 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
  - .8 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- 3.2 INSULATION INSTALLATION
- .1 Install insulation in gypsum board partitions to meet acoustic requirements of building elements and spaces.
  - .2 Fit insulation firmly between studs and closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
  - .3 Do not compress insulation to fit into spaces.
  - .4 Keep insulation minimum 3" (75mm) from heat emitting devices such as recessed light fixtures.
  - .5 Do not enclose insulation until it has been inspected and approved by Departmental Representative.
- 3.3 APPLICATION
- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
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- 3.3 APPLICATION (Cont'd)
- .2 Apply single layer of gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.
- .1 Single Layer Application:
- .1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840-08.
- .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
- .3 Apply glass mat water-resistant gypsum board where indicated. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Apply to all ceilings in shower areas as scheduled.
- .4 Apply 12mm 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 and penetrations.
- .5 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .6 Install gypsum board with face side out.
- .7 Do not install damaged or damp boards.
- .8 At locations where gypsum board abuts the underside of steel deck, cut gypsum board using a template specifically made to ensure the board neatly and accurately follows the profile of the deck, with clearances for deflection.
- .9 Locate edge or end joints over supports.
- 3.4 INSTALLATION
- .1 Install casing beads around perimeter of suspended ceilings.
- .2 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated.
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3.4 INSTALLATION  
(Cont'd)

- .3 Construct control joints of preformed units set in gypsum board facing and supported independently on both sides of joint.
- .4 Provide continuous polyethylene dust barrier behind and across control joints.
- .5 Locate control joints at changes in substrate construction and at approximate 15m spacing on ceilings.
- .6 Install control joints straight and true.
- .7 Install access doors to electrical and mechanical fixtures specified in respective sections.
  - .1 Rigidly secure frames to furring or framing systems.
- .8 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.
- .9 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.
- .10 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.
- .11 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .12 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.



## PART 1 - GENERAL

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|---|----|--|
| 1.1 RELATED<br>REQUIREMENTS             | .1 | Section 01 33 00 - Submittal Procedures.   |
|   | .2 | Section 09 21 16 - Gypsum Board Assemblies.  |
| 1.2 REFERENCES                          | .1 | American Society for Testing and Materials International, (ASTM).  |
|   | .1 | ASTM C 645-00, Specification for Nonstructural Steel Framing Members.  |
|   | .2 | ASTM C 754-00, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.  |
| 1.3 QUALITY<br>ASSURANCE                | .1 | Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.  |
|   | .2 | Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements. |
| 1.4 WASTE<br>MANAGEMENT AND<br>DISPOSAL | .1 | Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.  |
|   | .2 | Remove from site and dispose of packaging materials at appropriate recycling facilities.   |
|   | .3 | Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.              |
|   | .4 | Divert unused metal materials from landfill to metal recycling facility.   |
|   | .5 | Divert unused gypsum materials from landfill to recycling facility.  |

## PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Non-load bearing channel stud framing: to ASTM C 645, 3-5/8" stud size, roll formed from 20 ga, 0.91 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board and 3/4" plywood. Knock-out service holes at 18" centres. Stud wall designation: 362S162-68. Studs to be 400mm o.c.
  - .2 Floor and ceiling tracks: to ASTM C 645, in widths to suit stud sizes, 1-1/4" flange height.
  - .3 Joist designation: 1000S162-68.
  - .4 Metal channel stiffener: 18x38mm size, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.
  - .5 Acoustical sealant: to CAN/CGSB-19.21
  - .6 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.

## PART 3 - EXECUTION

- 3.1 ERECTION
- .1 Align partition tracks as indicated on drawings and secure at 600 mm on centre maximum.
  - .2 Place studs vertically at 400 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks. Cross brace, and brace, steel studs as required to provide rigid installation to manufacturer's instructions.
  - .3 Erect metal studding to tolerance of 1:1000.
  - .4 Coordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
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3.1 ERECTION  
(Cont'd)

- .5 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
- .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 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
- .10 Provide 20 ga sheet metal or wood blocking secured between studs for attachment of fixtures and accessories. Sheet metal to attach to a minimum of three (3) studs.
- .11 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .12 Extend partitions to ceiling height except where noted otherwise on drawings.
- .13 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.
- .14 Install continuous insulating strips to isolate studs from uninsulated surfaces, where required.
- .15 Install PVC gasket tape under studs and tracks around perimeter and between joists and top plates of sound control partitions.

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

## PART 1 - GENERAL

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|-----------------------------|----|---|
| <u>1.1 RELATED SECTIONS</u> | .1 | Section 07 92 00 - Joint Sealing.   |
| <u>1.2 REFERENCES</u>       | .1 | American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI) <ul style="list-style-type: none"> <li>.1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).</li> <li>.2 CTI A118.4-92, Specification for Latex Portland Cement Mortar (included in ANSI A108.1).</li> <li>.3 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).</li> </ul> |
|                             | .2 | Canadian Standards Association (CSA International) <ul style="list-style-type: none"> <li>.1 CAN/CSA-A3000-08, Cementitious Materials Compendium (Consists of A5-98, A8-98, A23.5-98, A362-98, A363-98, A456.1-98, A456.2-98, A456.3-98).</li> </ul>  |
|                             | .3 | Terrazzo Tile and Marble Association of Canada (TTMAC) <ul style="list-style-type: none"> <li>.1 Tile Specification Guide 09300 2002, Tile Installation Manual.</li> <li>.2 Tile Maintenance Guide 2000.</li> </ul>   |
| <u>1.3 PRODUCT DATA</u>     | .1 | Submit product data in accordance with Section 01 33 00 - Submittal Procedures.   |
|                             | .2 | Include manufacturer's information on: <ul style="list-style-type: none"> <li>.1 Ceramic tile, marked to show each type, size, and shape required.</li> <li>.2 Leveling compound.</li> <li>.3 Latex-Portland cement mortar and grout.</li> <li>.4 Waterproofing materials.</li> <li>.5 All trims and nosings.</li> </ul>  |

1.4 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate samples of each colour, texture, size, and pattern of tile.
- .3 Bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, colour, and size.
- .4 Submit duplicate samples of each trim and nosing.
- .5 Submit samples of aluminum decorative edge protection.

1.5 DELIVERY,  
STORAGE AND  
HANDLING

- .1 Deliver materials in containers with labels legible and intact and grade-seals unbroken.
- .2 Store material so as to prevent damage or contamination.
- .3 Store materials in a dry area, protected from freezing, staining and damage.
- .4 Store cementitious materials on a dry surface.

1.6 WASTE  
MANAGEMENT AND  
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21.
- .2 Remove from site and dispose of all 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.
- .4 Unused adhesive, sealant and coating materials must be disposed of at an official hazardous material collections site as approved by the Project Manager.
- .5 Unused adhesive, sealant and coating materials must not be disposed of into the sewer system, into streams, lakes, onto the

1.6 WASTE MANAGEMENT AND DISPOSAL (Cont'd) .5 (Cont'd)  
ground or in other location where it will pose a health or environmental hazard.

.6 Broken ceramic materials must be diverted from landfill to a local facility as approved by Project Manager.

1.7 ENVIRONMENTAL CONDITIONS .1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 ° C for 48 h before, during, and 48 h after, installation.

.2 Do not install tiles at temperatures less than 12 ° C or above 38 ° C.

1.8 EXTRA MATERIAL .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.

.3 Maintenance material to be of same production run as installed material.

## PART 2 - PRODUCTS

2.1 FLOOR TILE .1 Only first choice goods are acceptable. Plan dimensions of tile refer to tile and joint, in place.

.2 Type CT1: shower floors: porcelain, anti-slip tile: size: 2"x2"; (50mmx50mm); colour: selected by Consultant. No base.

.1 Acceptable product:

.1 Royal Mosa Global Collection;  
distributor - Elegant Flooring.

.2 Quebe Series by Olympia.

.3 Type CT2: washroom: porcelain tile; to CAN/CGSB-75.1, size: 12" x 12" (300mmx300mm);

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- 2.1 FLOOR TILE (Cont'd)
- .3 Type CT2:(Cont'd)  
colour selected by Consultant. Matching base, 4" high.  
.1 Acceptable product:  
.1 Royal Mosa Global Collection; distributor - Elegant Flooring.  
.2 Unicolour series by Olympia.
- 2.2 WALL TILE
- .1 Type CT3: shower walls: porcelain tile: to CAN/CGSB-75.1, size: 4"x8" (100mmx200mm); colour selected by Consultant. 70% neutral, 30% accent colour.  
.1 Acceptable material:  
.1 Royal Mosa Global collection; distributor - Elegant flooring.  
.2 Colour and Dimension Collection by Olympia.
- .2 Type CT-4: washroom walls: ceramic tile: 150mmx150mm (6"x6"). 70% neutral, 30% accent colour selected by Consultant. Patterning to be provided by Consultant.  
.1 Acceptable product:  
.1 United States Ceramic Tile colour collection; distributed by Elegant Flooring.  
.2 Colour and Dimension Collection by Olympia.
- .3 Type CT-5: kitchen backsplash. 75mm x 150mm ceramic tile. Colour selected by consultant. Patterning to be provided by Consultant.  
.1 Acceptable product:  
.1 United States Ceramic Tile colour collection; distributed by Elegant Flooring.  
.2 Colour and Dimension Collection by Olympia.
- 2.3 SHOWER CURBS, SLOPES AND LEVELING COAT MIXER
- .1 Premix Mortar, installed as per manufacturer's recommendations, including mechanically roughing the concrete deck and using Planicrete AC slurry bonding agent.
- .2 Sand and cement mixed with acrylic latex thin-set additive, installed as per manufacturer's recommendations and TTMAC
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2.3 SHOWER CURBS,  
SLOPES AND  
LEVELING COAT MIXER  
(Cont'd)

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- .2 (Cont'd)  
manual, including mechanically roughening the  
concrete deck and priming with admixture.

2.4 MORTAR AND  
GROUT

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- .1 Acceptable manufacturer's of mortar and grout  
systems for ceramic tile are listed below. Use  
materials from one of these manufacturer's for  
the entire project. Do not interchange  
systems' products.
- .2 MAPEI:  
.1 Mortar materials:  
.1 MAPEI Kerabond premium floor and  
wall DRY-Set mixed with:  
.2 MAPEI Keralastic Flexible Polymer  
additive.  
.2 Grout materials:  
.1 General: Keracolor-U/Keracolor-S  
polymer modified grouting compound,  
unsanded for walls, sanded for floors.
- .3 FLEXTILE:  
.1 Mortar materials:  
.1 #53 thin-set mortar, mixed with:  
.2 #44 acrylic latex thin-set mortar  
additive.  
.2 Grout materials:  
.1 General: Flextile Polymer Modified  
Floor and Wall grout, unsanded for walls,  
sanded for floors.

2.5 WATERPROOFING  
MATERIALS

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- .1 Sloped shower floors and bottom 600 mm of  
walls of same spaces: Mapei Mapelasitc 315,  
2-component, flexible, fibre-reinforced  
waterproofing and crack isolation membrane,  
complete with all accessories, including but  
not limited to: Mapeband Inside Corner Pieces;  
Mapeband Drain Flashing; Mapeband Cove Strip.
- .2 Floors of drying areas 1 meter immediately  
outside shower areas: as per .1 above.

2.6 DECORATIVE  
EDGE PROTECTION .1 For use at all outside corners and exposed edges of tiled wall surfaces. Aluminum with clear satin anodized finish; height to suit finished tile thickness. Install flush with finished tile surface and in strict accordance with the manufacturer's specifications.

2.7 BASE TILE .1 Base: same tile as adjacent flooring material, except in showers. Cut to 4" high and capped with decorative aluminum protection.

2.8 TRANSITIONS .1 For dissimilar transition from ceramic tile to other floor finishes. Aluminum, satin anodized finish, anchoring leg and adjustable sloped surface to suit adjacent floor material; Schluter RENO-AEVT 125B30, height to suit finished tile thickness. Install flush with finished tile surface and in strict accordance with the manufacturer's specifications.

PART 3 - EXECUTION

3.1 WORKMANSHIP .1 Do tile work in accordance with TTMAC Tile Installation Manual 2002, "Ceramic Tile", except where specified otherwise.

.2 Apply tile 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.

3.1 WORKMANSHIP  
(Cont'd)

- .5 (Cont'd)  
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, external angles with decorative trim.
- .9 Use cove base profile at intersection of all wall and floor tiles.
- .10 For wet areas using thin-set methods, notch adhesive in straight lines, tile and set tile on freshly trowled thin-set mortar while moving the tile back and forth at 90° to the notches.
- .11 Keep 2/3 of the depth of grout joints free of setting material. Protect all tiles from grout staining, test in advance and pre-seal tile if required. Follow manufacturer recommendations for grout and residue removal.
- .12 Protect installed areas from traffic until setting materials have cured for periods specified in TTMAC Installation Manual 300-2002.
- .13 Install divider strips at junction of tile flooring and dissimilar materials.
- .14 Allow minimum 24 hr after installation of tiles, before grouting.
- .15 Clean installed tile surfaces after installation and grouting cured.
- .16 Make control joints at 4.5 m in each direction. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealing.

- 3.2 MORTAR BEDS .1 Install in accordance with TTMAC Detail 310F-97 to form positive floor slopes of 2% in shower areas.
- .2 Minimum mortar bed of 30 mm.

- 3.3 WALL TILE .1 .1 Install in accordance with TTMAC Detail 303W-200 for concrete block walls.
- .2 Grout tile as specified to manufacturer's recommendations.

- 3.4 FLOOR TILE .1 Install in accordance with TTMAC Detail 311F-2000.
- .2 Install waterproofing membrane at shower bases and drying are 1 meter immediately outside shower area. Lap up surrounding walls of shower 600 mm.
- .3 Install floor tiles over waterproofing membrane in accordance with ANSI A 118.10 and TTMAC Detail 319R-2000.
- .4 Grout floor tile as specified to manufacturer's recommendation.

- 3.5 SPECIAL ACCESSORIES .1 Install transitions, edge protection, control joints, and other special accessories in the tile work in strict accordance with manufacturer's specifications.

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## PART 1 - GENERAL

<u>1.1 SUMMARY</u>	.1	Section Includes: .1 Materials and application of acoustical units for direct application or for application and installation within a suspended ceiling.
<u>1.2 RELATED SECTIONS</u>	.1	Section 01 33 00 - Submittal Procedures.
<u>1.3 REFERENCES</u>	.1	American Society for Testing and Materials International (ASTM) .1 ASTM E1264-08e1, Standard Classification for Acoustical Ceiling Products. .2 ASTM E1477-98a(2008), 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	Underwriter's Laboratories of Canada (ULC) .1 CAN/ULC-S102-10, Surface Burning Characteristics of Building Materials and Assemblies.
<u>1.4 SUBMITTALS</u>	.1	Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Submit duplicate samples of each type acoustical units.

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<u>1.5 DELIVERY, STORAGE AND HANDLING</u>	.1	Protect on site stored or installed absorptive material from moisture damage.
	.2	Store extra materials required for maintenance, where directed by General Contractor.
	.3	Waste Management and Disposal:
	.1	Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
	.2	Remove from site and dispose of packaging materials at appropriate recycling facilities.
<u>1.6 ENVIRONMENTAL REQUIREMENTS</u>	.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 recycling and place in designated containers Steel, Metal and Plastic waste in accordance with Waste Management Plan.
	.5	Fold up metal and plastic banding, flatten and place in designated area for recycling.
	.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.
<u>1.7 EXTRA MATERIALS</u>	.3	Store materials in work area 48 hours prior to installation.
	.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.

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1.7 EXTRA MATERIALS .4 Clearly identify each type of acoustic unit,  
(Cont'd) including colour and texture.  
PART 2 - PRODUCTS

2.1 MATERIALS .1 Type AT-1: 1220 x 610 x 16 mm non-directional visual, medium texture, humidity resistant, white; acceptable materials:  
.1 CGC Radar ClimaPlus #2410.  
.2 ArmstrongFine Fissured #1729.  
.3 (Celotex) CertainTeed Fine Fissured HHF-197 by BPB Canada.

.2 Acoustic Suspension:  
.1 Heavy duty system to ASTM C635-07.  
.2 Basic materials for suspension system: commercial quality cold rolled steel zinc coated.  
.3 Recycled Content: minimum 30%.  
.4 Suspension system: non fire rated, made up as follows:  
.1 Two directional exposed tee bar grid.  
.5 Exposed tee bar grid components:  
.1 Components die cut. Main tee with double web, rectangular bulb and rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.  
.2 AT1: 25 mm (15/16") Grid Face.  
.6 Finish: shop painted satin sheen: white satin.  
.7 Hanger wire: galvanized soft annealed steel wire:  
.1 3.6 mm diameter for access tile ceilings.  
.8 Hanger inserts: purpose made.  
.1 Acceptable material:  
.1 Hilti HCA Ceiling anchor.  
.2 ITW Ramset RA 5170.  
.3 Ucan Wire wedge anchor.  
.9 Accessories: splices, clips, wire ties, retainers and wall mouldings to complement suspension system components, as recommended by system manufacturer.

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### PART 3 - EXECUTION

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| <u>3.1 EXAMINATION</u>  | .1  | Do not install acoustical panels and tiles until work above ceiling has been inspected by the Departmental Representative.   |
|                         |     |  |
| <u>3.2 INSTALLATION</u> | .1  | Install acoustical panels and tiles in ceiling suspension system.  |
|                         | .2  | Installation: in accordance with ASTM C 636-08 except where specified otherwise.   |
|                         | .3  | Install suspension system to manufacturer's instructions.  |
|                         | .4  | Do not erect ceiling suspension system until work above ceiling has been inspected by DCC Representative.  |
|                         | .5  | Secure hangers to overhead structure using attachment methods acceptable to DCC Representative.  |
|                         | .6  | Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.  |
|                         | .7  | 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.                |
|                         | .8  | Ensure suspension system is co-ordinated with location of related components.  |
|                         | .9  | Install wall moulding to provide correct ceiling height.   |
|                         | .10 | Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.  |
|                         | .11 | 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. |



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| <u>3.2 INSTALLATION</u><br><u>(Cont'd)</u>     | .12 | Interlock cross member to main runner to provide rigid assembly.   |
|  | .13 | Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.   |
|  | .14 | Finished ceiling system to be square with adjoining walls and level within 1:1000.   |
| <u>3.3 APPLICATION</u>                         | .1  | Install acoustical units with directional pattern running in same direction. Refer to reflected ceiling plan.  |
|  | .2  | Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moulding.  |
| <u>3.4 INTERFACE WITH</u><br><u>OTHER WORK</u> | .1  | Coordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components. |
| <u>3.5 CLEANING</u>                            | .1  | Touch up scratches, abrasions, voids and other defects in painted surfaces.  |

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## PART1 - GENERAL

<u>1.1 RELATED SECTIONS</u>	.1	Section 09 30 13 - Ceramic Tiling.
	.2	Mechanical and Electrical Sections.
<u>1.2 REFERENCES</u>	.1	American Society for Testing and Materials (ASTM International)
	.1	ASTM F 1066-04(2009)e1, Specification for Vinyl Composition Floor Tile.
	.2	ASTM F 1344-04(2009)e1, Standard Specification for Rubber Tile.
	.3	ASTM F 1700-04, Standard Specification for Solid Vinyl Floor Tile.
	.2	Canadian General Standards Board (CGSB)
	.1	CAN/CGSB-25.20-95, Surface Sealer for Floors.
	.2	CAN/CGSB-25.21-95, Detergent-Resistant Floor Polish.
	.3	ANSI/ESD S.7.1, Floor Materials - Resistive Characterization of Materials; Electrostatic Discharge Association; 2001.
	.4	FTM 101B, Method 4046.1 - Test Procedures for Packaging Materials; Electrostatic Properties of Materials; Revision C, 1980, including Change Notice 3, 1988.
<u>1.3 SAMPLES</u>	.1	Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Submit duplicate tile in size specified and 300 mm long base.
	.3	Submit documentation verifying that the vinyl composition tile flooring is certified by the FloorScore program.

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<u>1.4 CLOSEOUT SUBMITTALS</u>	.1	Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
<u>1.5 WASTE MANAGEMENT AND DISPOSAL</u>	.1	Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
	.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.
	.4	Dispose of unused finish and adhesive materials at official hazardous material collections site approved by Departmental Representative.
	.5	Do not dispose of unused finish and adhesive materials into sewer system, into streams, lakes, onto ground or in other locations where it will pose health or environmental hazard.
<u>1.6 ENVIRONMENTAL REQUIREMENTS</u>	.1	Maintain air temperature and structural base temperature at flooring installation area above 20° C for 48 hours before, during and for 48 hours after installation.
<u>1.7 EXTRA MATERIALS</u>	.1	Provide maintenance materials of resilient tile flooring, base and adhesive in accordance with Section 01 78 00 - Closeout Submittals.
	.2	Provide 2 m <sup>2</sup> of each colour, pattern and type flooring material required for this project for maintenance use.
	.3	Extra materials to be from same production run as installed materials.
	.4	Clearly identify each container of floor tile and each container of adhesive.

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1.7 EXTRA MATERIALS .5 Deliver to Departmental Representative, upon  
(Cont'd) completion of the work of this section.

.6 Store where directed by Departmental Representative.

## PART 2 - PRODUCTS

2.1 MATERIALS .1 Vinyl composition tile (VCT): to ASTM F 1066-04, Composition 1 - non asbestos, Class 2 - through pattern tile, FloorScore certified, 3.2 mm thick x 305 x 305 mm size, in standard colours selected by Departmental Representative. Allow for 2 colors.

.2 Vinyl Tile, Conductive (VTC): solid vinyl tile made with 100 percent pure vinyl containing no regrind material; complying with ASTM F1700, not requiring waxing to achieve a gloss finish or to maintain electrical properties, and with the following conductive tile performance characteristics:

.1 Electrical Resistance, Surface to Ground: 25,000 to 1,000,000 ( $2.5 \times 10^4$  to  $1 \times 10^6$ ) ohms, when tested in accordance with ESD S.7.1.

.2 Static Decay: Less than 0.3 seconds, from 5000 volts to 0 volts, when tested in accordance with FTM 101B, Method 4046.1.

.3 Static Generation: Less than 25 volts with conductive footwear at 20 percent relative humidity.

.4 Colour: Selected by Departmental Representative from manufacturer's standard range.

.5 Adhesive: conductive adhesive as recommended by flooring manufacturer.

.6 Grounding Strips: Cooper foil, of type recommended by flooring manufacturer; provide minimum of 3 strips in a single room.

.7 Acceptable material:

.1 3M 8400 Series ESD Floor Tiles by 3M Electronic Solutions Division, Static Control Products.

.2 Conductile by VPI.

.3 Resilient base: to CAN/CSA-A126.5, Type 1, rubber, Style B-cove; in 37 m coils, 100 mm high x 3 mm thick, including premoulded end

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## 2.1 MATERIALS (Cont'd)

- .3 Resilient base:(Cont'd)  
stops and external corners for coved base only, of colour selected by Departmental Representative.
- .4 Low emitting materials:
  - .1 All site-applied interior coatings, adhesives, sealants, sealant primers, etc., must be of low or no VOC content.
  - .2 Submit Material Safety Data Sheets (MSDS) for all products and materials of these types incorporated into the construction of the project as per Section 01 33 00.
- .5 Primers and adhesives:
  - .1 Waterproof, as recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade, and which comply with VOC content requirements.
- .6 Sub-floor filler and leveller: as recommended by flooring manufacturer for use with their product.
- .7 Metal edge strips:
  - .1 Extruded aluminum, smooth, mill finish with lip to extend under floor finish, shoulder flush with top of adjacent floor finish. Supply and install at edges of all flooring materials.
  - .2 Transition at ceramic tile by Section 09 30 13.
- .8 Sealer: type recommended by flooring manufacturer.
- .9 Wax: type recommended by flooring manufacturer.

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### PART 3 - EXECUTION

#### 3.1 INSPECTION

- .1 Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- .2 Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold or mildew.
- .3 Ensure concrete floors are dry by performing subfloor Calcium Chloride Tests in accordance ASTM F 1869 and bond tests to determine if surfaces are dry and free of curing and hardening compounds, ready to receive flooring.
- .4 Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- .5 Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

#### 3.2 SUB-FLOOR TREATMENT

- .1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .2 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler is cured and dry.

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| 3.2 SUB-FLOOR<br>TREATMENT<br>(Cont'd) | .3 | Prime concrete to floor manufacturer's printed instructions. |
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|-------------------------|-----|--|
| 3.3 TILE<br>APPLICATION | .1  | Provide a high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to the outside. Do not let contaminated air recirculate through a district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation. |
|                         | .2  | Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.   |
|                         | .3  | Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.   |
|                         | .4  | Install flooring to square grid pattern with all joints aligned.   |
|                         | .5  | As installation progresses, and after installation, roll flooring in 2 directions with 45 kg minimum roller to ensure full adhesion.   |
|                         | .6  | Cut tile and fit neatly around fixed objects.  |
|                         | .7  | Install flooring in pan type floor access covers. Maintain floor pattern.  |
|                         | .8  | Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.  |
|                         | .9  | Install metal edge strips at unprotected or exposed edges where flooring terminates.   |
|                         | .10 | Install Conductive Vinyl Tile (VTC), adhesive and copper grounding strips in strict accordance with manufacturer's recommendations to meet specified performance requirements.   |

### 3.4 BASE APPLICATION

- .1 Lay out base to keep number of joints at minimum. Base joints at maximum length available or at internal or premoulded corners.
- .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. Use premoulded end pieces at flush door frames.
- .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 300 mm each leg. Wrap around toeless base at external corners.
- .8 Apply base to all built-in millwork.

### 3.5 INITIAL CLEANING AND WAXING

- .1 Remove excess adhesive from floor, base and wall surfaces without damage.
- .2 Clean, seal and wax floor and base surface to flooring manufacturer's instructions. Apply two coats of sealer and three coats of wax.

### 3.6 PROTECTION OF FINISHED WORK

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



## PART1 - GENERAL

<u>1.1 RELATED SECTIONS</u>	.1	Section 05 50 00 - Metal Fabrications.
	.2	Section 08 11 14 - Metal Doors and Frames.
	.3	Section 08 36 13.02 - Sectional Metal Doors.
	.4	Section 09 91 23 - Interior Painting: Painting of Interior Surfaces.
<u>1.2 REFERENCES</u>	.1	Departmental Representativeur Painting Specifications Manual (2007), Master Painters Institute (MPI).
	.2	Systems and Specifications Manual, SSPC Painting Manual, Volume Two, 2008 Edition, Society for Protective Coatings (SSPC).
	.3	Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings) of the Environmental Protection Agency (EPA).
	.4	National Fire Code of Canada (2005).
<u>1.3 QUALITY ASSURANCE</u>	.1	Contractor shall have a minimum of five years proven satisfactory experience. When requested, provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.
	.2	Conform to latest MPI requirements for exterior painting work including preparation and priming.
	.3	Materials (primers, paints, coatings, 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.
	.4	Retain purchase orders, invoices and other documents to prove conformance with noted MPI

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| 1.3 QUALITY ASSURANCE (Cont'd)             | .4 | (Cont'd) 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 | Soffits: 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.   |
| 1.4 ENVIRONMENTAL PERFORMANCE REQUIREMENTS | .1 | Provide paint products meeting MPI "Environmentally Friendly" E2 ratings based on VOC (EPA Method 24) content levels.  |
| 1.5 INSPECTION REQUIREMENTS                | .1 | Exterior painting and decorating work shall be inspected by the manufacturer's technical representative (Inspector) acceptable to the Departmental Representative. Painting contractor shall notify the Inspector a minimum of one week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.                                 |
|  | .2 | Exterior surfaces requiring painting shall be inspected by the Inspector 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 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. |

- 1.6 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 Project Manager for changes in work schedule.
  - .3 Schedule painting operations to prevent disruption of occupants in and about the building.
- 1.7 SUBMITTALS
- .1 Submit product data and manufacturer's installation/application instructions for paints and coating products to be used in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Submit WHMIS MSDS - Material Safety Data Sheets.
  - .3 Upon completion, submit records of products used. List products in relation to finish system and include the following:
    - .1 Product name, type and use.
    - .2 Manufacturer's product number.
    - .3 Colour numbers.
    - .4 MPI Environmentally Friendly classification system rating.
    - .5 Manufacturer's Material Safety Data Sheets (MSDS).
- 1.8 QUALITY CONTROL
- .1 Provide mock-up in accordance with Section 01 45 00 - Quality Control.
  - .2 When requested by the Departmental Representative, prepare and paint designated surface 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 and/or items shall become acceptable standard of finish quality and workmanship for similar on-site work.
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1.9 EXTRA MATERIALS .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Submit one - one four litre can of each type and colour of 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 Deliver and store materials in original containers, sealed, with labels intact.

.3 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.

.4 Remove damaged, opened and rejected materials from site.

.5 Provide and maintain dry, temperature controlled, secure storage.

.6 Observe manufacturer's recommendations for storage and handling.

.7 Store materials and supplies away from heat generating devices.

.8 Store materials and equipment in a well ventilated area with temperature range 7° C to 30° C.

.9 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.10 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.

- 1.10 DELIVERY, HANDLING AND STORAGE  
(Cont'd)
- .11 Remove paint materials from storage only in quantities required for same day use.
  - .12 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
  - .13 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 Temperature, Humidity and Substrate Moisture Content Levels:
    - .1 Unless specifically pre-approved by specifying body, Inspector and 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.
      - .4 the relative humidity is above 85% or when dew point is less than 3 ° C variance between 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 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.

1.11 SITE REQUIREMENTS (Cont'd)	.2	(Cont'd)
	.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	Apply paint finishes only when conditions forecast for entire period of application fall within manufacturer's recommendations.
	.5	Do not apply paint when:
	.1	Temperature is expected to drop below 10 ° C before paint has thoroughly cured.
	.2	Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.
	.3	Surface to be painted is wet, damp or frosted.
	.6	Provide and maintain cover when paint must be applied in damp or cold weather. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.
	.7	Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
	.8	Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.
1.12 WASTE MANAGEMENT AND DISPOSAL	.1	Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
	.2	Paint 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.

1.12 WASTE  
MANAGEMENT AND  
DISPOSAL  
(Cont'd)

- .4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
  - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out.
  - .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
  - .3 Return solvent and oil soaked rags used during painting operations for contaminate recovery, proper disposal, or appropriate cleaning and laundering.
  - .4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
  - .5 Empty paint cans are to be dry prior to disposal or recycling (where available).
- .6 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
- .7 Set aside and protect surplus and uncontaminated finish materials:. Deliver to or arrange collection by employees, individuals, or organizations for verifiable re-use or re-manufacturing.
- .8 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Paint materials listed in the latest edition of 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 E2 "Environmentally Friendly" rating are acceptable for use on this project.
- .4 Paints, coatings, solvents, cleaners, and other fluids, shall:
  - .1 be water-based water soluble water clean-up.
  - .2 be non-flammable biodegradable.
  - .3 be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
  - .4 be manufactured without compounds which contribute to smog in the lower atmosphere.
- .5 Water-borne surface coatings must be manufactured and transported in a manner that steps of processes, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).
- .6 Water-borne surface coatings must not be formulated or manufactured with aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.

### 2.2 COLOURS

- .1 Departmental Representative will provide Colour Schedule after Contract award.
- .2 Colour schedule will be based upon selection of three base colours and one accent colours. No more than four colours will be selected for the entire project and no more than three colours will be selected in each area.



- |                                  |    |  |
|----------------------------------|----|--|
| 2.2 COLOURS<br>(Cont'd)          | .3 | Selection of colours will be from manufacturers 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<br>TINTING        | .1 | Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Departmental Representative's written permission.   |
|                                  | .2 | Paste, powder or catalysed 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 EXTERIOR<br>PAINTING SYSTEMS | .1 | Paint formula types are based on the following manufacturers' products:  |
|                                  | .1 | PPG: Pittsburgh Paints.  |
|                                  | .2 | BM: Benjamin Moore.  |
|                                  | .3 | ICI: ICI, Glidden or Devoe   |

- 2.4 EXTERIOR PAINTING SYSTEMS (Cont'd)
- .2 Paint XP-1: For exterior primed metal doors and frames and both interior and exterior faces of overhead doors, apply:
    - .1 Two coats of Pitthane Ultra Acrylic Urethane (PPG Code 95-812 Series) @ 2 to 3 mils DFT per coat.
    - .2 Two coats aliphatic acrylic urethane (BM M74/M75) @ 2 to 3 mils DFT per coat.
    - .3 Two coats Devoe acrylic urethane (ICI 379) @ 2 to 3 mils DFT per coat.
  - .3 Paint XP-2: For exterior galvanized railings, galvanized frames at overhead doors, steel bollards without sleeves, galvanized compactor chute, exposed column at entrance, etc., apply:
    - .1 One coat Rapid Coat epoxy primer (PPG Code 95-245 Series) @ 5 to 7 mils DFT. Two coats of Pitthane Ultra Acrylic Urethane (PPG Code 95-812 Series) @ 2 to 3 mils DFT per coat.
    - .2 One coat mastic epoxy primer (BM M45/M46) @ 5 to 7 mils DFT. Two coats aliphatic acrylic urethane (BM M74/M75) @ 2 to 3 mils DFT per coat.
    - .3 One coat Devoe epoxy primer (ICI 205) @ 5 to 7 mils DFT. Two coats acrylic urethane (ICI 379) @ 2 to 3 mils DFT per coat.

### PART 3 - EXECUTION

- 3.1 GENERAL
- .1 Perform preparation and operations for exterior 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 Project Manager damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

- 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 Protect passing building occupants in and about the building.
  - .5 Remove light fixtures, surface hardware on doors, and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Securely store and re-install after painting is completed.
  - .6 Move and cover exterior furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
  - .7 As painting operations progress, place "WET PAINT" signs in pedestrian and vehicle traffic areas.
- 3.4 CLEANING AND PREPARATION
- .1 Clean and prepare exterior surfaces in accordance with MPI Painting Specification Manual requirements. Refer to the MPI Manual in regard to specific requirements and as follows:
    - .1 Remove dust, dirt, and other surface debris by brushing, 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.
-

### 3.4 CLEANING AND PREPARATION (Cont'd)

- .1 (Cont'd)
  - .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.
- .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 On overhead doors, lightly sand existing factory finishes to provide adequate adhesion of site applied coatings.
- .4 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.
- .5 Do not apply paint until prepared surfaces have been accepted by the 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.

- 3.5 APPLICATION (Cont'd)
- .2 Brush and Roller Application:(Cont'd)
    - .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple unless approved by Departmental Representative.
    - .5 Remove runs, sags and brush marks from finished work and repaint.
  - .3 Spray Application:
    - .1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
    - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
    - .3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
    - .4 Brush out immediately runs and sags.
    - .5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.
  - .4 Use dipping, sheepskins or daubers 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 projecting ledges.
  - .9 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

- 3.6 OVERHEAD DOORS .1 Use masks and templates to paint patterns, lines, numbers and letters on overhead doors as indicated on drawings.
- .2 Paint both inside and outside surfaces of overhead doors. Interior surfaces to have same pattern, lines, numbers and letters as indicated on the drawings for the exterior surfaces.
- 3.7 FIELD QUALITY CONTROL .1 Field inspection of exterior painting operations to be carried out by the manufacturer's trained technical representative.
- .2 Advise Departmental Representative when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .3 Co-operate with Inspector and provide access to areas of work.
- 3.8 RESTORATION .1 Clean and re-install all 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 Project Manager. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

## PART 1 - GENERAL

- |                          |    |   |
|--------------------------|----|---|
| 1.1 RELATED<br>SECTIONS  | .1 | Section 09 91 13 - Exterior Painting:<br>Painting of Exterior Surfaces and Interior and<br>Exterior Faces of Overhead Doors.  |
| 1.2 REFERENCES           | .1 | Department of Justice Canada (Jus)<br>.1 Canadian Environmental Protection Act<br>(CEPA), 1999, c. 33   |
|                          | .2 | Environmental Protection Agency (EPA)<br>.1 EPA Test Method for Measuring Total<br>Volatile Organic Compound Content of Consumer<br>Products, Method 24 - 1995, (for Surface<br>Coatings).  |
|                          | .3 | Health Canada / Workplace Hazardous Materials<br>Information System (WHMIS)<br>.1 Material Safety Data Sheets (MSDS).   |
|                          | .4 | Master Painters Institute (MPI)<br>.1 MPI Architectural Painting<br>Specifications Manual, 2004.  |
|                          | .5 | National Fire Code of Canada - 2005   |
|                          | .6 | Society for Protective Coatings (SSPC)<br>.1 SSPC Painting Manual, Volume Two, 2008<br>Edition, Systems and Specifications Manual.  |
| 1.3 QUALITY<br>ASSURANCE | .1 | Qualifications:<br>.1 Contractor: minimum of five years proven<br>satisfactory experience. Provide list of last<br>three comparable jobs including, job name and<br>location, specifying authority, and project<br>manager.<br>.2 Journeymen: qualified journeymen who<br>have "Tradesman Qualification Certificate of<br>Proficiency" engaged in painting work.<br>.3 Apprentices: working under direct<br>supervision of qualified trades person in<br>accordance with trade regulations. |
|                          | .2 | Manufacturer's obligations:   |

1.3 QUALITY  
ASSURANCE  
(Cont'd)

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- .2 Manufacturer's obligations:(Cont'd)
    - .1 The manufacturer shall play an active role in the application of their product during the period of this contract.
    - .2 The manufacturer shall be represented at all relevant meetings by a qualified technical representative, trained as a paint inspector with a minimum of 5 years experience.
    - .3 The technical representative shall be approved by the Departmental Representative.
    - .4 The project shall be subdivided into "Section's of Work".
    - .5 A minimum of three inspectors per sector from the Manufacturer's representative must be made prior to and during application of this work to ensure proper application.
    - .6 After each visit provide a written report to the Departmental Representative and General Contractor within 5 working days.
  - .3 Mock-Ups:
    - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
      - .1 Provide 2500mm 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, 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.
        - .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.
  - .4 Pre-Installation Meeting:
    - .1 Convene pre-installation meeting one month prior to beginning work of this Section.
      - .1 Verify project requirements.
      - .2 Review installation and substrate conditions.
-



- 1.3 QUALITY ASSURANCE (Cont'd)
- .4 Pre-Installation Meeting:(Cont'd)
- .1 (Cont'd)
- .3 Coordination with other building subtrades.
- .4 Review manufacturer's installation instructions and warranty requirements.
- .2 The pre-installation meeting shall be held with the following people present:
- .1 The Departmental Representative and the specifying authority.
- .2 The applicator and his designated inspectors and crew supervisors who will be working on site on this project.
- .3 The paint manufacturer's trained paint inspector.
- .4 The General contractor's inspection staff.
- .3 Items to be present - specifications, finish schedule, colour schedule, product data sheets - MSDS.
- .5 Health and Safety:
- .1 Do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.
- 1.4 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 Project Manager for changes in work schedule.
- .3 Schedule painting operations to prevent disruption of occupants.
- 1.5 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
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- 1.5 SUBMITTALS (Cont'd)
- .2 Product Data:(Cont'd)
- .3 (Cont'd)
- accordance with Section 01 33 00 - Submittal Procedures. Indicate VOCs during application and curing.
- .3 Samples:
- .1 Submit full range of colour sample chips.
- .2 Test reports: submit certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
- .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 Submittals include following:
- .1 Product name, type and use.
- .2 Manufacturer's product number.
- .3 Colour numbers.
- .4 MPI Environmentally Friendly classification system rating.
- 1.6 MAINTENANCE
- .1 Extra Materials:
- .1 Deliver 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's requirements for delivery and storage of extra materials.

1.7 DELIVERY,  
STORAGE AND  
HANDLING

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- .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°C to 30°C.
  - .5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
  - .6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.
  - .7 Remove paint materials from storage only in quantities required for same day use.
  - .8 Fire Safety Requirements:
    - .1 Provide one 9kg 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.
-

1.7 DELIVERY,  
STORAGE AND  
HANDLING  
(Cont'd)

- .9 Waste Management and Disposal:
- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
  - .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 and 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 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.

1.7 DELIVERY, .9 Waste Management and Disposal:(Cont'd)  
 STORAGE AND .12 (Cont'd)  
 HANDLING  
 (Cont'd)

.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.  
 .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 or organizations for verifiable re-use or re-manufacturing.

1.8 SITE CONDITIONS .1 Heating, Ventilation and Lighting:  
 .1 Ventilate enclosed spaces.  
 .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 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:

1.8 SITE CONDITIONS .2  
(Cont'd)

(Cont'd)

.1 Unless pre-approved written approval by and product manufacturer, perform no painting when:

- .1 Ambient air and substrate temperatures are below 10 degrees C.
- .2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.
- .3 Substrate and ambient air temperatures are not expected to fall within paint manufacturer's prescribed limits.
- .4 The relative humidity is under 85 % or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
- .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
- .6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.

.2 Perform painting work when maximum moisture content of the substrate is below:

- .1 Allow new concrete and masonry to cure minimum of 28 days.
- .2 15 % for wood.
- .3 12 % for plaster and gypsum board.
- .4 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".

.3 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.

- 1.8 SITE CONDITIONS .3 (Cont'd)
- (Cont'd)
- .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
- .3 Apply paint when previous coat of paint is dry or adequately cured.
- .4 Additional interior application requirements:
- .1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

## PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Qualified products: only paint materials listed in this specification are acceptable for use on this project.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Conform to latest MPI requirements for interior painting work including preparation and priming.
- 2.2 COLOURS
- .1 Departmental Representative will provide Colour Schedule after Contract award.
- .2 Colour schedule will be based upon selection of five base colours and three accent colours. No more than eight colours will be selected for entire project and no more than three colours will be selected in each area.
- .3 Where specific products are available in restricted range of colours, selection based on limited range.
- .4 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 INTERIOR  
PAINTING SYSTEMS

- .1 The following interior paint formula types are based on the following manufacturers' products.
    - .1 PPG: Pittsburgh Paints.
    - .2 BM: Benjamin Moore.
    - .3 ICI: ICI, Glidden or Devoe.
  - .2 Paint PT-1: For concrete block walls apply:
    - .1 One coat heavy duty epoxy block filler (PPG Code 16-90). Two coats water based epoxy (PPG Code 98 Line) @ 3 mils DFT per coat.
    - .2 One coat heavy duty epoxy block filler (BM 595). Two coats water based epoxy (BM M43-44) @ 3 mils DFT per coat.
    - .3 One coat heavy duty epoxy block filler (ICI 4010). Two coats water based epoxy (ICI 4408) @ 3 mils DFT per coat.
  - .3 Paint PT-2: For gypsum board walls, apply:
    - .1 One coat 100% acrylic primer (PPG code 6-2). Two coats gloss water based epoxy (PPG Code 98 Line) @ 2.0 to 3.0 mils DFT per coat.
    - .2 One coat 100% acrylic primer (BM 586). Two coats gloss water based epoxy (BM M43-44) @ 2.0 to 3.0 mils DFT per coat.
    - .3 One coat 100% acrylic primer (ICI 36600). Two coats gloss water based epoxy (ICI 4408) @ 2.0 to 3.0 mils DFT per coat.
  - .4 Paint PT-3: For gypsum board ceilings, apply:
    - .1 One coat latex primer (PPG Code 6-2). Two coats of acrylic latex eggshell (PPG Code 89-Line) @ 1.5 to 2.0 mils DFT per coat.
    - .2 One coat latex primer (BM 586). Two coats acrylic latex eggshell (BM 223) @ 1.5 to 2.0 mils DFT per coat.
    - .3 One coat latex primer (ICI 36600). Two coats acrylic latex eggshell (ICI 59325) @ 1.5 to 2.0 mils DFT per coat.
  - .5 Paint PT-4: For steel doors and frames (interior), apply:
    - .1 One coat primer (PPG Code 90-712) @ 1.5 to 2.0 DFT. Two coats of scrubable gloss 100% acrylic (PPG Code 90-374 Series) @ 2.0 to 3.0 mils DFT per coat.
    - .2 One coat primer (BM 586) @ 1.5 to 2.0 mils DFT. Two coats of scrubable gloss 100% acrylic (BM M-29) @ 2.0 to 3.0 mils DFT per coat.
    - .3 One coat primer (ICI 4020) @ 1.5 to 2.0 mils DFT. Two coats of scrubable gloss 100%
-



2.3 INTERIOR  
PAINTING SYSTEMS  
(Cont'd)

- .5 Paint PT-4:(Cont'd)
  - .3 (Cont'd) acrylic (ICI 4216) @ 2.0 to 3.0 mils DFT per coat.
- .6 Paint PT-5: For shop primed metal railings, stairs, exposed columns, beams, u/s of stairs, etc., apply:
  - .1 Two coats water based epoxy (PPG Code 98 Line) @ 3 mils DFT per coat.
  - .2 Two coats water based epoxy (BM M43-44) @ 3 mils DFT per coat.
  - .3 Two coats water based epoxy (ICI 4408) @ 3 mils DFT per coat.
- .7 Paint PT-6: For concrete floors, apply:
  - .1 Two coats water based epoxy (PPG Code 98-line) @ 3 mils DFT per coat.
  - .2 Two coats water based epoxy (BM M43-44) @ 3 mils DFT per coat.
  - .3 Two coats water based epoxy (ICI 4408) @ 3 mils DFT per coat.
- .8 Paint PT-7: For exposed steel roof deck and steel roof structure/framing, apply:
  - .1 One coat Pitt Tech Primer (PPG Code 90-712) @ 1.5 to 2.0 DFT. Two coats of Pitt Tech Satin (PPG Code 90-474 Series) @ 2.0 to 3.0 mils DFT per coat.
  - .2 One coat primer (BM 586) @ 1.5 to 2.0 mils DFT. Two coats of scrubable satin 100% acrylic (BM M-29) @ 2.0 to 3.0 mils DFT per coat.
  - .3 One coat Devflex primer (ICI 4220) @ 1.5 to 2.0 mils DFT. Two coats of scrubable satin 100% acrylic (ICI 4210) @ 2.0 to 3.0 mils DFT per coat.
- .9 Paint PT-8: for electrical panel plywood backboards, apply:
  - .1 Two coats of fire retardant latex (PPG Code 42-7).
  - .2 Two coats of fire retardant latex (ICI Safecoat 451).
- .10 Paint PT-9: For unprimed ferrous metals, pipes, etc., apply:
  - .1 One coat Pitt Tech Primer (PPG Code 90-712). Two coats of adjacent ceiling or wall finish.

- 2.3 INTERIOR PAINTING SYSTEMS (Cont'd)
- .10 Paint PT-9:(Cont'd)
- .2 One coat acrylic latex metal primer (BM M04). Two coats of adjacent ceiling or wall finish.
- .3 One coat Devoe metal primer (ICI 4020). Two coats of adjacent ceiling or wall finish.
- .11 Paint PT-10: For exposed galvanized ductwork apply:
- .1 One coat Pitt Tech Primer (PPG Code 90-712) @ 2mils DFT. Two coats of same paint as adjacent wall/ceiling area.
- .2 One coat acrylic latex metal primer (BM Code M04) @ 2mils DFT. Two coats of same paint as adjacent wall/ceiling area.
- .3 One coat Devoe galvanized primer (ICI 4020) @ 2mils DFT. Two coats of same paint as adjacent wall/ceiling area.
- .12 Paint PT-11: For exposed copper piping and fittings apply:
- .1 Two coats of same paint as adjacent wall/ceiling area.
- .2 Two coats of same paint as adjacent wall/ceiling area.
- .3 Two coats of same paint as adjacent wall/ceiling area.

### PART 3 - EXECUTION

- 3.1 MANUFACTURER'S INSTRUCTIONS
- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data 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 Project Manager damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
  - .1 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.

- 3.4 PREPARATION (Cont'd)
- .2 Surface Preparation:(Cont'd)
- .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 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.
- .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.

- 3.4 PREPARATION (Cont'd)
- .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 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.
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- 3.5 APPLICATION (Cont'd)
- .3 Spray application:(Cont'd)
- .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 EQUIPMENT
- .1 Paint all exposed conduits, piping, hangers, struts, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
- .2 Mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- .3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in
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3.6 MECHANICAL EQUIPMENT (Cont'd)	.3	Other unfinished areas:(Cont'd) original finish and touch up scratches and marks.
	.4	Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
	.5	Do not paint over nameplates.
	.6	Keep sprinkler heads free of paint.
	.7	Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
	.8	Paint fire protection piping to match ceiling.
	.9	Paint disconnect switches for fire alarm system and exit light systems in red enamel.
	.10	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.
	.11	Do not paint interior transformers and substation equipment.
3.7 SITE TOLERANCES	.1	Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
	.2	Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
	.3	Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.
3.8 FIELD QUALITY CONTROL	.1	Interior painting work shall be inspected by manufacturer's trained technical representative Inspector acceptable to the specifying authority and Departmental Representative. Painting contractor shall

- 3.8 FIELD QUALITY CONTROL (Cont'd)
- .1 (Cont'd)  
notify Inspector a minimum of one week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.
  - .2 Interior surfaces requiring painting shall be inspected by the manufacturer's technical representative who shall notify Project 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 Standard of Acceptance:
    - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
    - .2 Ceilings: no defects visible from floor at 45 degrees 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 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 specification when requested by Project Manager.
- 3.9 RESTORATION
- .1 Clean and re-install hardware items removed before undertaken painting operations.
  - .2 Remove protective coverings and warning signs as soon as practical after operations cease.
  - .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.



- 3.9 RESTORATION  
(Cont'd)
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Project Manager. 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.