Part 1 General

1.1 SECTION INCLUDES

.1 Gypsum board and joint treatment.

.2 Backer board.

.3 Metal channel ceiling framing.

.4 Acoustical Insulation

1.2 RELATED SECTIONS

.1 Section 06 10 13 - Wood Blocking and Curbing.

.2 Section 07 84 00 - Firestopping.

.3 Section 09 22 16 – Non-Structural Metal Stud Framing

.4 Section 09 30 13 - Ceramic Tiling.

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 Studs and Tracks: Specified in Section 09 22 16.

.2 Furring, Framing, and Accessories: Specified in Section 09 22 16 - Non-Structural Metal Stud Framing.

.3 Fasteners: ASTM C1002.

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

.5 Adhesive: CAN/CGSB-71.25, ASTM C557, GA-216.

.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:

.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.

.3 Ceramic Tile Backer Board: ASTM E96, C518 and E84. Manufactured from extruded polystyrene foam, with a cement-free reinforcement layer laminated to both sides, 16mm thick, ends square cut.

.1 Product: Kerdi-Board; Manufactured by Schluter

2.4 ACCESSORIES

.1 Fire Rated Insulation: mineral fibre acoustic batts. Roxul Acoustical Fibre Batt Insulation or approved equal in accordance with B7.

.2 Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

.3 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.

.4 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.

.5 Edge Trim: ASTM C1047, GA-216; Type U casing bead.

.6 Resilient Channels: 0.5mm (25ga.) base steel thickness galvanized steel.

.1 Standard of Acceptance:

.1 Product: RC-1 resilient channel; Manufactured by UGC.

.7 Channel Trim: galvanized steel.

.1 Standard of Acceptance:

.1 Product: D-4411; Manufactured by Bailey Metal Products Ltd.

.8 Drywall metal trim: galvanized steel.

.1 Standard of Acceptance:

.1 Product: D-200; Manufactured by Bailey Metal Products Ltd.

.9 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.

.10 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®.

.11 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.

.12 Sealants: Type in accordance with Section 07 92 00 - Joint Sealing.

.13 Polyethylene: to CAN 2-52.33-M77, Type 2. Minimum 0.15mm (6mil) thickness.

.14 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.

.15 Track sill gasket: 3mm (1/8") thick semi-rigid fiberglass strips or closed cell foam.

.16 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.

.17 Channel Studs: 18ga. channel studs at corners as backing for corner guards.

.18 Joint Materials: ASTM C475, GA-216, compatible with products specified.

.19 Reinforcing tape, adhesive, and water.

.20 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.

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

.22 Ceiling Access Doors: 20 gauge galvanized formed door panel, flanged on four sides with 26 gauge galvanized frame, concealed hinge with spanner head cam latch. Size: 610mm x 610mm. Finish to be white colour, baked on polyester powder coat on door panel. Finish painting to be by Section 09 91 99.

.1 Standard of Acceptance:

.1 Acudor, Model DW-5040

Part 3 Execution

3.1 EXAMINATION

.1 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 ½ 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 acoustic sealant within partitions in accordance with manufacturer's written instructions.

.2 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.

.3 Install casing beads around perimeter of suspended ceilings.

.4 Install channel trim where gypsum board butts against surfaces having no trim and at control joints. Cement and sand to finish.

.5 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 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.

.4 Install ceiling boards in direction that will minimize number of end butt joints. Stagger end joints at least 250 mm.

.5 Install gypsum board with face side out.

.6 Do not install damaged or damp boards.

.7 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

.8 Erect single layer standard gypsum board horizontal or vertical orientation (whichever results in fewest ends), with ends and edges occurring over firm bearing.

.9 Use screws when fastening gypsum board to wood furring or framing.

.10 Erect exterior gypsum soffit board perpendicular to supports, with staggered end joints over supports.

.11 Treat cut edges and holes in moisture resistant gypsum board with sealant.

.12 Place control joints consistent with lines of building spaces as indicated or required. Confirm all locations with Contract Administrator.

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

.14 Install ceramic tile backing board over metal studs, plywood sheet, or gypsum board to manufacturer's written instructions. Refer to Drawings.

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. Refer to Drawings for locations of ceiling access doors.

.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 4: Ceilings exposed to view.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Formed metal framing of studs and furring, at interior locations.

.2 Framing accessories.

.3 Gypsum board and joint treatment.

.4 Light gauge metal stud wall framing.

.5 Metal channel ceiling framing unless otherwise stated on Structural Drawings.

1.2 RELATED SECTIONS

.1 Section 05 50 00 - Metal Fabrications.

.2 Section 06 10 13 - Wood Blocking and Curbing: Rough wood blocking within stud framing.

.3 Section 09 21 16 - Gypsum Board Assemblies: Gypsum board on metal studs for partitioning.

1.3 REFERENCES

.1 ASTM A123/A123M-09 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.2 ASTM A653/A653M-09 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM C645-09a - Non-Structural Steel Framing Members.

.4 ASTM C754-04 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

.5 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.

.6 CAN/CGSB-1.181-99 - Ready-Mixed, Organic Zinc-Rich Coating.

.7 CAN/CGSB-7.1-98 - Lightweight Steel Wall Framing Components.

.8 SSPC (The Society for Protective Coatings) - Steel Structures Painting Manual.

.9 Association of Wall and Ceiling Contractors (A.W.C.C.) Specification Standards Manual.

.10 CAN/CSA-S136-07 - North American Specification for the Design of Cold-Formed Steel Structural Members.

.11 CSA W47.1-03 (R2008) - Certification of Companies for Fusion Welding of Steel Structures.

1.4 ADMINISTRATIVE REQUIREMENTS

.1 Coordination:

.1 Coordinate with other work having a direct bearing on work of this section.

.2 Coordinate the placement of components within the stud framing assembly specified elsewhere.

1.5 QUALITY ASSURANCE

.1 Perform Work to ASTM C754 Association of Wall and Ceiling Contractors (A.W.C.C.) Specification Standards Manual.

.2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years experience.

.3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience.

Part 2 Products

2.1 STUD FRAMING MATERIALS

.1 Studs: ASTM A653/A653M, non-load bearing rolled steel, channel shaped, punched for utility access, as indicated on Drawings.

.1 Thickness: 0.53 mm (25 gauge) unless otherwise noted.

.2 Tracks and Headers: Same material and thickness as studs, bent leg retainer notched to receive studs.

.1 Compression Track: Supply electrogalvanized 0.9mm (20ga.) nominal core thickness steel track with minimum 50mm (2 inch) deep leg and sufficient width to accommodate deflection movement in structure with compressing wall studs.

.3 Ceiling Runners: Interior Steel Studs and Furring of the Association of Wall and Ceiling Contractors (A.W.C.C.) Specification Standards Manual With extended leg retainer.

.1 20ga. 0.88mm (0.035 inch), as detailed with leg length to allow for 50mm (2 inch) movement.

.4 Furring and Bracing Members: Of same material as studs; thickness to suit purpose.

.1 0.5mm (25ga.) core thickness.

.2 22 x 65mm (7/8 inch x 2 ½ inch) hat section, galvanized.

.5 Ceiling Hat Channels:

.1 38mm (1 ½") as noted on Drawings.

.2 Gauge thickness as required to support loading requirements.

.6 Fasteners: ASTM C1002, self drilling, self tapping screws.

.1 Non-load bearing channel stud framing: to ASTM 645-76. "Non-load Bearing Steel Studs, runners (Track), and Rigid Furring Channels for Screws".

.2 Screws for the application to steel studs, runners and furring channels: to ASTM C646-78a "Steel Drill Screws for the Application of Gypsum Sheet Material to Light Gauge Steel Studs".

.3 Screw penetration beyond joined materials shall not be less than 3 exposed threads.

.4 Thread types and drilling capability shall conform to the manufacturer's recommendations.

.5 Screws covered by sheathing materials shall have low profile heads.

.7 Acoustical Insulating Tape: Interior Steel Studs and Furring of the Association of Wall and Ceiling Contractors (A.W.C.C.) Specification Standards Manual.

.8 Bracing: cross bracing 25mm (1 inch) x 16ga. galvanized metal strapping for diagonal bracing.

.9 Sill Gasket: Neoprene purpose made closed cell sill gasket to be installed under base track of exterior steel studs.

.10 Acoustic Sealant: As specified in Section 09 21 16.

.11 Touch-Up Primer for Galvanized Surfaces: CAN/CGSB-1.181.

2.2 FABRICATION

.1 Fabricate assemblies of framed sections to sizes and profiles required.

.2 Fit, reinforce, and brace framing members to suit design requirements.

.3 Fit and assemble in largest practical sections for delivery to Site, ready for installation.

2.3 FINISHES

.1 Accessories: Same finish as framing members.

Part 3 Execution

3.1 EXAMINATION

.1 Verify that rough-in utilities are in proper location.

3.2 ERECTION

.1 Align and secure top and bottom runners at 600 mm (24 inches) on centre.

.2 Place two (2) beads of acoustic sealant between runners and substrate to achieve an acoustic seal.

.3 Place one (1) beads of acoustic sealant between studs and adjacent vertical surfaces to achieve an acoustic seal.

.4 Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.

.5 Install studs vertically at 400 mm (16 inches) on centre, unless otherwise noted on Drawings.

.6 Align stud web openings horizontally.

.7 Secure studs to tracks using fastener method. Do not weld.

.8 Stud Splicing: Not permissible.

.9 Fabricate corners using a minimum of three studs.

.10 Double stud at wall openings, door and window jambs, not more than 50 mm (2 inches) from each side of openings.

.11 Brace stud framing assembly rigid.

.12 Coordinate erection of studs with requirements of door frames and window frames; install supports and attachments.

.13 Coordinate installation of wood bucks, anchors, and wood blocking with electrical and mechanical work to be placed within or behind stud framing.

.14 Blocking: Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware, opening frames, and all other wall mounted installations.

.1 Secure wood blocking to studs.

.15 Refer to Drawings for indication of partitions extending to finished ceiling only and for partitions extending through the ceiling to the structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide extended leg ceiling runners.

.16 Coordinate placement of insulation in stud spaces after stud frame erection.

3.3 ACCESS PANELS

.1 Co-ordinate the work and prepare openings for access panels in gypsum wallboard partitions and ceilings. Access panels will be supplied by other trades for access to plumbing, mechanical, and other service points. Installation of the access panel will be by Section 09 21 16 - Gypsum Board Assemblies, unless noted otherwise. This section prepares the opening with metal stud back up.

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 07 92 00 Joint Sealing.

.8 Section 09 21 16 Gypsum Board Assemblies.

Part 1.2 REFERENCES

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)

.1 ANSI A108.1[99], Specification for the Installation of Ceramic Tile (Includes ANSI A108.1AC, 108.4.13, A118.1.10, ANSI A136.1).

.2 CTI A118.3[92], Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).

.3 CTI A118.4[92], Specification for Latex Cement Mortar (included in ANSI A108.1).

.4 CTI A118.5[92], Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).

.5 CTI A118.6[92], Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials International (ASTM)

.1 ASTM C144[04], Specification for Aggregate for Masonry Mortar.

.2 ASTM C207[06], Specification for Hydrated Lime for Masonry Purposes.

.3 ASTM C847[06], Specification for Metal Lath.

.4 ASTM C979[05], Specification for Pigments for Integrally Coloured Concrete.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB51.34[M86(R1988)], Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CGSB 71GP22M[78(AMEND.)], Adhesive, Organic, for Installation of Ceramic Wall Tile.

.3 CAN/CGSB75.1[M88], Tile, Ceramic.

.4 CAN/CGSB25.20[95], Surface Sealer for Floors.

.4 Canadian Standards Association (CSA International)

.1 CSA A123.3[05], Asphalt Saturated Organic Roofing Felt.

.2 CAN/CSAA3000[03(R2006)], Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.5 Terrazzo Tile and Marble Association of Canada (TTMAC)

.1 Tile Specification Guide 09 30 00 [2014/2015], Tile Installation Manual.

.2 Tile Maintenance Guide 2015.

Part 1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 Submittal Procedures.

.2 Provide product data in accordance with Section 01 33 00 Submittal Procedures.

.1 Include manufacturer's information on:

.1 Ceramic tile, marked to show each type, size, and shape required.

.2 Chemical resistant mortar and grout (Epoxy and Furan).

.3 Cementitious backer unit.

.4 Dryset cement mortar and grout.

.5 Divider strip.

.6 Elastomeric membrane and bond coat.

.7 Reinforcing tape.

.8 Levelling compound.

.9 Latex cement mortar and grout.

.10 Commercial cement grout.

.11 Organic adhesive.

.12 Waterproofing isolation membrane.

.13 Fasteners.

.3 Provide samples in accordance with Section 01 33 00 Submittal Procedures.

.1 Wall tile: submit 300 x 450 mm sample panel of each colour, texture, size, and pattern of tile.

.2 Adhere tile samples to 13 mm thick plywood and grout joints to represent project installation.

Part 1.4 QUALITY ASSURANCE

.1 Quality Assurance Submittals:

.1 Manufacturer's Instructions: manufacturer's installation instructions.

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

Part 1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

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

Part 1.6 AMBIENT CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C. for 48 hours before, during, and 48 hours after, installation.

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

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

Part 1.7 MAINTENANCE

.1 Extra Materials:

.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 same production run as installed material.

Part 2 Products

Part 2.1 WALL TILE

.1 Interior Ceramic Tile: to CAN/CGSB75.1, Type 5, Class MR 4, 4" x 16" x 1/4" size, smooth surface, as indicated on drawings.

.1 **Standard of Acceptance: Ames Tile Soho Series, # SOHWG416, Gloss White.**

.1 Pattern: Stacked Bond per interior elevations

Part 2.2 THINSET MORTAR

.1 Single component, high performance, polymer modified thin-set mortar.

.1 Standard of Acceptance: **Mapei Ultraflex 2 or approved equal in accordance with B7.**

Part 2.3 GROUT

.1 High strength polymer modified mortar & grout.

.2 Colouring Pigments:

.1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.

.2 Colouring pigments to be added to grout by manufacturer.

.3 Job coloured grout are not acceptable.

.4 Use in Commercial Cement Grout, DrySet Grout, and Latex Cement Grout.

.1 Standard of Acceptance: **Mapei Ultracolour Plus or approved equal in accordance with B7.**

.2 Colour to be selected from Standard Colours.

Part 2.4 ACCESSORIES

.1 Metal Trims:

.1 Standard of Acceptance:

.1 Top, bottom and sides of backsplash: Schluter Schiene, Satin anodized aluminum.

.2 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

.1 Sealants: maximum VOC limit 250 g/L to SCAQMD Rule 1168.

Part 2.7 CLEANING COMPOUNDS

.3 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.

.4 Materials containing acid or caustic material are not acceptable.

Part 3 Execution

Part 3.1 MANUFACTURER'S INSTRUCTIONS

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

Part 3.2 WORKMANSHIP

.1 Do tile work in accordance with TTMAC Tile Installation Manual 2006/2007, "Ceramic Tile", except where specified otherwise.

.2 Install mortar build up over existing concrete to slopes indicated on Drawing.

.3 Site verify condition of the existing concrete slab substrate prior to the commencement of work. Commencement of work will be understood to be acceptance of the existing concrete substrate condition.

.4 Apply tile or backing coats to clean and sound surfaces.

.5 Fit tile around corners and other built in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.

.6 Maximum surface tolerance 1:800.

.7 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.8 Sound tiles after setting and replace hollow sounding units to obtain full bond.

.9 Use metal trims at termination of wall tile panels.

.10 Allow minimum 24 hours after installation of tiles, before grouting.

.11 Clean installed tile surfaces after installation and grouting cured.

Part 3.3 WALL TILE

.1 Install in accordance with TTMAC details.

Part 3.4 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 45 00 - Quality Control.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 09 21 16 – Gypsum Board Assemblies.

.5 Section 09 22 16 – Non-Structural Metal Stud Framing

1.2 REFERENCES

.1 ASTM International

.1 ASTM C635/C635M-07, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.

.2 ASTM C636/C636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

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

.1 Material Safety Data Sheets (MSDS).

.4 Underwriter's Laboratories of Canada (ULC)

.1 CAN/ULC-S102-2007, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for ceiling panels and ceiling suspension system and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit 2 copies of WHMIS MSDS to Contract Administrator.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.

.2 Submit reflected ceiling plans for special grid patterns as indicated.

.3 Indicate lay-out, hanger spacing and fastening details, splicing method for main and cross runners, change in level details, and acoustical unit support at ceiling fixture including lateral bracing and accessories.

.4 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.

.3 Submit duplicate samples of each type acoustical units.

1.4 DELIVERY, STORAGE AND HANDLING

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

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.

.3 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.

.4 Store and protect acoustic ceiling materials from nicks, scratches, and blemishes.

.5 Replace defective or damaged materials with new.

.1 Packaging Waste Management: remove and recycle waste materials to appropriate facilities.

Part 2 Products

2.1 COMPONENTS

.1 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1.

.2 Acoustic Ceiling Tile ‘ACT-1’ (Typical Unless Noted Otherwise):

.1 Type: III (per ASTM E1264)

.2 Form: 2 (per ASTM E1264)

.3 Pattern: C (per ASTM E1264)

.4 Noise Reduction Coefficient (NRC) designation of 0.50.

.5 Light Reflectance (LR) range of 0.88 to ASTM E1477.

.6 Edge type: Reveal (bevelled) for 15/16” grid.

.7 Finished Surface Colour: White

.8 Size: 610mm x 1220mm x 15.9mm (2’x4’x 5/8”)

.9 Standard of Acceptance:

.1 Performa Sand Micro by CertainTeed

.2 Dune by Armstrong

.3 Olympia Micro ClimaPlus by USG

.3 Acoustical Suspension:

.1 Intermediate duty system to ASTM C635.

.2 Basic materials for suspension system: commercial quality cold rolled steel, zinc coated.

.3 Suspension system: non-fire rated, two directional exposed tee bar grid.

.4 Exposed tee bar grid components: shop painted satin sheen, white colour. Components die cut.

.5 Flange Size: 24mm (15/16")

.6 Colour: White

.7 Main Runners: 3658mm (12')

.8 Cross Tees: To suit ceiling layout

.9 Edge Molding: Angle

.10 Hanger wire: galvanized soft annealed steel wire, 3.6 mm diameter for access tile ceilings.

.11 Hanger inserts: purpose made.

.12 Carrying channels: of size and gauge to support loads and be constructed of galvanized steel.

.13 Accessories: splices, clips, wire ties, retainers and wall moulding flush or reveal, to complement suspension system components, as recommended by system manufacturer.

.4 Performance/Design Criteria:

.1 Maximum deflection: 1/360th of span to ASTM C635 deflection test.

2.2 ACCESSORIES

.1 Touch-up paint: in accordance with manufacturer's recommendations for surface conditions:

.1 Paint: VOC limit 250 g/L maximum to GS-11.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to acoustical ceiling installation.

.1 Visually inspect substrate in presence of Contract Administrator.

.2 Inform Contract Administrator of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Contract Administrator.

3.2 INSTALLATION

.1 Installation: in accordance with ASTM C636 except where specified otherwise.

.2 Suspension System:

.1 Erect ceiling suspension system after work above ceiling has been inspected by Contract Administrator.

.2 Secure hangers to overhead structure using attachment methods acceptable to Contract Administrator.

.3 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.

.4 Lay out centreline of ceiling both ways, to provide balanced borders at room perimeter as indicated on reflected ceiling plan.

.5 Install wall moulding to provide correct ceiling height.

.6 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.

.7 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.

.8 Interlock cross member to main runner to provide rigid assembly.

.9 Ensure finished ceiling system is square with adjoining walls and level within 1:1000.

.10 Control relative humidity and temperature levels in accordance to manufacturer's recommendations prior to ceiling installation.

.3 Acoustic Panels:

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

.2 Co-ordinate ceiling work with work of other sections such as interior lighting, fire protection communication, and intrusion and detection systems.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.4 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by acoustical ceiling installation.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM F1303-04, Standard Specification for Sheet Vinyl Floor Covering with Backing.

.2 Material Safety Data Sheets (MSDS).

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide product data in accordance with Section 01 33 00 - Submittal Procedure.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

.1 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long.

.4 Closeout Submittals:

.1 Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 DELIVERY, STORAGE AND HANDLING

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

.2 Waste Management and Disposal: remove and recycle waste materials to appropriate facilities

1.5 AMBIENT CONDITIONS

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

1.6 MAINTENANCE

.1 Extra Materials:

.1 Provide extra materials of resilient sheet flooring and adhesives in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide additional 10% material of each colour, pattern and type flooring material required for project for maintenance use.

.3 Extra materials one piece and from same production run as installed materials.

.4 Identify each roll of sheet flooring and each container of adhesive.

.5 Deliver to Contract Administrator, upon completion of the work of this section.

.6 Store where directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 SV-1: Slip resistant sheet vinyl without backing: to ASTM F1903, commercial.

.1 Construction: Homogeneous Vinyl Sheet Flooring
.2 Wear Layer: Reinforced
.3 Pattern: Non-directional pattern.
.4 Colour: #683 River Street WG.
.5 Overall Thickness: 2.03mm.
.6 Wear Layer Thickness: 2.03mm.
.7 Standard of Acceptance:
.1 Tarkett Aria 2.0, c/w100mm high self-cove base.

.2 Resilient base: continuous, top set, complete with premoulded end stops and external corners:

.1 Type: rubber.
.2 Style: straight and cove.
.3 Thickness: 3.2 mm.
.4 Height: 101.6 mm (4")
.5 Lengths: cut lengths minimum 2400 mm.
.6 Colour: to be determined from manufacturer's standard range.
.7 Standard of Acceptance:
.1 Johnsonite, or Armstrong.

.3 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.

.1 Floor adhesives:
.1 Adhesive: maximum VOC limit 60 g/L.
.2 Cove base adhesives:
.1 Adhesive: maximum VOC limit 50 g/L.
.2 Sub-floor filler and leveller: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.

.4 Metal edge strips:

.1 Aluminum extruded, smooth, mill finish stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

.5 External corner protectors: stainless steel, type recommended by flooring manufacturer.

.6 Edging to floor penetrations: stainless steel, type recommended by flooring manufacturer.

.7 Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 SITE VERIFICATION OF CONDITIONS

.1 Ensure concrete floors are clean and dry by using test methods recommended by flooring manufacturer.

3.3 PREPARATION

.1 Remove existing resilient flooring.

.2 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.

.3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.4 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

.5 Prime & seal concrete slab to resilient flooring manufacturer's printed instructions.

3.4 APPLICATION: FLOORING

.1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least 2 weeks prior to building occupation.

.2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.

.4 Run sheets in direction of traffic and continuously heat weld according to manufacturer's printed instructions.

.5 Heat weld seams of linoleum sheet flooring in accordance with manufacturer's printed instructions.

.6 As installation progresses, and after installation, roll flooring with 45 kg minimum roller to ensure full adhesion.

.7 Cut flooring around fixed objects.

.8 Install feature strips and floor markings where indicated. Fit joints tightly.

.9 Install flooring in pan type floor access covers. Maintain floor pattern.

.10 Continue flooring over areas which will be under built-in furniture.

.11 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.

.12 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.

.13 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.5 APPLICATION: BASE

.1 Lay out base to keep number of joints at minimum.

.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.

.8 Use toeless type base where floor finish will be carpet, coved type elsewhere.

.9 Install toeless type base before installation of carpet on floors.

.10 Heat weld base in accordance with manufacturer's printed instructions.

3.6 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.7 CLEANING

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

.2 Remove excess adhesive from floor, base and wall surfaces without damage.

.3 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

3.8 PROTECTION

.1 Protect new floors from time of final set of adhesive and after initial waxing until final inspection.

.2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

Part 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

1.2 REFERENCES

1.2.1 ASTM International (ASTM)

1. ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers— Tension.
2. ASTM D2047: Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as measured by the James Machine.
3. ASTM D2240: Standard Test Method for Rubber Property (Durometer Hardness).
4. ASTM D3389: Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader).
5. ASTM E648: Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
6. ASTM E662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
7. ASTM E1643: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
8. ASTM E1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
9. ASTM E2180: Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) In Polymeric or Hydrophobic Materials.
10. ASTM F386: Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces.
11. ASTM F410: Standard Test Method for Wear Layer Thickness of Resilient Floor Coverings by Optical Measurement.
12. ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
13. ASTM F925: Standard Test Method for Resistance to Chemicals of Resilient Flooring.
14. ASTM F970: Standard Test Method for Static Load Limit.
15. ASTM F1514: Standard Test method for Measuring Heat Stability of Resilient Flooring by Color Change.
16. ASTM F1515: Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change.
17. ASTM F1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
18. ASTM F2170: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

1.2.2 International Organization for Standardization (ISO)

1. ISO 9001: Quality Management Systems - Requirements.

1.3 SUBMITTALS

1.3.1 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submittal Procedures.

.2 Manufacturer's Certificate: Certify that flooring products meets or exceeds specified requirements.

1.3.2 CLOSEOUT SUBMITTALS

.1 Section 01 78 00: Closeout Submittals.

1.3.3 MAINTENANCE MATERIAL SUBMITTALS

.1 Provide extra stock materials from original dye lots, for use in facility operations and maintenance (approximately 2% of the total floor surface for each color, surface texture and format of Manufactured Product).

1.4 QUALITY ASSURANCE

1. Manufacturer must be certified ISO 9001.
2. Manufactured Product must have undergone a vulcanization process; factory lamination should not be accepted as equivalent.
3. In accordance with ASTM E648, the Manufactured Product must have a critical radiant flux
   $\geq 0.45 W/cm^2$ (Class 1).
4. In accordance with ASTM E662, the Manufactured Product must have an optical density of smoke <450.
5. Manufacturer must have a minimum of fifteen (15) years of experience in the manufacturing of prefabricated resilient athletic flooring.
6. Installer must have performed installations of the same scale in the last three (3) years.
7. Installer to be recognized and approved by the Manufacturer.

1.5 MOCK-UPS

1. Mock-up is to be installed following the same procedures and utilizing the same specified materials that will be used for the actual project.

1.6 DELIVERY, STORAGE AND HANDLING

1. Products Supplied must be delivered in Manufacturer's original, unopened and undamaged packaging with identification labels intact.
2. Products Supplied must be protected from exposure to harmful weather conditions and must be safely stored on a clean, dry, flat surface. Store rolls of resilient athletic flooring upright; store tiles of resilient athletic flooring on a flat surface, carefully protecting corners and edges.
3. Climate controlled storage is recommended. Storage temperature must not be below $55^{O}F$ ($13^{O}C$) and must not exceed $100^{O}F$ ($38^{O}C$).
4. Avoid storing Manufactured Product for extended periods of time or additional material trimming may be required.
5. Products Supplied need not suffer damage during handling (i.e. dents/scratches, edge chipping, excessive warping, etc.).

1.7 SITE CONDITIONS

1. The Contractor shall be responsible for ensuring all site conditions meet the requirements of the Manufacturer, as referenced herein at sections 3.2 and 3.3.
2. Concrete subfloors, on or below grade, must be installed over a permanent effective vapor retarder, respecting current versions of the standard practice ASTM E1643 and the standard ASTM E1745. The vapor retarder must be placed directly underneath the concrete slab, above the granular fill, as per Manufacturer's instructions. The vapor retarder must have a perm rating of
   0.1 or less and must have a minimum thickness of 10 mil (0.010in).
3. No concrete sealers or curing compounds are applied or mixed with the subfloors.
4. Installation of the resilient athletic flooring to be carried out no sooner than the specified curing time of concrete subfloor (normal density concrete curing time is approximately 28 days for development of design strength). Refer to current version of ASTM F710.
5. The subfloor surface must be free of any paint, wax, oil, grease, sealer, curing compound, solvent or any other contaminants that may inhibit bond. All contaminants must be removed from the surface via mechanical abatement. Use of abatement chemicals is not recommended.
6. Concrete to have smooth, dense finish, and be highly compacted with a tolerance of 1/8'' in a 10ft radius (3.2mm in 3.05m radius). Floor Flatness (FF) and Floor Levelness (FL) numbers are not recognized.
7. Moisture and alkalinity tests must be performed on all concrete substrates, under in-service conditions. It is recommended to turn on the HVAC unit prior to performing moisture testing, in order to ensure stable testing conditions and accurate results. The concrete's surface pH should be between 7 and 10. Relative humidity of the concrete slab must not exceed 85%, in accordance with ASTM F2170 (in situ probes). Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F1869 (anhydrous calcium chloride).
8. If installing over wood subfloors, ensure exterior grade plywood with at least one good side, such as: APA (Engineered Wood Association) Exterior grade plywood (A-A Exterior, A-B Exterior or A- C Exterior) and CANPLY (Canadian Plywood Association) Exterior certified plywood (Canada: Grade G2S A-A or G1S A-C. USA: G2S A-A, A-B, B-B, or G1S A-C, B-C). There must be proper underfloor ventilation, plywood must be dry and should have a moisture content ranging between 6 and 12%, when measured with a quality wood moisture meter (electronic hygrometer).
9. Maintain a stable room and subfloor temperature within the recommended range of 65^{O}F to 86^{O}F (18^{O}C to 30^{O}C), 48 hours prior to installation, during the installation, and 48 hours after the installation. Recommended ambient humidity control level is between 35 to 55%.
10. Installation of resilient athletic flooring will not commence until the building is enclosed and all other trades have completed their work. It is the Contractor's responsibility to maintain a secure and clean working area before, during and after the installation of the resilient athletic flooring.

1.8 WARRANTY

1. The resilient athletic flooring is warranted to be free from manufacturing defects for a period of three (3) years from the date of shipment from the Manufacturer.

PART 2 – PRODUCTS

2.1 MANUFACTURED PRODUCT

2.1.1 Manufacturer

1. Mondo Luxembourg S.A.: Z.I. Foetz - Rue de l'Industrie, L-3895 Foetz, Luxembourg.

2.1.2 Description

1. Sport Impact is prefabricated resilient rubber athletic flooring, calendered and vulcanized with a base of natural and synthetic rubbers, stabilizing agents and pigmentation, as manufactured by Mondo Luxembourg S.A. or approved equal in accordance with B7.
2. Sport Impact is phthalate-free, halogen-free, heavy metal-free, formaldehyde-free, isocyanate-free and BPA-free.
3. Thickness: 0.236'' (6mm).
4. Colors: Provided in standard, solid background colors with random colored flecks dispersed throughout material.
5. Surface Texture: Sealskin.
6. Manufactured in two layers which are vulcanized together. The shore hardness of the top layer will be greater than that of the bottom layer; shore hardness of layers to be recommended by the Manufacturer and the limits specified.
7. Formats: Available in sheets that are 6'1" (1.86m) wide and 42'7" (13m) long [min. 19'8" (6m)/max. 55'9" (17m)]; available in tiles that are 36" x 36" (91.35cm x 91.35cm).
8. Colour: #018 Dark Grey

2.1.3 Performance

1. Performance of the Manufactured Product to conform to the following criteria:

Performance Criterion	Test	Requirement	Result
Elongation at Break	ASTM D412	-	>105%
Tensile Strength	ASTM D412	-	>670psi
Static Coefficient of Friction	ASTM D2047	≥0.50	>0.80
Hardness (Shore A)	ASTM D2240	-	80 ±5 (wear layer) 77 ±5 (backing)
Abrasion Resistance (H18 wheel, 1000g, 1000	ASTM D3389	<1.0	0.15g
Critical Radiant Flux	ASTM E648	≥0.45	>0.45 W/cm^2 (Class
Optical Density of Smoke	ASTM E662	<450	<450
Antimicrobial Activity	ASTM E2180	-	99.99% reduction
Thickness	ASTM F386	-	6mm (±0.2mm)
Thickness of Wear Layer	ASTM F410	-	>1.0mm
Resistance to Chemicals	ASTM F925	-	Compliant
Static Load Limit (tested at 250psi)	ASTM F970	-	<0.005in
Heat Stability	ASTM F1514	ΔE ≤8.0	Compliant
Light Stability	ASTM F1515	ΔE ≤8.0	Compliant
Indoor Air Quality	CA 01350	-	Compliant
Greenguard Certification	Greenguard	-	Yes
Greenguard Gold	Greenguard	-	Yes

2.1.4 Limitations

1. Sport Impact resilient athletic flooring with a thickness of 6mm is NOT recommend for use in areas subject to surface impacts, such as designated "free weight" sections in fitness facilities. For use in such areas, minimum thickness of flooring must be 10mm.

2.1.5 Materials

1. Provide Sport Impact resilient athletic flooring manufactured by Mondo Luxembourg S.A. or approved equal in accordance with B7.
2. Provide resilient athletic flooring as specified in section 2.1.2 Description.

2.1.6 ACCESSORIES

1. Provide adhesive certified by Manufacturer: Mondo PU 105 (polyurethane). For suitability, recommendations and use please refer to Manufacturer's current printed adhesive guidelines. In some cases, Mondo EP 55 (epoxy) adhesive may be used in areas that have not been specified to receive Everlay, and that will not be subject to surface impacts (such as falling free weights) or heavier dynamic loads (such as bleachers).
2. Patching or leveling compound to be supplied or recommended/approved by Manufacturer.
3. Provide purpose made transition strips between sport flooring and adjacent floor finishes.

PART 3 – EXECUTION

3.1 INSTALLERS

1. Refer to section 1.4 of this document for information on installers.

3.2 EXAMINATION

1. Ensure that concrete subfloors, on or below grade, are installed over a permanent effective vapor retarder, respecting current versions of the standard practice ASTM E1643 and the standard specification ASTM E1745. The vapor retarder must be placed directly underneath the concrete slab, above the granular fill, as per Manufacturer's instructions. The vapor retarder must have a perm rating of 0.1 or less and must have a minimum thickness of 10 mil (0.010in).
2. Installation of the resilient athletic flooring to be carried out no sooner than the specified curing time of concrete subfloor (normal density concrete curing time is approximately 28 days for development of design strength). Refer to current version of ASTM F710.
3. Ensure that no concrete sealers or curing compounds have been applied to or mixed into the concrete (refer to Section 03 05 00 – Common Work Results for Concrete of Division 3).
4. Subfloor surface must be free of any paint, wax, oil, grease, sealer, curing compound, solvent or any other contaminants that may inhibit bond. All contaminants must be removed from the surface via mechanical abatement. Use of abatement chemicals is not recommended.
5. Confirm concrete has smooth, dense finish, and is highly compacted with a tolerance of 1/8'' in a 10ft radius (3.2mm in 3.05m radius). Floor Flatness (FF) and Floor Levelness (FL) numbers are not recognized.
6. Moisture and alkalinity tests must be performed on all concrete substrates, under in-service conditions. It is recommended to turn on the HVAC unit prior to performing moisture testing, in order to ensure stable testing conditions and accurate results. The concrete's surface pH should be between 7 and 10. Relative humidity of the concrete slab must not exceed 85%, in accordance with ASTM F2170 (in situ probes). Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F1869 (anhydrous calcium chloride).

7. If installing over wood subfloors, ensure exterior grade plywood with at least one good side, such as: APA (Engineered Wood Association) Exterior grade plywood (A-A Exterior, A-B Exterior or A- C Exterior) and CANPLY (Canadian Plywood Association) Exterior certified plywood (Canada: Grade G2S A-A or G1S A-C. USA: G2S A-A, A-B, B-B, or G1S A-C, B-C). There must be proper underfloor ventilation, plywood must be dry and should have a moisture content ranging between 6 and 12%, when measured with a quality wood moisture meter (electronic hygrometer).
8. Maintain a stable room and subfloor temperature within the recommended range of 65^{O}F to 86^{O}F (18^{O}C to 30^{O}C), 48 hours prior to installation, during the installation, and 48 hours after the installation. Recommended ambient humidity control level is between 35 to 55%.
9. Installation of resilient athletic flooring will not commence until the building is enclosed and all other trades have completed their work. Ensure a secure and clean working area before, during and after the installation of the resilient athletic flooring.

3.3 PREPARATION

1. Prepare subfloor in accordance with Manufacturer's current printed guidelines.

3.4 INSTALLATION

1. Install rolls of resilient athletic flooring following Manufacturer's current printed guidelines.
2. Install tiles of resilient athletic flooring following Manufacturer's current printed guidelines.
3. Install all accessories following Manufacturer's current printed guidelines.

3.5 REPAIR

1. Refer to section 1.3.3 for extra stock materials.
2. Repair material must come from the same original dye lot as the Manufactured Product initially installed.
3. Repairs are to be performed by qualified installers/technicians only.

3.6 CLEANING

1. Always wait at least a minimum of 72 hours after the resilient athletic flooring has been completely installed before performing initial maintenance.
2. Always maintain the resilient athletic flooring following Manufacturer's current printed guidelines.

3.7 PROTECTION

1. As needed, protect resilient athletic flooring with 1/8" Masonite during and after the installation, prior to acceptance by the Contract Adminstrator.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 This section includes labor, materials and other services necessary to complete vinyl wall coverings.

.2 Conform with requirements of all Sections of Division 1, General Requirements, as it applies to the work of this Section.

1.2 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 07 92 00 Joint Sealing.

.8 Section 08 11 00 Metal Doors and Frames.

.9 Section 09 21 16 Gypsum Board Assemblies.

.10 Section 09 91 99 Painting for Minor Works.

1.3 REFERENCES

.1 American Society for Testing & Materials (ASTM):

.1 AST ASTM E 84-05 Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SYSTEM DESCRIPTION

.1 Performance Requirements: Provide hygienic wall covering which has been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.5 SUBMITTALS

.1 Product Data: Submit manufacturer's current printed product literature, specifications, installation instructions, and field reports in accordance with Section 01 33 00 - Submittal Procedures.

.2 Shop Drawings: Submit shop drawings to indicate materials, details, and accessories in accordance with Section 01 33 00 - Submittal Procedures including but limited to the following:

.1 Submit a layout diagram indicating the location of each panel and joining method.

.3 Samples: Submit duplicate samples of material, as well as accessory pieces in accordance with Section 01 33 00 - Submittal Procedures.

.4 Quality Assurance Submittals: Submit the following:

.1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Manufacturer's Instructions: Current published manufacturer's installation and maintenance instructions.

.3 Manufacturer's Field Reports: Specified herein.

.5 Closeout Submittals: Submit the following:

.1 Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

.2 Warranty: Warranty documents specified herein.

1.6 QUALITY ASSURANCE

.1 Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

1.7 DELIVERY, HANDLING AND STORAGE

.1 Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

.2 Deliver, store and handle wall panels in accordance with 01 61 00 - Common Product Requirements

.3 Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

.4 Store materials protected from exposure to harmful weather conditions, at temperature and humidity conditions recommended by manufacturer.

.5 Store panels in temperature controlled environments. Leave protective blue film on panel until ready to use.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Deposit all packaging materials in appropriate container on site for recycling or reuse.

.2 Avoid using landfill waste disposal procedures when recycling facilities are available.

.3 Keep all discarded packaging away from children.

1.9 AMBIENT CONDITIONS

.1 Temperature Requirements: If storage temperature is below 65F (18C), wall panels must be moved to a warmer place and allowed to reach this temperature before installation. For further information, refer to the manufacturer's installation guide.

.2 Maintain air temperature and structural base temperature at installation area between 65F (18C) and 80F (26C) for 48 hours before, during and 24 hours after installation.

1.10 WARRANTY

.1 Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

.2 Manufacturer's Warranty: Submit, for the City's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights the City may have under Contract Documents.

.3 Warranty Period shall be 10 years commencing on Date of Substantial Completion.

1.11 EXTRA MATERIALS

.1 Provide extra materials of product and adhesives in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide 12 sq.ft. of each color, pattern and type material required for project for maintenance use.

.3 Provide extra materials in one piece and from same production run as installed materials.

.4 Clearly identify each wall panel and each container of adhesive.

.5 Deliver to the City, upon completion of the work of this section and store where directed.

Part 2 Products

2.1 MATERIALS

.1 Hygienic Wall Coverings:

.1 Thickness: 0.10" (2.5 mm);

.2 Panel Width: 4' (1.22m)

.3 Panel Height: 2'-8" (see Drawings)

.4 Weight 4'x8' Panel: 24 lbs (10.4 kg)

.5 Weight 4'x10' Panel: 29 lbs (12.7 kg).

.6 Standard of Acceptance: Altro Whiterock Hygienic Wall System – Standard White #W103

.2 Accessories:

.1 Start and Edge Trim:

.1 2-Part Start and Edge Trim – White

.2 Acrylic Adhesive: For dry, climate controlled areas, a one-part, water-based, acrylic adhesive as recommended by manufacturer.

.1 Standard of Acceptance: AltroFix W49.

.3 Polyurethane Adhesive: The default adhesive for most installations, suitable for wet areas, non-climate controlled areas, and non-absorbent surfaces, use a two-part resin-based polyurethane adhesive as recommended by manufacturer.

.1 Standard of Acceptance: AltroFix W39.

.4 Caulking and Mastic Compounds and Tools: As per manufacturer's recommendations.

.1 Standard of Acceptance:

1. FlexiJoint Coil – FJ101/white. Length 164 linear feet

2. **FlexiJoint Steel Spacers** (engineered steel)

3. **Parabond Mastic** – AP600 10 oz

4. **Altro Mastic Caulking** – A802 White/A803, 10.5 oz.

.5 Source Quality: Obtain all wall products from a single manufacturer.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 EXAMINATION

.1 Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.3 SUBSTRATE PREPARATION

.1 Walls should be smooth and level. High points must be removed and low points filled with filler intended for the substrate and environmental conditions.

.2 Wall tiles must be fixed firmly to the wall. As long as the tile edges do not protrude you do not have to skim grout joints.

.3 Surfaces must be permanently dry and free from all substances that may contribute to adhesive bond failure.

.4 Remove loose paint and conduct an adhesive bond test with paint.

.5 Exterior walls must be adequately damp-proofed and insulated.

.6 Dry wall substrates should be paint ready.

3.4 PREPARATION

.1 Walls: all surfaces must be free from dust and cleaned prior to installation. The working environment must also be dust free. Failure to comply with these conditions will reduce the bond strength between the adhesive and substrate, and may cause the panels to debond.

.2 Very absorbent / porous substrates (particularly plaster finishes and unprimed sheetrock) must have a proprietary sealer e.g. PVA primer or similar, applied to the surface a minimum of 12 hours prior to the installation.

.3 All electrical switches, power points etc., should be in a first fix / installation state. All electrical equipment should only be moved or altered by a qualified electrician.

.4 All plumbing should have pipe-work removed to a first fix or installation state and "tails" left protruding from the substrate. Panels can then be drilled and slid over the pipe tails. All holes should be drilled 1/8" (3mm) oversize to allow for expansion, then sealed with caulking. Plumbing should always be done by a qualified plumber.

.5 Hot pipes and steam pipes should be insulated and a 1/8" to 1/4" (3-6mm) expansion gap should be created when installing panels around these pipes, then sealed with caulking.

.6 All pipes, fixing bolts, etc. extending through the panels should have a minimum 1/8" (3mm) expansion gap and be sealed using caulking.

.7 If fitting to door frames, these must be in place prior to installation of panels.

.8 Prior to installation, it is advisable to complete any painting which comes in contact with panels, as sealant used at junctions is non-paintable.

.9 Panels should be stored flat and be pre-conditioned a minimum of 24 hours in ambient temperatures similar to the prevailing operational conditions.

.10 The panels must be stored on a level flat surface off the ground (risk of condensation on the panels if stored on damp surfaces). Storage on uneven surfaces could cause the panels to distort prior to installation.

.11 First, check the room using a 6' (2 m) level to ensure all walls are flat, paying particular attention to the corners, window reveals, and door entrances. These need to be inspected to ensure they are free of any debris or irregularities, which could prevent the panels laying flat to the substrate after the adhesive has been applied and the panel installed.

3.5 INSTALLATION

.1 Hygienic Wall Installation: Install in accordance with the current published Installation Guide. All joints should be joined by approved methods as detailed in the installation guide.

3.6 FIELD QUALITY REQUIREMENTS

.1 Manufacturer's Field Services: Upon the City's request, provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.7 CLEANING

.1 Hygienic Wall Coverings can be cleaned with a diluted soap/detergent solution.

.2 When cleaning the surface, the recommended temperature of water does not exceed 140° F (60° C).

.3 Pressure cleaning with hot water may be used with the pressure nozzle a minimum of 2 feet (600mm) away from the surface.

.4 To reduce the build-up of static, cleaning the panels with an anti-static solution is recommended.

.5 Remove construction debris from project site and legally dispose of debris.

3.8 PROTECTION

.1 Do not store or install near open heat sources (ovens, etc). Stainless steel panels should be used in such areas.

.2 Protect finished surfaces and exterior corners from damage until final inspection.

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 20 00 Finish Carpentry

.9 Section 07 92 00 Joint Sealants.

.10 Section 08 11 00 Metal Doors and Frames.

.12 Section 09 21 16 Gypsum Board Assemblies.

.13 Section 09 99 10 Room Finish Schedule.

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 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

.1 Refer to Section 09 99 10 Room Finish Schedule. Allow for up to five (5) different colours, which will be determined at later date.

.2 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.

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

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

.5 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 2.3 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 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 2.4 INTERIOR PAINTING

.1 Exposed Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.

.1 INT 5.1E Alkyd - Gloss Level 5 finish.

.2 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).

.3 Dressed Lumber: doors, door and window frames, casings, mouldings, exposed interior wood boards & panels, etc.:

.1 INT 6.3K – Clear polyurethane varnish Gloss Level 4 finish.

.4 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.

.5 Smooth Plastic and Vinyl Primer:

.1 High quality, waterborne, acrylic primer, purpose made for coating hard, slick and glossy surfaces.

.1 Standard of Acceptance:

.1 Extreme Bond Primer by Sherwin Williams

.2 Prior to the application of finish coats, perform an adhesion test to ensure proper bonding of primer to substrate is achieved. Primer must be left to cure for 7 days prior to the start of adhesion testing, unless otherwise recommended by paint manufacturer. Submit test report to Contract Administrator prior to proceeding.

Part 2.5 POWDER COATING

.1 Apply powder paint coating to existing mechanical floor radiator covers where noted on Drawings. Sandblast or chemically clean existing metal surfaces off premises to prepare metal surfaces to receive new power coating. Final colour to be selected at later date.

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 Do not paint over nameplates.

.2 Keep sprinkler heads free of paint.

.3 Paint fire protection piping red.

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

.5 Paint natural gas piping yellow.

.6 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

No.	Room Name	Floor	Base		Ceiling		Walls								Key Notes
							North		East		West		South		
		Material	Material	Finish	Material	Finish	Material	Finish	Material	Finish	Material	Finish	Material	Finish	
	MAIN LEVEL														
104	LOUNGE	E-CONC	RB	-	ACT/GB/WD-C	PT	GB	PT	E-PL	PT	GB/WD-P	PT	E-PL	PT	1.2
105	KITCHEN	SV-1	SV-C	-	GB	PT	EX	PT	GB	PT	GB	PT	GB	PT	
SER	SPECIAL EVENTS ROOM	SV-1	SV-C	-	WD-C	ST	EX	PT	GB	PT	EX	PT	EX	PT	2
119	WAITING ROOM	ALL EXISTING FINISHES TO REMAIN													
	SECOND LEVEL														
	DRYLAND TRAINING :														
01	TRAINING AREA	SV-M	-	-											3
02	STORAGE	E-CONC	-	-											3
03	LOBBY	E-CONC	-	-											3
04	MULTI-PURPOSE AREA	SPF	-	-											3

LEGEND

Floor and Floor Base Materials & Finishes

E-CONC	Existing Concrete
CT	Ceramic Tile
RB	Rubber Base
SV-1	Sheet Vinyl
SV-M	Sheet Vinyl (match exisitng)
SV-C	Sheet Vinyl - Coved
SPF	Sports Flooring

Ceiling Materials & Finishes

GB	Gypsum Wall Board
WD-C	Wood Board Ceiling Panels
ES	Exposed Structure
ACT	Acoustic Ceiling Tile
ES	Exposed Structure

Wall Materials & Finishes

ALUM-GL	Aluminum Frame and Glazing
PT	Paint
ST	Clear Polyurethane Stain
CT	Ceramic Tile
WD-P	Wood Board Wall Panels
CT	Ceramic Tile
E-CB	Existing Concrete Block
GB	Gypsum Board
E-PL	Existing Plastic Wall Panel
EX	Existing

KEYNOTES

1	Paint gypsum board ceiling areas only.
2	Clear stain on wood panels (walls and ceilings)
3	Refer to Drawings for locations of new plywod panels & reinstalled existing plastic panels. Existing ceiling to remain.