

Part 1 General

1.1 SECTION INCLUDES

- .1 Gypsum board and joint treatment.
- .2 Backer board.
- .3 Metal channel ceiling framing.

1.2 RELATED SECTIONS

- .1 Section 06 10 13 - Wood Blocking and Curbing.
- .2 Section 07 84 00 - Firestopping.
- .3 Section 09 91 99 – Painting for Minor Works

1.3 REFERENCES

- .1 ANSI A118.9-1999(R2005) - Cementitious Backer Units.
- .2 ASTM C553, Type 1 - Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
- .3 ASTM C1104 - Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
- .4 ASTM C1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
- .5 ASTM E84 - Surface Burning Characteristics of Building Materials.
- .6 ASTM C475/C475M-02 (R2007) - Joint Compound and Joint Tape for Finishing Gypsum Board.
- .7 ASTM C514-04(2009)e1 - Nails for the Application of Gypsum Board.
- .8 ASTM C557-03(2009)e1 - Adhesives for Fastening Gypsum Wallboard to Wood Framing.
- .9 ASTM C645-09a - Non-Structural Steel Framing Members.
- .10 ASTM C754-09a - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board.
- .11 ASTM C840-08 - Application and Finishing of Gypsum Board.
- .12 ASTM C954, 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.

- .13 ASTM C1002-07 - Steel Self-Piercing, Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- .14 ASTM C1047-09 - Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .15 ASTM C1177/C1177M, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
- .16 ASTM C1178/C1178M, Specification for Glass Mat Water Resistant Gypsum Backing Board.
- .17 ASTM C1280, Specification for Application of Gypsum Sheathing Board.
- .18 ASTM C1278/C1278M-07a - Fiber-Reinforced Gypsum Panel.
- .19 ASTM C1325-08b - Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units.
- .20 ASTM C1396/C1396M-09a - Gypsum Board.
- .21 ASTM E90-09 - Test Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions and Elements.
- .22 CAN/CGSB 51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .23 CAN/CGSB-71.25-M88 - Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .24 CAN/ULC-S101-07 - Methods of Fire Endurance Tests of Building Construction and Materials.
- .25 CAN/ULC-S102-07 - Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .26 CAN/ULC-S702-09 - Thermal Insulation Mineral Fibre for Buildings.
- .27 GA-214-07 (Gypsum Association) - Recommended Levels of Gypsum Board Finish.
- .28 GA-216-07 (Gypsum Association) - Application and Finishing of Gypsum Panel Products.
- .29 GA-600-09 (Gypsum Association) - Fire Resistance Design Manual.
- .30 GA-801-07 (Gypsum Association) - Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors.
- .31 UL - Fire Resistance Directory.
- .32 ULC - Fire Resistance Directory.
- .33 Association of the Wall and Ceilings Industries International (AWEI)

1.4 SYSTEM DESCRIPTION

- .1 Acoustic Attenuation for identified Interior Partitions: STC as indicated on Drawings.

1.5 SUBMITTALS FOR REVIEW

- .1 Section 01 33 00: Submittal Procedures.
- .2 Product Data:
 - .1 Provide data on steel stud framing gypsum board, backer board, and joint tape.
- .3 Shop Drawings:
 - .1 Indicate special details associated with acoustic seal for openings.

1.6 QUALITY ASSURANCE

- .1 Perform Work in accordance with ASTM C840, GA-214, GA-216, and GA-600. Maintain one (1) copy on Site.
- .2 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience.

1.7 DELIVERY, STORAGE, AND PROTECTION

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Deliver materials in original packages, containers or bundles bearing manufacturer's brand name and identification.
- .3 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
- .4 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.8 ENVIRONMENTAL REQUIREMENTS

- .1 Ambient Conditions:
 - .1 Maintain temperature between 10 degrees C minimum and 21 degrees C maximum, 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 Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

Part 2 Products

2.1 MANUFACTURERS

- .1 Substitutions: Refer to Bid Opportunity.

2.2 FRAMING MATERIALS

- .1 Fasteners: ASTM C1002.

- .2 Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- .3 Adhesive: CAN/CGSB-71.25, ASTM C557, GA-216.
- .4 Contractor has the option of using either a proprietary suspension system or a three-component direct-hung system to suspend gypsum board ceilings.
 - .1 Cable suspension system:
 - .1 Standard of Acceptance:
 - .1 CGC Drywall Suspension System - direct hung drywall system.
 - .2 Approved method using steel studs and channels.
 - .2 Three Component System:
 - .1 (1 ½ inches x ½ inches x 12') 16 gauge channel suspended by 9 gauge (minimum) hanger wire at a maximum of 48" o.c.
 - .2 Tie the furring bar to the channel at (48 inches) o.c.
 - .3 The perimeter support shall be a (1 ½ inches x 1 ¼ inches) 25 gauge galvanized angle.
 - .4 The gypsum board shall be 16mm (5/8 inches) unless noted otherwise.

2.3 GYPSUM BOARD MATERIALS

- .1 Standard Gypsum Board: ASTM C1396/C1396M, paper-faced; 1 220 mm (48 inches) wide, maximum available length in place; tapered edges, ends square cut.
 - .1 Fire rated core (Type X), 16 mm (5/8 inch) thick.
- .2 Fibreglass Mat Gypsum Backer Board: ASTM C1178; ASTM D6329, EPA 12-week protocol; water-resistant treated core with glass mat coating, 16 mm thick; maximum available size in place; smoothed edges, ends square cut.
 - .1 Product: DensShield; Manufactured by Georgia-Pacific Gypsum LLC.

2.4 ACCESSORIES

- .1 Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
- .2 Corner Beads: ASTM C1047, GA-216, metal commercial grade sheet steel with G90 Zinc finish perforated and knurled 32mm (1 ¼ inch) flanges; one piece length per location.
- .3 Casing Beads: ASTM C1047, GA-216, metal, G90 Zinc finish, perforated flanges; one piece length per location.
 - .1 Standard of Acceptance:
 - .1 Product: D-100; Manufactured by Bailey Metal Products Ltd.
- .4 Edge Trim: ASTM C1047, GA-216; Type U casing bead.
- .5 Resilient Channels: 0.5mm (25ga.) base steel thickness galvanized steel.
 - .1 Standard of Acceptance:
 - .1 Product: RC-1 resilient channel; Manufactured by UGC.

- .6 Channel Trim: galvanized steel.
 - .1 Standard of Acceptance:
 - .1 Product: D-4411; Manufactured by Bailey Metal Products Ltd.
- .7 Drywall metal trim: galvanized steel.
 - .1 Standard of Acceptance:
 - .1 Product: D-200; Manufactured by Bailey Metal Products Ltd.
- .8 Angle Framing Trim: 32 x 38mm (1 ¼ inch x 1 ½ inch) 25 ga.
 - .1 Standard of Acceptance:
 - .1 Product: D-700; Manufactured by Bailey Metal Products Ltd.
- .9 Flexible Column Trim: 14mm (9/16 inch) flexible PVC trim angle.
 - .1 Standard of Acceptance:
 - .1 Product: Flex-Grid Angle; Manufactured by Trim-Tex.
 - .2 Uniflex®.
- .10 Acoustic sealant: to CGSB 19-GP-21M, non-hardening, non-skinning, for use in conjunction with gypsum board.
 - .1 Standard of Acceptance:
 - .1 Product: Acoustical Sealant; Manufactured by Tremco.
- .11 Sealants: Type in accordance with Section 07 92 00 - Joint Sealing.
- .12 Polyethylene: to CAN 2-52.33-M77, Type 2. Minimum 0.15mm (6mil) thickness.
- .13 Insulating strip: rubberized, moisture resistant, 3mm (1/8") thick cork or closed cell neoprene strip, 12mm (1/2") wide, with self-sticking permanent adhesive on one face; lengths as required.
- .14 Track sill gasket: 3mm (1/8") thick semi-rigid fiberglass strips or closed cell foam.
- .15 Isolation hanger: ARH-1, high tensile rubber 11 gauge interlocked wire, size for 5mm (3/16 inch) deflection with maximum load. Available at Tri-Tec Drywall Services.
- .16 Channel Studs: 18ga. channel studs at corners as backing for corner guards.
- .17 Joint Materials: ASTM C475, GA-216, compatible with products specified.
- .18 Reinforcing tape, adhesive, and water.
- .19 Joint compound: Asbestos-free dust-controlled.
 - .1 Standard of Acceptance:
 - .1 SHEETROCK® All Purpose Joint Compound.
 - .2 SHEETROCK® Topping Joint Compound.
 - .3 DURABOND 90® Compound.
 - .4 SHEETROCK MC® Ready-to-Use.
 - .5 SHEETROCK® First Coat Paint primer/sealer.

- .20 Protect ready-to-use compounds from freezing and extreme heat. Product that has been frozen is to be discarded.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that Site conditions are ready to receive work and opening dimensions are as indicated on shop drawings and as verified by Contractor.

3.2 INSTALLATION

- .1 Install in accordance with manufactures instructions.
- .2 Components shall be lifted with suitable devices.
- .3 Components shall be installed plum and true. Shim where necessary.
- .4 Fasten components with self drilling, self tapping bugle head screws through face or back as indicated on shop drawings.
- .5 Where components are suspended, use as a minimum 12 gauge galvanized steel wire and the suspension points indicated on the shop drawings.
- .6 Framing, hangers etc. as specified for Gypsum Board.
- .7 Butt joints are to be adhered together using "Liquid Nail" or equivalent.
- .8 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .9 Do application of gypsum sheathing in accordance with ASTM C1280.
- .10 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .11 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .12 Install work level to tolerance of 1:1200.
- .13 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, and grilles.
- .14 Install 19 x 64 (3/4 x 2 1/2 inch) mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .15 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .16 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

- .17 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .18 Furr openings and around built in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .19 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- .20 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm (6 inches) on centre using contact adhesive for full length.
- .21 Install casing beads around perimeter of suspended ceilings.
- .22 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .23 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .24 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.
- .25 Construct control joints of preformed units two back to back casing beads set in gypsum board facing and supported independently on both sides of joint.
- .26 Provide continuous polyethylene dust barrier behind and across control joints.
- .27 Locate control joints where indicated, at changes in substrate construction, at approximate 10 m (30 ft) spacing on long corridor runs and at approximate 15 m (45 ft) spacing on ceilings.
- .28 Install control joints straight and true.
- .29 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
- .30 Install expansion joint straight and true.
- .31 Install cornice cap where gypsum board partitions do not extend to ceiling.
- .32 Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm (12 inches) on centre.
- .33 Splice corners and intersections together and secure to each member with 3 screws.
- .34 Install access doors to electrical and mechanical fixtures specified in respective sections. Rigidly secure frames to furring or framing systems.
- .35 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.

- .36 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
 - .1 Levels of finish:
 - .1 Level 0: No tapping, finishing or accessories required.
 - .2 Level 1: Embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.
 - .3 Level 2: Embed tape for joints and interior angles in joint compound and apply one separate coat of joint compound over joints, angles, fastener heads and accessories; surfaces free of excess joint compound; tool marks and ridges are acceptable.
 - .4 Level 3: Embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
 - .5 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
 - .6 Level 5: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; apply a thin skim coat of joint compound to entire surface; surfaces smooth and free of tool marks and ridges.
- .37 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.
- .38 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.
- .39 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .40 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- .41 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.
- .42 Mix joint compound slightly thinner than for joint taping.
- .43 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.
- .44 Allow skim coat to dry completely.
- .45 Remove ridges by light sanding or wiping with damp cloth.
- .46 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

3.3 CEILING FRAMING INSTALLATION

- .1 Install to ASTM C754 and GA-216.
- .2 Coordinate location of hangers with other work.
- .3 Install ceiling framing independent of walls, columns, and above ceiling work.
- .4 Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 600 mm (24 inches) past each end of openings.
- .5 Laterally brace entire suspension system.
- .6 Contractor has the option of using either a proprietary suspension system or a three-component direct-hung system to suspend gypsum board ceilings.
 - .1 Cable suspension system: Erect hangers and runner channels or suspended gypsum board ceilings where specifically noted to CSA A82.31M. Approved method using steel studs and channels.
 - .2 Three Component System:
 - .1 (1 ½ inches x ½ inches x 12") 16 gauge channel suspended by 9 gauge (minimum) hanger wire at a maximum of 48" o.c.
 - .2 Tie the furring bar to the channel at (48 inches) o.c.
 - .3 The perimeter support shall be a (1 ½ inches x 1 ¼ inches) 25 gauge galvanized angle.
 - .4 The gypsum board shall be 16mm (5/8 inches) unless noted otherwise.
- .7 Construct ceilings to a tolerance of 1:1200.
- .8 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, and grilles.
- .9 Fire and sound rated partitions to be continuous to underside of roof structure above suspended or furred ceiling.
- .10 Do not erect ceiling suspension system until anchors, blocking, sound or fire barriers, electrical, and mechanical work above ceiling have been inspected and approved by Contract Administrator.
- .11 Ensure suspended system is co-ordinated with location of related components.
- .12 Support suspension system main runners with hanger wire secured to the building's structural system. Do not attach suspension system to ductwork or building services. Review mechanical drawings for areas requiring special attention. Completed assembly to support super-imposed loads, such as lighting fixtures, diffusers, and grilles.
- .13 Support fluorescent light fixtures with supplemental hangers within 150mm (6 inches) of each corner and at maximum 600mm (24 inches) around perimeter.
- .14 Provide isolation hangers where noted.

3.4 ACOUSTIC ACCESSORIES INSTALLATION

- .1 Install resilient channels where scheduled for acoustically rated walls and floor construction.
- .2 Erect drywall resilient furring transversely across studs joists, spaced maximum 600 mm (24 inches) on centre and not more than 150 mm (6 inches) from ceiling/wall juncture.
 - .1 Secure channels to each support with 38mm (1-3/4 inch) Type W or 25 mm (1 inch) Type S screws.
 - .2 Attach gypsum panels to resilient channels with 25 mm (1 inch) Type S screws at 300mm (12 inch) on centre, and to joists with 38 mm (1 3/4 inch) Type W screws.
- .3 Install 75 mm (3 inches) continuous strip of 13 mm (1/2 inch) gypsum board along base of partitions where resilient furring installed.
- .4 Maximum weight of overlaid insulation:
 - .1 6.5 kg/sq m (1.3 lbs/sq ft) for 13 mm (1/2 inch) panels on framing spaced 600 mm (24 inch) on centre.
 - .2 11 kg/sq m (2.3 lbs/sq ft) for 13 mm (1/2 inch) panels on framing at 400 mm (16 inch) on centre.
 - .3 11 kg/sq m (2.3 lbs/sq ft) for 16 mm (5/8 inch) panels and framing at 600mm (24 inch) on centre.
- .5 Install acoustic sealant within partitions in accordance with manufacturer's written instructions.
- .6 Erect accessories straight, plumb or level, rigid, and at proper plane. Use full-length pieces where practical. Make joints tight, accurately aligned, and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150mm (6") o.c. or using contact adhesive for full length.
- .7 Install casing beads around perimeter of suspended ceilings.
- .8 Install channel trim where gypsum board butts against surfaces having no trim and at control joints. Cement and sand to finish.
- .9 Install insulating strips continuously at edges of gypsum board or casing beads abutting metal window or exterior doorframes, to provide thermal break.

3.5 GYPSUM BOARD INSTALLATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply gypsum board to wood or metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm (12 inches) on centre.
- .3 Apply water resistant gypsum board where wall tiles to be applied and adjacent to slop sinks. Apply water resistant sealant to edges, ends, cut outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

- .4 Apply 13 mm (1/2 inch) diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut outs around electrical boxes, ducts, and in partitions where perimeter sealed with acoustic sealant.
- .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 on walls vertically to avoid end butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire rated assemblies require vertical application.
- .7 Install gypsum board with face side out.
- .8 Do not install damaged or damp boards.
- .9 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.
- .10 Erect single layer standard gypsum board horizontal or vertical orientation (whichever results in fewest ends), with ends and edges occurring over firm bearing.
- .11 Use screws when fastening gypsum board to wood furring or framing.
- .12 Erect exterior gypsum soffit board perpendicular to supports, with staggered end joints over supports.
- .13 Treat cut edges and holes in moisture resistant gypsum board with sealant.
- .14 Place control joints consistent with lines of building spaces as indicated or required. Confirm all locations with Contract Administrator.
- .15 Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.
- .16 Install backing board over metal studs, plywood sheet, or gypsum board to manufacturer's written instructions.
- .17 Unless noted otherwise on wall schedule, gypsum board to be installed to underside of structure and fit tight to all construction penetrating board. In fire rated assemblies seal with fire-stop material and in sound rated assemblies seal with acoustic caulking.
- .18 For acoustic separation between rooms, all back to back electrical boxes (boxes serving rooms on opposite side of the same wall) shall be located by the electrical Contractor so that they are at least 640mm (2'-2 inches) apart and separated by (1) full stud space. To acoustically separate back to back electrical boxes which cannot be horizontally separated by min. 640mm (2'-2 inches) (1 full stud space), attach double layer 16 GWB, from floor to 1200mm (4'-0 inches) high, to side of stud between boxes. Seal with acoustic caulk on bottom and sides.

3.6 PROPRIETARY BACKER BOARDS

- .1 Install proprietary paperless exterior sheathing, wallboards, cement board and tile backer boards in accordance with the manufacturer's technical literature.

3.7 ACCESS DOORS

- .1 Install access doors to electrical and mechanical fixtures specified in respective Sections and to the approval of the Contract Administrator for location.
- .2 Rigidly secure frames to furring or framing systems.

3.8 JOINT TREATMENT

- .1 Finish in accordance with ASTM C840 and GA-214, Level 5 for all areas exposed to view and Level 2 for all areas not exposed.
- .2 Feather coats on to adjoining surfaces so that camber is maximum 0.8 mm (1/32 inch).
- .1 Fill and finish joints and corners of cementitious backing board.
- .2 Control Joints:
 - .1 Construct control joints of preformed units or (2) back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.
 - .2 Provide continuous 150mm (6 inches) wide polyethylene dust barrier behind and across control joints.
 - .3 Locate control joint at approximate 10000mm (30') spacing on long runs, at approximate 15000mm (45') spacing on ceilings or where indicated on drawings. Locate control joints over door openings aligned with corner of doorframe and carry up to top of partition.
 - .4 Install control joints straight and true.
 - .5 Install expansion joint covers at Bridge connection in accordance with manufacturer's instructions. Blend into wall.
- .3 Taping and Filling:
 - .1 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape, and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
 - .2 Finish corner beads, control joints, and trim as required with (2) coats of joint compound and (1) coat of taping compound, feathered out onto panel faces.
 - .3 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after painting is completed.
 - .4 Tape and fill joints above ceiling line to underside of structure in all walls and to floor line for proper installation of cove base.
 - .5 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
 - .6 Completed installation to be smooth, level or plumb, free from waves and other defects, and ready for painting or other finish coatings including fabric or vinyl wall coverings.

- .7 Apply a continuous skim coat at all partitions located directly below valence lighting or perpendicular to exterior windows for a length of 10000mm (30') to provide a smooth surface free of joints and imperfections.
- .8 Sanding not required behind permanent fixtures and above finished ceilings.
- .9 Apply a continuous skim coat of topping joint compound over the FibreBond® panels to provide a smooth and consistent painting surface, or apply SHEETROCK® First Coat paint.

3.9 TOLERANCES

- .1 Maximum Variation of Finished Gypsum Board Surface from True Flatness: 3 mm in 3 m (1/8 inch in 10 ft) in any direction.

3.10 SCHEDULES

- .1 Level 1: Above finished ceilings concealed from view.
- .2 Level 3: Walls exposed to view.
- .3 Level 4: Ceilings exposed to view.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Resilient Tile flooring.
- .2 Resilient base.
- .3 Transition Strip

1.2 RELATED SECTIONS

- .1 Section 06 41 11 – Architectural Woodwork
- .2 Section 09 21 16 - Gypsum Board Assemblies.

1.3 REFERENCES

- .1 ASTM E84-09c - Test Method for Surface Burning Characteristics of Building Materials.
- .2 ASTM F1861-08 - Resilient Wall Base.
- .3 ASTM G21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- .4 ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- .5 ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- .6 ASTM F925 - Standard Test Method for Resistance to Chemicals of Resilient Flooring.
- .7 ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.
- .8 ASTM D2240: Standard Test Method for Rubber Property (Durometer Hardness).
- .9 ASTM D3389: Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader).
- .10 ASTM F970: Standard Test Method for Static Load Limit.
- .11 ASTM D2047 - 04 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
- .12 ASTM F1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- .13 ASTM F2170: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

- .14 ASTM E1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
- .15 ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- .16 CAN/ULC-S102.2-07 - Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.

1.4 SUBMITTALS FOR REVIEW

- .1 Section 01 33 00: Submittal Procedures.
- .2 Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colours available.
- .3 Samples:
 - .1 Submit two (2) samples, 600 x 600 mm (24x24 inch) in size illustrating colour and pattern for each floor material for each colour specified.
 - .2 Submit two (2) 600 mm (24 inch) long samples of base material for each colour specified.

1.5 SUBMITTALS FOR INFORMATION

- .1 Section 01 33 00: Submittal Procedures.
- .2 Installation Data: Manufacturer's special installation requirements including special procedures, perimeter conditions requiring special attention.

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Closeout Submittals.
- .2 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- .1 Section 01 78 40: Maintenance requirements.
- .2 Extra Stock Materials: Provide 2 linear metre of flooring, and base of each material specified.

1.8 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 14000 certification requirements.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

1.9 REGULATORY REQUIREMENTS

- .1 Resilient Flooring:
 - .1 Conform to applicable code for flame/smoke rating requirements of Class C to ASTM E84.
- .2 Rubber Base:
 - .1 Conform to applicable code for flame/smoke rating requirements of Class A to ASTM E84.

1.10 DELIVERY, STORAGE, AND PROTECTION

- .1 Section 01 61 00: Common Product Requirements
- .2 Protect roll materials from damage by storing on end.

1.11 ENVIRONMENTAL REQUIREMENTS

- .1 Store materials for three days prior to installation in area of installation to achieve temperature stability.

Part 2 Products

2.1 MATERIALS - SHEET FLOORING

- .1 Manufacturers:
 - .1 Reception
 - .1 Vinyl Composition Tile
 - .2 Size: 12" x 12" to match existing
 - .3 Standard of Acceptance: Armstrong Standard Excelon Imperial Texture – Multicolor
 - .4 Colour Selection: 51916 Dutch Delft
 - .5 Installation as per manufacturers written recommendation
 - .2 Lounge
 - .1 Vinyl Composition Tile to match adjacent tile.
 - .2 Size: 12" x 12" to match existing
 - .3 Composite Tile to match existing adjacent tile if appropriate match is possible. If match is not possible, Color to be selected by Contract Administrator from manufacturers standard range.
 - .4 Contractor to provide 12" x 12" sample for colour match.
 - .5 Flooring supplier to visit site to ensure compatibility with adjacent tile in terms of height, width and colour prior to ordering material.
 - .6 Installation as per manufacturers written recommendation

2.2 MATERIALS - BASE

- .1 Manufacturers:

- .1 Johnsonite; Product: Traditional Rubber Wall Base.
- .2 Base (RB): ASTM F1861, Type TP thermoplastic rubber; top set coved; premoulded external corners:
 - .1 Hardness: To ASTM D2240 Rubber – 85 Shore A.
 - .2 Height: 100 mm (4 inch).
 - .3 Thickness: 3 mm (1/8 inch) thick.
 - .4 Length: Installers choice.
 - .5 Colour: To be Selected from Standard Colours
- .3 Base Accessories: Premoulded end stops and external corners, of same material, size, and colour as base.

2.3 MATERIALS – TRANSITION STRIP

- .1 Flooring Installer to provide transition strip that meets National Building Code Barrier free standards.
- .2 Transition Strip to be from existing Skate Flooring to new Vinyl Composition Tile located at the new millwork gate.
- .3 Contractor to provide recommended product and provide sample.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify concrete floors are dry to a maximum moisture content of 7%, and exhibit negative alkalinity, carbonization, or dusting.

3.2 PREPARATION

- .1 Prepare Site and substrate to manufacturer's written instructions.
- .2 Existing floor finishes to be thoroughly cleaned and de-greased prior to installation.
- .3 Vacuum clean substrate.
- .4 Area shall be clean, fully enclosed, weathertight and maintained at a uniform temperature of at least 68°F for 7 days before, during and after installation.
- .5 Products to be installed, including adhesives shall be maintained at a uniform temperature of at least 68°F for 48hrs before installation.
- .6 Coiled wall base shall lay flat temperature specified above for at least 24hrs prior to installation.

3.3 INSTALLATION

- .1 Install flooring to manufacturer's written instructions.

3.4 INSTALLATION - BASE

- .1 Install rubber base to manufacturer's written instructions.
- .2 Fit joints tight and vertical. Maintain minimum measurement of 450 mm (18 inches) between joints.
- .3 Mitre internal corners. At external corners, use premoulded units. At exposed ends, use premoulded units.
- .4 Install base on solid backing. Bond tight to wall and floor surfaces.
- .5 Scribe and fit to door frames and other interruptions.

3.5 CLEANING

- .1 Section 01 74 11: Cleaning.
- .2 Remove access adhesive from floor, base, and wall surfaces without damage and in accordance with manufacturer's written instructions.
- .3 Initial cleaning should only be performed 72 hours after the rubber athletic surface has been completely installed.
- .4 Maintain rubber athletic flooring according to Manufacturer's current maintenance instructions for specified product.

3.6 PROTECTION OF FINISHED WORK

- .1 Section 01 78 40: Protecting installed work.
- .2 Prohibit traffic on floor finish for forty-eight (48) hours after installation.
- .3 Rubber athletic flooring surface can be protected with 1/8" Masonite during and after the installation, prior to acceptance by the Contract Administrator.

3.7 SCHEDULES

- .1 Refer to drawings.

END OF SECTION

Part 1 General

Part 1.1 RELATED SECTIONS

- .1 Section 01 33 00 Submittal Procedures.
- .2 Section 01 45 00 Quality Control.
- .3 Section 01 61 00 Common Product Requirements.
- .4 Section 01 73 00 Execution Requirements.
- .5 Section 01 74 11 Cleaning.
- .6 Section 01 78 00 Closeout Submittals.
- .7 Section 05 50 00 – Metal Fabrications
- .8 Section 06 41 11 Architectural Woodwork.
- .9 Section 07 92 00 Joint Sealants.
- .10 Section 09 21 16 Gypsum Board Assemblies.

Part 1.2 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specifications Manual, [2004].
 - .2 MPI - Maintenance Repainting Manual, [1998].

Part 1.3 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit product data and instructions for each paint and coating product to be used.
 - .2 Submit product data for the use and application of paint thinner.
 - .3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 Submittal Procedures. Indicate VOCs during application and curing.
 - .4 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 - .5 Submit manufacturer's installation and application instructions.

Part 1.4 STORAGE AND HANDLING

- .1 Storage and Protection:
 - .1 Provide and maintain dry, temperature controlled, secure storage.
 - .2 Store materials and supplies away from heat generating devices.

- .3 Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.
- .2 Fire Safety Requirements:
 - .1 Provide one 9 kg Type ABC 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.

Part 1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from Site and dispose of packaging materials at appropriate recycling facilities.
- .2 Place materials defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.
- .3 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

Part 1.6 SITE CONDITIONS

- .1 Heating, Ventilation and Lighting:
 - .1 Ensure adequate ventilation in enclosed spaces.
 - .2 Co-ordinate use of existing ventilation system with building City of Winnipeg and ensure its operation during and after application of paint as required.
 - .3 Provide minimum lighting level of 500 Lux on surfaces to be painted.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.
 - .2 Test concrete, masonry and plaster surfaces for alkalinity as required.
 - .3 Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.
- .3 Additional application requirements:
 - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
 - .2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of the building Lessee such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

Part 2.1 MATERIALS

- .1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Conform to latest MPI requirements for all painting work including preparation and priming.
- .4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual "Approved Product" listing.
- .5 Provide paint products meeting MPI "Environmentally Friendly" GPS-1 ratings based on VOC EPA Method 24 content levels.
- .6 Use MPI listed materials having minimum GPS-1 rating where indoor air quality (odour) requirements exist.

Part 2.2 COLOURS: Refer to Drawings.

.1 Standard or Acceptance: Benjamin Moore:

- .1 PT-1 TBD**
- .2 PT-2 TBD**
- .3 PT-3 TBD**
- .4 PT-4 TBD**
- .5 PT-5 TBD**

Part 2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to Site, in accordance with manufacturer's written instructions. Obtain written approval from Contract Administrator for tinting of painting materials.
- .2 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin waterbased paints.
- .3 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .4 Remix paint in containers prior to and during application to ensure breakup of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

Part 2.4 GLOSS/SHEEN RATINGS

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

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - VelvetLike Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - SatinLike Finish	20 to 35	min. 35
Gloss Level 5 - Traditional SemiGloss Finish	35 to 70	

Gloss @ 60 degrees

Sheen @ 85 degrees

Gloss Level 6 - Traditional Gloss 70 to 85

Gloss Level 7 - High Gloss Finish More than 85

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

Part 2.5 EXTERIOR PAINTING

- .1 Concrete Vertical Surfaces: (including horizontal soffits)
 - .1 EXT 3.1A Latex Gloss Level 3 finish.
- .2 Concrete Masonry Units: smooth and split face block and brick
 - .1 EXT 4.2A Latex Gloss Level 3 finish.
- .3 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
 - .1 EXT 5.1D Alkyd Gloss Level 3 finish.
- .4 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
 - .1 EXT 5.3B Alkyd Gloss Level 5 finish.
- .5 Dimension Lumber: columns, beams, exposed joists, underside of decking, siding, fencing, etc.
 - .1 EXT 6.2B Waterborne solid colour stain finish.
 - .2 EXT 6.2C Alkyd Gloss Level 3 finish.
 - .3 EXT 6.2L Semitransparent stain finish.
- .6 Dressed Lumber: doors, door and window frames, casings, battens, smooth facias, etc.
 - .1 EXT 6.3B Alkyd Gloss Level 5 finish.
 - .2 EXT 6.3C Solid colour stain finish (not to be used in high contact areas or on doors).
 - .3 EXT 6.3D Semitransparent stain finish (not to be used on doors).

Part 2.6 EXTERIOR REPAINTING

- .1 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
 - .1 REX 5.1D Alkyd Gloss Level 5.
 - .2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
 - .1 REX 5.3B Alkyd Gloss Level 5.
 - .3 Dressed Lumber: doors, door and window frames, casings, battens, smooth fascias, etc.
 - .1 REX 6.3B Alkyd Gloss Level 5.
 - .2 REX 6.3D SemiTransparent Stain.

Part 2.7 INTERIOR PAINTING

- .1 Concrete horizontal surfaces: floors.
 - .1 INT 3.2B - Alkyd floor enamel low gloss finish.
- .2 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
 - .1 INT 5.1E Alkyd - Gloss Level 5 finish.

- .3 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
 - .1 INT 5.3C - Alkyd Gloss Level 5 finish (over cementitious primer).
- .4 Dressed Lumber: doors, door and window frames, casings, mouldings, etc.:
 - .1 INT 6.3A - Latex Gloss Level 5 finish.
 - .2 INT 6.3B - Alkyd Gloss Level 5 finish.
 - .3 INT 6.3E - Polyurethane varnish Gloss Level 5 finish (over stain).
 - .4 INT 6.3K - Polyurethane varnish Gloss Level 5 finish.
- .5 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.
 - .1 INT 9.2A - Latex Gloss Level 4 finish (over latex sealer).
 - .2 INT 9.2C - Alkyd Gloss Level 4 finish (over latex sealer).
 - .3 INT 9.2M - Institutional low odour/low VOC Gloss Level 4 finish.

Part 2.8 INTERIOR REPAINTING

- .1 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
 - .1 RIN 5.1E Alkyd Gloss Level 5.
- .2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
 - .1 RIN 5.3C Alkyd Gloss Level 5.
- .3 Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock" type material, etc.
 - .1 RIN 9.2A Latex Gloss Level 4.
 - .2 RIN 9.2C Alkyd Gloss Level 4 finish.
 - .3 RIN 5.1E Alkyd Gloss Level 5.

Part 3 Execution

Part 3.1 GENERAL

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.
- .2 Perform preparation and operations for interior painting in accordance with MPI - Architectural Painting Specifications Manual and MPI - Maintenance Repainting Manual except where specified otherwise.

Part 3.2 EXAMINATION

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

Part 3.3 PREPARATION

- .1 Protection:
 - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable nonstaining covers or masking. If damaged, clean and restore surfaces as directed by Contract Administrator.
 - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
 - .3 Protect factory finished products and equipment.
- .2 Surface Preparation:
 - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
 - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
 - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of building City of Winnipeg.
- .3 Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
 - .2 Apply wood filler to nail holes and cracks.
 - .3 Tint filler to match stains for stained woodwork.
- .6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- .7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.
- .8 Touch up of shop primers with primer as specified.
- .9 Do not apply paint until prepared surfaces have been accepted by Contract Administrator.

Part 3.4 APPLICATION

- .1 Method of application to be as approved by Contract Administrator. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .3 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

- .4 Sand and dust between coats to remove visible defects.
- .5 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .6 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .7 Finish closets and alcoves as specified for adjoining rooms.
- .8 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

Part 3.5 MECHANICAL/ELECTRICAL EQUIPMENT

- .1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
- .2 Do not paint over nameplates.
- .3 Keep sprinkler heads free of paint.
- .4 Paint fire protection piping red.
- .5 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .6 Paint natural gas piping yellow.
- .7 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touchup as required, and paint conduits, mounting accessories and other unfinished items.

END OF SECTION