

Part 1 General

1.1 REFERENCES

- .1 Aluminum Association
 - .1 Designation for Aluminum Finishes-1997.
- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C36/C36M-01, Specification for Gypsum Wallboard.
 - .2 ASTM C79/C79M-01, Standard Specification for Treated Core and Non-treated Core Gypsum Sheathing Board.
 - .3 ASTM C442/C442M-01, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.
 - .4 ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .5 ASTM C514-01, Specification for Nails for the Application of Gypsum Board.
 - .6 ASTM C557-99, Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
 - .7 ASTM C630/C630M-01, Specification for Water-Resistant Gypsum Backing Board.
 - .8 ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
 - .9 ASTM C931/C931M-01, Specification for Exterior Gypsum Soffit Board.
 - .10 ASTM C954-00, 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.
 - .11 ASTM C960/C960M-01, Specification for Pre-decorated Gypsum Board.
 - .12 ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - .13 ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - .14 ASTM C1280-99, Specification for Application of Gypsum Sheathing Board.
 - .15 ASTM C1177-01, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - .16 ASTM C1178/C1178M-01, Specification for Glass Mat Water-Resistant Gypsum Backing Board.
- .3 Association of the Wall and Ceilings Industries International (AWEI)
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .5 Underwriters' Laboratories of Canada (ULC)

- .1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.2 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
- .2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
- .3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.3 SITE ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.
- .3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.4 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Recycled Content: Minimum % recycled content as indicated. (Post consumer plus ½ post-industrial content.)
- .5 Regional Materials: Shipped by truck within 800km or rail within 2400km distance from project location.
- .6 Indoor Environmental Quality Credit EQ - 4.4 Low - Emitting Materials.
 - .1 Adhesives, sealants and sealant primers: Low VOC to meet requirements of LEED Indoor Environmental Quality Credit EQ – 4.1 Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, October 2003,
 - .2 Paints and coatings: Low VOC to meet requirements of LEED Indoor Environmental Quality Credit EQ – 4.2: Low-Emitting Materials: Paints and Coatings.
 - .1 Conform with VOC and Chemical component limits of Green Seal's Standard GS-11 January 1993 requirements.
 - .2 VOC content of anti-corrosive coatings must be less than VOC content limits of Green Seal Standard GS-03 May 1997 requirements.
 - .3 Paints and coatings not covered by GS-11 and GS-03 to meet requirements of SCAQMD Rule #1113, November 1996.

Part 2 Products

2.1 MATERIALS

- .1 Standard board: to ASTM C1396/C1396M, CAN/CSA-A82.27, regular and Type X to thickness indicated, 1200 mm wide x maximum practical length, edges bevelled.
 - .1 Ecologo or Greenguard certified, Minimum 50% recycled content. (Post consumer plus ½ post-industrial content.)
 - .2 Certainteed Proroc Regular or approved equivalent in accordance with B6 Substitutes.
 - .3 Shipped by truck within 800km or rail within 2400km distance from project location.
- .2 Fiber-reinforced abuse and moisture resistant gypsum board: to ASTM C1278, ASTM C630, ASTM C1178. 16mm thickness. 1200mm wide x maximum practical length.
 - .1 For use on washroom walls, janitor room walls and as ceramic tile backer.
 - .2 Ecologo or Greenguard certified, Minimum 50% recycled content. (Post consumer plus ½ post-industrial content.)
 - .3 Suitable for use in rated wall construction when used in compliance with manufacturer's ULC systems.
 - .4 Joint compounds and installation in accordance with manufacturer's recommendations.
 - .5 Product: CGC Fiberock 16mm Aqua-Tough panel for use in moisture prone areas and as ceramic tile backer.
 - .1 Steel studs to be 20ga. (0.9mm).
 - .2 Joint reinforcement:
 - .1 Tiled areas: Durock joint tape with latex-fortified mortar.
 - .2 Untiled areas: Paper tape with Durabond 90 setting type compound to embed tape.
 - .3 Fasteners:
 - .1 Z180 galvanized fasteners.
 - .2 Wood studs: Corrosion resistant Type W or S buglehead screws.
 - .3 Steel studs: Corrosion resistant Type S-12 buglehead screws.
 - .4 Tile installation including grout and mortar: See Section 09 30 13 – Ceramic Tile.
 - .5 Control joints @ 9000mm.
 - .6 Corrosion resistant fasteners to ASTM C840.
- .3 Fiber-reinforced abuse resistant gypsum board: to ASTM C1278, ASTM C36, CAN/CSA-A82-27-M91. 16mm thickness. 1200mm wide x maximum practical length.
 - .1 Use on abuse-resistant designated walls up to min. 2400mm height.
 - .2 Ecologo or Greenguard certified, Minimum 50% recycled content. (Post consumer plus ½ post-industrial content.)
 - .3 Suitable for use in rated wall construction when used in compliance with manufacturer's ULC systems.

- .4 Joint compounds and installation in accordance with manufacturer's recommendations.
- .5 Product: CGC Fiberock 16mm VHI panels.
 - .1 Steel studs to be 20ga. (0.9mm).
 - .2 Paper tape. (Do not use fibreglass tape.)
 - .3 Durabond 90 setting type compound to embed tape.
 - .4 Finish with regular joint compound to Gypsum Association Guidelines.
 - .5 Paper faced metal corner beads and trims.
 - .6 Control joints @ 9000mm.
 - .7 Corrosion resistant fasteners to ASTM C840.
- .4 Metal furring runners, hangers, tie wires, inserts, anchors: to ASTM C1280.
- .5 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .6 Resilient drywall furring : 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- .7 Nails: to ASTM C514.
- .8 Steel drill screws: to ASTM C1002.
- .9 Stud adhesive: to CAN/CGSB-71.25, ASTM C557.
- .10 Laminating compound: as recommended by manufacturer, asbestos-free and LEED compliant.
- .11 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, metal, zinc-coated, 0.5 mm base thickness, perforated flanges, one piece length per location.
- .12 Cornice cap: 12.7 mm deep x partition width, of 1.6 mm base thickness galvanized sheet steel, prime painted. Include splice plates for joints.
- .13 Sealants: in accordance with Section 07 92 00 - Joint Sealing.
- .14 Polyethylene: to CAN/CGSB-51.34, Type 2.
- .15 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .16 Joint compound: to ASTM C475, asbestos-free.

Part 3 Execution

3.1 ERECTION

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Do application of gypsum sheathing in accordance with ASTM C1280.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

- .5 Install work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.
- .7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .10 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .11 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- .13 Erect drywall resilient furring transversely across studs / joists / between the layers of gypsum board, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 25 mm drywall screw.
- .14 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.2 APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single/double layer gypsum board to wood/metal furring or framing using screw fasteners for first layer, screw fasteners for second layer. Maximum spacing of screws 300 mm on centre.
 - .1 Single-Layer Application:
 - .1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
 - .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
 - .2 Double-Layer Application:
 - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
 - .2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.
 - .3 Apply base layers at right angles to supports unless otherwise indicated.
 - .4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
- .3 Apply single/double layer gypsum board to concrete and concrete block surfaces, where indicated, using laminating adhesive.
 - .1 Comply with gypsum board manufacturer's recommendations.

- .2 Brace or fasten gypsum board until fastening adhesive has set.
- .3 Mechanically fasten gypsum board at top and bottom of each sheet.
- .4 Apply water-resistant gypsum board where wall tiles to be applied and in janitor rooms. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.
- .5 Apply 12 mm 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, in partitions where perimeter sealed with acoustic sealant.
- .6 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .7 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
- .8 Install gypsum board with face side out.
- .9 Do not install damaged or damp boards.
- .10 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.3 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated.
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.
- .6 Construct control joints of two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.
- .7 Provide continuous polyethylene dust barrier behind and across control joints.
- .8 Locate control joints where indicated, at changes in substrate construction and at approximate 10 m spacing on long corridor runs, at approximate 15 m spacing on ceilings.
- .9 Install control joints straight and true.
- .10 Construct expansion joints at building expansion and construction joints. Provide continuous dust barrier.
- .11 Install expansion joint straight and true.
- .12 Install cornice cap where gypsum board partitions do not extend to ceiling.

- .13 Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm on centre.
- .14 Splice corners and intersections together and secure to each member with 3 screws.
- .15 Install access doors to electrical and mechanical fixtures specified in respective sections.
 - .1 Rigidly secure frames to furring or framing systems.
- .16 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.
- .17 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 taping, 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.
 - .1 Typical for ceiling spaces.
 - .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.
 - .1 Typical for painted gypsum walls.
 - .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.
- .18 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.
- .19 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.
- .20 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .21 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- .22 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.
- .23 Mix joint compound slightly thinner than for joint taping.

- .24 Apply thin coat to entire surface using trowel or drywall broad knife to fill surface texture differences, variations or tool marks.
- .25 Allow skim coat to dry completely.
- .26 Remove ridges by light sanding or wiping with damp cloth.
- .27 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C645-00, Specification for Nonstructural Steel Framing Members.
 - .2 ASTM C754-00, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-1.40-97, Primer, Structural Steel, Oil Alkyd Type.
- .3 Environmental Choice Program (ECP).
 - .1 CCD-047a -98, Paints - Surface Coatings.
 - .2 CCD-048-98, Surface Coatings - Recycled Water-borne.

1.2 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.3 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
- .5 Regional Materials: Supply building materials that are regionally extracted, harvested, or recovered within 800km of the project location when shipped by truck, or within 2400km of the project location when shipped by rail, in accordance with LEED Materials and Resources Credit MR 5.1 & 5.2 – Regional Materials.
- .6 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.

- .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
- .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
 - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
 - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
 - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.

Part 2 Products

2.1 MATERIALS

- .1 Recycled Content: Steel studs to contain $\geq 35\%$ recycled material. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
- .2 Regional Materials: Steel studs to meet LEED Regional Materials requirements.
- .3 Non-load bearing channel stud framing: to ASTM C645, to sizes indicated, roll formed from hot dipped galvanized steel sheet, for screw attachment of gypsum board and MDF panels. Knock-out service holes at 460 mm on centres.
 - .1 Use 20 ga. (0.9mm) steel studs for areas with abuse-resistant gypsum or MDF. See Section 09 21 16 – Gypsum Board Assemblies.
- .4 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
- .5 Metal channel stiffener: 38 x 13 mm size, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.
- .6 Acoustical sealant: to ASTM C919. See Section 07 92 00 – Joint Sealants.
- .7 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.
 - .1 Low VOC to LEED Requirements – See Section 01 35 21 – LEED Requirements.

Part 3 Execution

3.1 ERECTION

- .1 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.
- .2 Install damp proof course under stud shoe tracks of partitions on slabs on grade.

- .3 Place studs vertically at 406 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .4 Erect metal studding to tolerance of 1:1000.
- .5 Attach studs to bottom and ceiling tracks using screws.
- .6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
- .8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .9 Install heavy gauge single jamb studs at openings.
- .10 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
- .11 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
- .12 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
- .13 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .14 Extend partitions to ceiling height except where noted otherwise on drawings.
- .15 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50 mm leg ceiling tracks.
- .16 Install continuous insulating strips to isolate studs from uninsulated surfaces.
- .17 Install two continuous beads of acoustical sealant under studs and tracks around perimeter of sound control partitions.

3.2 CLEANING

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

END OF SECTION

Part 1 General

1.1 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 A108.1A-C, 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/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
 - .3 CAN/CGSB-75.1-M88, Tile, Ceramic.
 - .4 CAN/CGSB-25.20-95, Surface Sealer for Floors.
- .4 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .5 Canadian Standards Association (CSA International)
 - .1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
 - .2 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .6 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- .7 Terrazzo Tile and Marble Association of Canada (TTMAC)

- .1 Tile Specification Guide 09 30 00 2006/2007, Tile Installation Manual.
- .2 Tile Maintenance Guide 2000.

1.2 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 Dry-set 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 Slip resistant tile.
 - .13 Waterproofing isolation membrane.
 - .14 Fasteners.

1.3 QUALITY ASSURANCE

- .1 Quality Assurance Submittals:
 - .1 Manufacturer's Instructions: manufacturer's installation instructions.
 - .2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.4 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.

1.5 ENVIRONMENTAL 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.

- .4 Protect adjacent surfaces during progress of the work in this section.
- .5 Illuminate the work area during installation providing the same level and angle of illumination as will be available for final inspection.

1.6 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.

1.7 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
- .5 Regional Materials: Supply building materials that are regionally extracted, harvested, or recovered within 800km of the project location when shipped by truck, or within 2400km of the project location when shipped by rail, in accordance with LEED Materials and Resources Credit MR 5.1 & 5.2 – Regional Materials.
- .6 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
 - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
 - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
 - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
 - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
 - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.

Part 2 Products

2.1 WALL TILE

- .1 Ecocycle by Crossville or approved equivalent in accordance with B6 Substitutes.
 - .1 Porcelain Tile: standard grade to ANSI A137.1 / CAN.
 - .2 Recycled Content: To contain $\geq 20\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
 - .3 Regional Materials: To meet LEED Regional Materials requirements.
 - .4 Nominal size: 305x305mm. (Actual: 298x298mm)
 - .5 Thickness: 8mm
 - .6 Colour: 2 colours from manufacturer's standard range.
- .2 Performance:
 - .1 Water Absorption to ASTM C373: <10%
 - .2 Breaking Strength to ASTM C648: > 350 lbf.
 - .3 Bond Strength to ASTM C482: > 200psi
 - .4 Chemical Resistance to ASTM C650: Unaffected.
 - .5 Frost Resistance to ASTM C1026: Resistant.
 - .6 Scratch Hardness to MOH's scale: 7
- .3 Provide matching inside / outside corner and cove base trim shapes.
- .4 Adhesives, mortars and grout to be compatible with substrate and tile and in accordance with ANSI A108, A118, A136.
 - .1 Coordinate to 09 21 16 – Gypsum Board Assemblies.
 - .2 Low VOC to LEED Requirements: See 01 35 21 – LEED Requirements.
- .5 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
 - .1 Low VOC to LEED Requirements: See 01 35 21 – LEED Requirements.

2.2 MORTAR AND ADHESIVE MATERIALS

- .1 Latex Portland Cement mortar: to ANSI A118.4
 - .1 Flextile 51 and 44, or approved equivalent in accordance with B6 Substitutes.
 - .2 VOC = 0 g/L.

2.3 GROUT

- .1 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, Dry-Set Grout, and Latex Cement Grout.
- .2 Polymer modified cement grout: to ANSI A118.7.

- .1 Flextile or approved equivalent in accordance with B6 Substitutes.
- .2 VOC = 0 g/L.

2.4 EXPANSION JOINTS, CONTROL AND ISOLATION JOINTS:

- .1 Refer to most current TCA Handbook, Method EJ171-YY (Year) for recommendations on locating, treating and detailing various types of construction joints.

2.5 CLEANING COMPOUNDS

- .1 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.
- .2 Materials containing acid or caustic material are not acceptable.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Ensure strict compliance with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 WORKMANSHIP

- .1 Do tile work in accordance with TTMAC Tile Installation Manual 2006/2007, "Ceramic Tile", except where specified otherwise.
- .2 Comply with ANSI Standard for Tile Installation Material and current Tile Council of America Handbook for products and materials indicated for setting and grouting.
- .3 Apply tile to clean and sound surfaces.
- .4 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.
- .5 Maximum surface tolerance 1:800.
- .6 Make joints between tile uniform and plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.
- .7 Lay out tiles so perimeter tiles are minimum 1/2 size.
- .8 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .9 Make internal angles square, external angles rounded.
- .10 Use round edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.

- .11 Install divider strips at junction of tile flooring and dissimilar materials.
- .12 Allow minimum 24 hours after installation of tiles, before grouting.
- .13 Clean installed tile surfaces after installation and grouting cured.
- .14 Make control joints at 5000mm intervals or in accordance with manufacturer's requirements. Make joint width same as tile joints.
 - .1 Install control joints and expansion joints in tile work in accordance with TTMAC Detail 301MJ- 2006/2007.
 - .2 Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants. Keep building expansion joints free of mortar and grout.

3.3 WALL TILE

- .1 Install in accordance with TTMAC details.

3.4 FIELD QUALITY CONTROL

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

3.5 CLEANING

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

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 Materials and application of acoustical units for application and installation within a suspended ceiling.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C423-02a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 - .2 ASTM E1264-98, Standard Classification for Acoustical Ceiling Products.
 - .3 ASTM E1477-98a(2003), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction and Amendment No. 1 1988.
 - .2 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .4 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 - .2 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .6 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

1.3 SUBMITTALS

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: submit WHMIS MSDS in accordance with Section 02 81 01 - Hazardous Materials.

1.4 QUALITY ASSURANCE

- .1 Regulatory Requirements:

-
- .1 Fire-resistance rated floor/ceiling and roof/ceiling assembly: certified by Canadian Certification Organization accredited by Standards Council of Canada.
 - .2 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- 1.5 DELIVERY, STORAGE AND HANDLING**
- .1 Protect on site stored or installed absorptive material from moisture damage.
 - .2 Store extra materials required for maintenance, where directed by Contract Administrator.
- 1.6 ENVIRONMENTAL REQUIREMENTS**
- .1 Permit wet work to dry before beginning to install.
 - .2 Store materials in work area 48 hours prior to installation.
- 1.7 EXTRA MATERIALS**
- .1 Provide extra materials of acoustic units in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Ensure extra materials are from same production run as installed materials.
 - .3 Clearly identify each type of acoustic unit, including colour and texture.
 - .4 Deliver to Contract Administrator, upon completion of the work of this section.
- 1.8 LEED REQUIREMENTS**
- .1 See Section 01 35 21 - LEED Requirements.
 - .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
 - .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .4 Resource Reuse: Salvage and reuse existing deconstructed materials in accordance with LEED Materials and Resources Credit MR 3.1 & 3.2 – Resource Reuse.
 - .5 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
 - .6 Regional Materials: Supply building materials that are regionally extracted, harvested, or recovered within 800km of the project location when shipped by truck, or within 2400km of

the project location when shipped by rail, in accordance with LEED Materials and Resources Credit MR 5.1 & 5.2 – Regional Materials.

- .7 Rapidly Renewable: Supply building materials that contain rapidly renewable content in accordance with LEED Materials and Resources Credit MR 6 – Rapidly Renewable Materials.
- .8 FSC Certified Wood: (Separate Price). Supply a minimum of 50% (by cost) of wood-based materials that are produced from FSC sources in accordance with LEED Materials and Resources Credit MR 7 – Certified Wood.
- .9 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
 - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
 - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
 - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
 - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
 - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.
 - .3 LEED Indoor Environmental Quality Credit EQ 4.3 – Carpet: To meet or exceed requirements of the Carpet and Rug Institute’s Green Label Indoor Air Quality Test Program.
 - .4 LEED Indoor Environmental Quality Credit EQ – 4.4 Low-Emitting Materials: Composite Wood and Laminate Adhesives.
 - .1 No added urea-formaldehyde resins.
 - .2 Adhesives for fabrication of laminated assemblies to contain no urea-formaldehyde.

Part 2 Products

2.1 MATERIALS

- .1 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1 ASTM E1264.
- .2 Approved Product: Ultima, 1913 as manufactured by Armstrong World Industries or approved equal.
 - .1 Recycled Content: To contain $\geq 45\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
- .3 Acoustical Panels Type ACT-1:
 - .1 Surface Texture: Fine
 - .2 Composition: Mineral Fiber

-
- .3 Color: White
 - .4 Size: 48in X 24in X 3/4in
 - .5 Edge Profile: Square Lay-In for interface with Prelude ML 15/16" Exposed Tee.
 - .6 Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.70.
 - .7 Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 35
 - .8 Flame Spread: ASTM E 1264; Class A (UL)
 - .9 Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.90.
 - .10 Dimensional Stability: HumiGuard Plus - temperatures up to 120 degrees F and high humidity excluding only exterior use, use over standing water, and direct contact with moisture .
 - .11 Mold/Mildew Inhibitor: The front and back of the product treated with BioBlock, to inhibit the growth of mold or mildew, ASTM D 3273.
- .4 Suspension System
- .1 Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized (galvanized steel, aluminum, or stainless steel) as per ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel (aluminum or stainless steel) in baked polyester paint. Main beams and cross tees shall have rotary stitching (exception: extruded aluminum or stainless steel).
 - .1 Structural Classification: ASTM C 635 Intermediate Duty.
 - .2 Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
 - .3 Acceptable Product: Prelude ML 15/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.
 - .2 High Humidity Finish: Comply with ASTM C 635 requirements for Coating Classification for Severe Environment Performance where high humidity finishes are indicated.
 - .1 SS Prelude Plus by Armstrong World Industries, Inc. - 100% Type 304 STAINLESS Steel.
 - .2 AL Prelude Plus by Armstrong World Industries, Inc. - all ALUMINUM
 - .3 Prelude Plus XL Fire Guard by Armstrong World Industries, Inc., G-60 Hot dipped galvanized /aluminum capping
 - .4 Structural Classification: ASTM C 635 duty class.
 - .5 Color: Stainless for SS only White aluminum Clear Anodized Aluminum
 - .3 Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
 - .4 Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least three design load, but not less than 12 gauge.

- .5 Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.

Part 3 Execution

3.1 EXAMINATION

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

3.2 INSTALLATION

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

3.3 APPLICATION

- .1 Install acoustical units with directional pattern running in same direction. Refer to reflected ceiling plan.
- .2 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moulding.
- .3 No exposed Tee system member may be less than 610mm length.

3.4 INTERFACE WITH OTHER WORK

- .1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

3.5 SCHEDULE

- .1 Hallway M03
- .2 Office M04.
- .3 Boardroom M05.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM F1303-04, Standard Specification for Sheet Vinyl Floor Covering with Backing.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1113-04, Architectural Coatings.
 - .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

1.2 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.
- .3 Closeout Submittals: Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- .3 Store materials in a clean, dry, enclosed space off the ground, and protected from the weather and from extremes of heat and cold. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.4 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.

1.5 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 2 m² 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 Contract Administrator.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 The General Contractor or Construction Manager shall be responsible for ensuring all site conditions meet the requirements of flooring manufacturers.
- .2 Installation to be carried out no sooner than the specified curing time of concrete subfloor.
- .3 Moisture vapor emission content of the concrete slab must not exceed the tolerance of the adhesives used.
- .4 It is the General Contractor or Construction Manager's responsibility to maintain a secure and clean working area before, during and after the installation of rubber athletic flooring.
- .5 Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring.

1.7 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
- .5 Regional Materials: Supply building materials that are regionally extracted, harvested, or recovered within 800km of the project location when shipped by truck, or within 2400km of the project location when shipped by rail, in accordance with LEED Materials and Resources Credit MR 5.1 & 5.2 – Regional Materials.

- .6 Rapidly Renewable: Supply building materials that contain rapidly renewable content in accordance with LEED Materials and Resources Credit MR 6 – Rapidly Renewable Materials.
- .7 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
 - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
 - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
 - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
 - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
 - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.

1.8 WARRANTY

- .1 Provide Manufacturer's current standard warranty.

Part 2 Products

2.1 ATHLETIC RUBBER FLOORING:

- .1 Mondo Advance Vulcanized or approved equivalent in accordance with B6 Substitutes.
- .2 LEED Requirements:
 - .1 Recycled Content: To contain $\geq 12\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
 - .2 Regional Materials: To meet LEED Regional Materials requirements.
 - .3 Rapidly Renewable Content: 7%.
 - .4 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
- .3 Description:
 - .1 Prefabricated rubber athletic flooring, calendered and vulcanized with a base of natural and synthetic rubbers, stabilizing agents and pigmentation.
 - .2 Thickness: 8mm
 - .3 Colors: Two colours from manufacturer's standard range, provided in standard, solid background colors with random marbleization throughout material.
 - .4 Finish: smooth (matte).
 - .5 Manufactured in three layers which are vulcanized together. The shore hardness of the top layer will be greater than that of remaining layers; shore hardness of layers to be recommended by the Manufacturer and the limits specified.

- .6 Size: Install materials in largest practicable sizes. Provide shop drawing indicating joint locations. To be approved by Contract Administrator approval prior to proceeding.
- .4 Performance:
 - .1 Hardness Shore A: ASTM D2240 - 78/50
 - .2 Critical Radiant Flux: ASTM E648, NFPA 101 - 0.70 W/cm², Type I
 - .3 Optical Density of Smoke: ASTM E662, < 450, Class I
 - .4 Static Load Limit: ASTM F970 - 0.004 in.
 - .5 Fungal Resistance Test: ASTM G21-90 - No growth
 - .6 Coefficient of Friction: ASTM D2047 - 0.78 dry, 0.78 wet
 - .7 V.O.C. Compliance: ASTM D5116 - Yes
 - .8 Color Stability: Good
 - .9 Light Reflection: Average
 - .10 Chemical Resistance: Good
 - .11 GREENGUARD Certification: Yes
- .5 Accessory Products:
 - .1 Provide adhesive certified by rubber athletic flooring manufacturer.
 - .2 Patching or leveling compound to be supplied by rubber athletic flooring Manufacturer.
 - .3 Gameline paint products to be supplied and approved by rubber athletic flooring Manufacturer.
 - .4 Adhesives, paints and coatings shall meet LEED low VOC requirements. See Section 01 35 21 – LEED Requirements.

2.2 HOMOGENOUS SHEET FLOORING:

- .1 Armstrong Marmorette with Naturcote: linoleum sheet flooring with integral cove base or approved equivalent in accordance with B6 Substitutes.
- .2 LEED Requirements:
 - .1 Recycled Content: To contain $\geq 17.5\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
 - .2 Rapidly Renewable Content: 36%.
 - .3 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
- .3 Description:
 - .1 Color: Selected from manufacturer's standard range.
 - .2 Thickness of 2.5mm.
 - .3 Wear surface shall consist of a polyurethane-coated homogeneous mixture of linoleum cement (linseed oil, natural tree resins, drying oil catalysts), wood flour, cork flour, color pigments and filler calendered onto a jute fabric backing.
 - .4 Colors and pattern detail shall be dispersed throughout the thickness of the wear layer.

- .5 Linoleum sheet shall conform to the requirements of ASTM F 2034, Type I, "Standard Specification for Sheet Linoleum Floor Covering."
- .6 Provide solid color linoleum weld rod as produced by Armstrong and intended for heat welding of linoleum seams. Color shall be compatible with field color of flooring or as selected by Architect to contrast with field color of flooring. Color selected from manufacturer's standard colour range.
- .7 Integral flash cove base: Provide integral flash cove wall base by extending sheet flooring 100mm up the wall using adhesive and accessories recommended and approved by the flooring manufacturer.
- .4 Adhesive:
 - .1 Provide manufacturer recommended and LEED compliant adhesives.
 - .2 Provide Armstrong S-780 Linoleum Adhesive for field areas and Armstrong S-780 Linoleum Adhesive at flash coving as recommended by the flooring manufacturer.
 - .3 Provide Armstrong S-761 Linoleum Seam Adhesive at seams as recommended by the resilient flooring manufacturer.
- .5 Accessories:
 - .1 For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
 - .2 Provide top edge trim caps of anodized aluminum for integral flash cove.
 - .3 Provide a fillet support strip for integral cove base with a minimum radius of 2.54 cm of wood or plastic.
 - .4 Provide transition/reducing strips tapered to meet abutting materials.

2.3 RESILIENT WALL BASE

- .1 Roppe Pinnacle Rubber Base or approved equivalent in accordance with B6 Substitutes.
 - .1 LEED Requirements:
 - .1 Rapidly Renewable Content: Contains 10% natural rubber.
 - .2 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
 - .2 Complies with ASTM F-1861 Type TS (Thermoset Vulcanized Rubber), Group 1 (Solid)
 - .3 Thickness: 3.175 mm nominal
 - .4 Colours: 4 colours selected from manufacturer's standard range.
 - .5 Profile: Standard Toe (Cove base)
 - .1 Nominal Height (select one) 101.6mm and 152.4mm as indicated on drawings and in room finishing schedule.
 - .2 Install in longest practicable lengths. Joints minimum 1000mm from end of wall.
 - .3 Corners: Formed by installer on site.
- .2 Performance
 - .1 Thickness tolerance: Complies with ASTM F-386 2.

- .2 Flexibility: Complies with ASTM F-137 3.
- .3 Resistance to Heat Aging: Complies with ASTM F-1515 4.
- .4 Resistance to Detergents: Complies with ASTM F-925 5.
- .5 Resistance to Alkalis: No fading or softening
- .6 Dimensional Stability: Complies with ASTM F 1861
- .7 Squareness: 90 degrees +/- 0.5 degrees
- .8 Does do not contain any of the hazardous chemicals listed in California Proposition 65 9. Collaborative for High Performance Schools (CHPS) 01350 Low-Emitting Material Criteria: Pass

2.4 STAIR TREADS

- .1 LEED Requirements:
 - .1 Rapidly Renewable Content: Contains 10% natural rubber.
 - .2 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
- .2 Performance:
 - .1 F 2169 Standard Specification for Resilient Stair Treads – Type TS: Meets all applicable test requirements.
 - .2 F 386 Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces.
 - .3 Does do not contain any of the hazardous chemicals listed in California Proposition 65.
 - .4 Collaborative for High Performance Schools 01350 Low-Emitting Material Criteria: Pass.
- .3 Resilient Rubber: Roppe Rubber Stair Treads, Risers, Nosing, Stringers, or approved equivalent in accordance with B6 Substitutes.
 - .1 Stair Treads: (Stair 02)
 - .1 Solid colour from manufacturer’s standard range. Complies with ASTM F 2169, Type TS.
 - .2 Style # 30: Diamond Design Square Nose.
 - .3 Complies with ASTM F 2169, Type TS, Class 2 (Patterned), Group 2 (contrasting color strip for visually impaired).
 - .4 Length and depth as required.
 - .5 Thickness: 6mm tapering to 5mm nominal.
 - .6 Nose Length: 35mm nominal.
 - .7 Nose Thickness: 3mm nominal.
 - .8 Tapered Nose.
 - .9 Limited Wear warranty: Manufacturer’s limited wear warranty of three years for normal commercial traffic.
 - .2 Rubber Risers: (Stair 01)
 - .1 Standard Rubber Risers, color from manufacturer’s standard range.
 - .2 Height: As required.

- .3 Thickness: 2.54mm nominal.
- .4 Toe Length: As required.
- .3 Stair Nosing: (Stair 01)
 - .1 #1 Commercial Stair Nosing.
 - .2 Colour from manufacturer's standard range.
- .4 Rubber Stringers: (Stair 01 & Stair 02)
 - .1 Colour from manufacturer's standard range.
 - .2 Height: 254mm.
 - .3 Thickness: 2.54mm nominal
 - .4 Length: Maximum lengths and as required. Do not place joints within 1200mm of end.

2.5 ADHESIVES

- .1 Primers and adhesives: of types recommended by flooring manufacturers for specific material on applicable substrate, above, on or below grade.
 - .1 All adhesives to be low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.

2.6 ACCESSORIES

- .1 Sub-floor filler and leveller: where needed.
 - .1 Approved Product: Roppe, Subfloor Leveler or approved equal.
 - .1 Recycled Content: 100% post-consumer.
- .2 Edging to floor penetrations: type recommended by flooring manufacturer.
- .3 Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.
 - .1 Low VOC: See Section 01 35 21 – LEED Requirements.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Installation in strict compliance with manufacturer's written recommendations and 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.
- .2 Ensure plywood subfloors are clean and levelled. Install 6 mil poly.

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 and Seal 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.
- .2 Apply low VOC, water based, 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. Double cut sheet joints and continuously seal / 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, 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: STAIRS

- .1 Install stair nosings, stair treads, stair risers one piece for full width of stair. Adhere over entire surface and fit accurately.

3.6 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.

3.7 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services: 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.

3.8 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.

3.9 PROTECTION

- .1 Protect new floors from time of final set of adhesive, until final waxing and final inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.
- .3 Use only water-based coating for linoleum.

3.10 SCHEDULES

- .1 See Room Finish Schedule.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM F1066-04, Standard Specification for Vinyl Composition Floor Tile.
 - .2 ASTM F1344-04, Standard Specification for Rubber Floor Tile.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-25.20-95, Surface Sealer for Floors.
 - .2 CAN/CGSB-25.21-95, Detergent-Resistant Floor Polish.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .5 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

1.2 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.
- .3 Closeout Submittals:
 - .1 Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE AND HANDLING

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

1.4 ENVIRONMENTAL REQUIREMENTS

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

1.5 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide maintenance materials of resilient tile flooring, base and adhesive in accordance with Section 01 78 00 - Closeout Submittals.

- .2 Provide 2 m² of each colour, pattern and type flooring material required for this project for maintenance use.
- .3 Extra materials from same production run as installed materials.
- .4 Identify each container of floor tile and each container of adhesive.
- .5 Deliver to Contract Administrator, upon completion of the work of this section.
- .6 Store where directed by Contract Administrator.

1.6 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
- .5 Regional Materials: Supply building materials that are regionally extracted, harvested, or recovered within 800km of the project location when shipped by truck, or within 2400km of the project location when shipped by rail, in accordance with LEED Materials and Resources Credit MR 5.1 & 5.2 – Regional Materials.
- .6 Rapidly Renewable: Supply building materials that contain rapidly renewable content in accordance with LEED Materials and Resources Credit MR 6 – Rapidly Renewable Materials.
- .7 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
 - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
 - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
 - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
 - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
 - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.

Part 2 Products

2.1 RECYCLE RUBBER TIRE FLOOR TILE

- .1 LEED Requirements:
 - .1 Recycled Content: To contain $\geq 90\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
 - .2 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
- .2 Description:
 - .1 Rop-Cord Non-Vulcanized manufactured from recycled tires.
 - .2 Construction: Synthetic tire cord reinforced with a layer of fabric, vulcanized to a thin rubber backing and buffed to a non-glare tufted surface
 - .3 Nominal Sizes: 305mm x 305mm Square Tile.
 - .4 Nominal Thickness: nominal 9.5mm.
 - .5 Color: Earthtone (# POET).
 - .6 Lifetime delamination warranty, 10-year limited wear warranty.
- .3 Performance:
 - .1 ASTM D 2047, Static Coefficient of Friction: > 0.80 dry.
 - .2 ASTM D-2859, Pill Test: Pass
 - .3 ASTM D-1630, Taber Abrasion: Less than .003" at 5000 cycles using H-10 wheels.
 - .4 Title 16, CFR Chapter II, Subchapter D, Part 1630, Standard for the Surface Flammability of Carpets and Rugs (FF 70): Passes

2.2 VINYL COMPOSITION TILE

- .1 LEED Requirements:
 - .1 Recycled Content: To contain $\geq 5\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
 - .2 Regional Materials: To meet LEED Regional Materials requirements.
 - .3 Rapidly Renewable Content: $\geq 2\%$.
 - .4 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
- .2 Description:
 - .1 Armstrong Migrations with BioStride, or approved equivalent in accordance with B6 Substitutes, composed of polyester resin binder, fillers and pigments with colors and texture dispersed uniformly throughout its thickness.
 - .2 Colour: 4 colours selected from manufacturer's standard colour range.
 - .3 Nominal total thickness: 3.2mm.
 - .4 Size: 305 mm x 305mm
 - .5 Tile shall conform to the size, squareness, thickness, indentation, impact, deflection, resistance to chemicals and resistance to heat requirements of ASTM F 1066, Class 2 – through pattern.

- .3 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
 - .1 Provide Armstrong Resilient Tile Adhesive of type recommended by manufacturer.

2.3 SKATE FLOORING

- .1 LEED Requirements:
 - .1 Recycled Content: To contain $\geq 26\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
 - .2 Regional Materials: To meet LEED Regional Materials requirements.
 - .3 Rapidly Renewable Content: $\geq 7\%$.
 - .4 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
- .2 Description: Skate-and-spike resistant Triumph Rubber Multi-functional and Sports Floor Tiles, or approved equivalent in accordance with B6 Substitutes. Designed specifically for weight rooms, ice rinks and other high impact applications.
 - .1 Construction:
 - .1 Manufactured of dual durometer layers composed of 100% synthetic and natural rubber, high quality additives, and colorants to meet ASTM F-1344, Standard Specification for Rubber Floor Tile.
 - .2 Two-ply vulcanized construction consists of high-resiliency rubber wear layer on elastic cushioned performance layer.
 - .2 Colours: Speckled Colorways and Solid Colors. Allow for 5 colours from manufacturer's standard colour range.
 - .3 Surface texture: Hammered.
 - .4 UnderLock™ Tile (Loose lay): 64.8 cm x 64.8 cm from edge to outside of tab. 9.5 mm thickness, wear layer thickness of 2.3 mm.
- .3 Performance:
 - .1 Abrasion Resistance: ASTM D 3389 – less than 1 gram weight loss.
 - .2 Acoustical: ASTM E 492 (Impact Insulation Class) - 46 IIC.
 - .3 Slip Resistance: ASTM D 2047 – Meets or Exceeds a static coefficient of friction of 0.8
 - .4 Basketball Recovery: DIN18032–99%.
 - .5 Static Load Limit: ASTM F 970 – Passes at 250 PSI.
 - .6 FireResistance:
 - .1 ASTM E 648/NFPA 253 (Critical Radiant Flux) Class 1.
 - .2 ASTM E662/NFPA258 (SmokeDensity), less than 450.
 - .7 Chemical Resistance: ASTM F925 – Passes.
 - .1 5% Acetic Acid, 70% Isopropyl Alcohol, 5% Sodium Hydroxide, 5% Hydrochloric Acid, 5% Ammonia, Bleach, 5% Phenol, and Sulfuric Acid.

2.4 ACCESSORIES

- .1 Sub-floor filler and leveller: where needed. To manufacturer's requirements.

- .2 Sealer: to CAN/CGSB-25.20, Type 2-water based type recommended by flooring manufacturer.
- .1 Adhesive: Low VOC to meet LEED Requirements. See Section 01 35 21 – LEED Requirements.
- .3 Wax: to CAN/CGSB-25.21 type recommended by flooring manufacturer.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Installation in strict compliance with manufacturer's written recommendations and specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSPECTION

- .1 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer.

3.3 SUB-FLOOR TREATMENT

- .1 Remove existing resilient flooring.
- .2 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.
- .3 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .4 Prime and Seal concrete to flooring manufacturer's printed instructions.

3.4 TILE APPLICATION

- .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 one month following building occupation.
- .2 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.
- .4 Install flooring to square grid pattern with joints aligned.
- .5 As installation progresses, and after installation, roll flooring in 2 directions with 45 kg minimum roller to ensure full adhesion.
- .6 Cut tile and fit neatly around fixed objects.

- .7 Install feature strips and floor markings where indicated. Fit joints tightly.
- .8 Install flooring in pan type floor access covers. Maintain floor pattern.
- .9 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
- .10 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
- .11 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.5 BASE APPLICATION

- .1 Lay out base to keep number of joints at minimum. Base joints at maximum length available or at internal or premoulded corners.
- .2 Clean substrate and prime with one coat of adhesive.
- .3 Apply adhesive to back of base.
- .4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.
- .5 Install straight and level to variation of 1:1000.
- .6 Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.
- .7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles, minimum 300 ____ mm each leg. Wrap around toeless base at external corners.
- .8 Install toeless type base before installation of carpet on floors.

3.6 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services: 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 instructions. In carpeted areas clean, seal and wax base surface before carpet installation.

3.8 PROTECTION

- .1 Protect new floors until final inspection.

- .2 Prohibit traffic on floor for 48 hours after installation.
- .3 Use only water-based coating for linoleum.

3.9 SCHEDULE

- .1 See Room Finish Schedule.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Association of Textile Chemists and Colorists (AATCC)
 - .1 AATCC 16-1998, Color Fastness to Light.
 - .2 AATCC 23-1999, Color Fastness to Burn Gas Fumes.
 - .3 AATCC 118-1997, Oil Repellency: Hydrocarbon Resistance Test.
 - .4 AATCC 129-2001, Colour Fastness to Ozone in the Atmosphere Under High Humidities.
 - .5 AATCC 134-2001, Electrostatic Propensity of Carpet.
 - .6 AATCC 171-2000, Carpets: Cleaning of; Hot Water Extraction Method.
 - .7 AATCC 174-1998, Antimicrobial Activity Assessment of Carpets.
 - .8 AATCC 175-1998, Stain Resistance: Pile Floor Coverings.
 - .9 AATCC 189-2001, Fluorine Content of Carpet Fibers.
- .2 American Society for Testing and Materials (ASTM International)
 - .1 ASTM D1055-97, Specification for Flexible Cellular Materials - Latex Foam.
 - .2 ASTM D1335-98, Tuft Bind of Pile Floor Coverings.
 - .3 ASTM D1667-97, Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
 - .4 ASTM D3936-00 Standard Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Covering.
 - .5 ASTM D5252-98a, Standard Practice for the Operation of the Hexapod Drum Tester.
 - .6 ASTM D5417-99, Standard Practice for Operation of the Vettermann Drum Tester.
 - .7 ASTM E84-01, Test Method for Surface Burning Characteristics of Bulding Materials.
 - .8 ASTM E648-00, Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
 - .9 ASTM E662-01, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-4.2 No.27.6-M91, Textile Test Methods - Flame Resistance - Methemine Tablet Test for Textile Floor Coverings.
 - .2 CAN/CGSB-4.2 No.77.1-94/ISO 4919:1978, Textile Test Methods - Carpets - Determination of Tuft Withdrawal Force.
 - .3 CGSB 4-GP-36M-78, Carpet Underlay, Fiber Type.
 - .4 CAN/CGSB-4.129-93(R1997), Carpets for Commercial Use.
 - .5 CGSB 20-GP-23M-78, Cushion, Carpet, Flexible Polymeric Material.
 - .6 CAN/CGSB-25.20-95, Surface Sealer Floors.
- .4 Carpet and Rug Institute (CRI)

- .1 CRI-104-96, Standard Installation of Commercial Carpet.
- .2 IAQ Carpet Testing Program.
- .5 National Floor Covering Association (NFCA)
 - .1 Floor Covering Specification Manual 1998.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-88(R2000), Surface Burning Characteristics of Building Materials and Assemblies.
 - .2 CAN/ULC-S102.2-88(R2000), Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.

1.2 SUBMITTALS

- .1 Submit control submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit verification to demonstrate compliance with CAN/ULCS102 and CAN/ULCS102.2.
- .3 Submit proof that carpet has been tested and passed the Indoor Air Quality (IAQ) Carpet Testing Program requirements of the Carpet and Rug Institute (CRI) and the Canadian Carpet Institute (CCI).
- .4 Submit report verifying that tuft bind meets requirements of CAN/CGSB-4.129 when tested to CAN/CGSB-4.2 No.77.1.
- .5 Submit report outlining proposed dust control measures.
- .6 Submit carpet schedule using same room designations indicated on drawings.
- .7 Submit carpet manufacturer's installation instructions: Indicate special procedures and perimeter conditions requiring special attention.
- .8 Submit certification and description of carpet reclamation and recycling process.

1.3 PRODUCT DATA

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit product data sheet for each carpet, under cushion, adhesive, carpet protection and subfloor patching compound.
- .3 Submit WHMIS MSDS - Material Safety Data Sheets acceptable to Labour Canada and Health Canada for carpet adhesive and seam adhesive. Indicate VOC content.
- .4 Submit data on specified products, describing physical and performance characteristics, sizes, patterns, colours, and methods of installation.

1.4 SHOP DRAWINGS

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

- .2 Indicate locations and lengths of seams for carpeted areas.
- .3 Indicate nap direction, open edges, special patterns, and other details required by Contract Administrator to clarify work.
- .4 Submit drawings showing columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required as well as direction of carpet pile and pattern, location of edge moldings and edge bindings to Contract Administrator for review prior to installation of carpet.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .2 Submit maintenance data: Include maintenance procedures, recommendations for maintenance materials and equipment, and suggested schedule for cleaning.

1.6 QUALIFICATIONS

- .1 Installer Qualifications: Flooring contractor requirements.
 - .1 Specialty contractor normally engaged in this type of work, with prior experience in installation of these types of materials.
 - .2 Certified by carpet manufacturer prior to tender submission.
 - .3 Must not sub-contract labour without written approval of Contract Administrator.
- .2 Be responsible for proper product installation, including floor testing and preparation as specified and in accordance with carpet manufacturers written instructions.

1.7 REGULATORY REQUIREMENTS

- .1 Prequalification: compliance with Department of Consumers and Corporate Affairs regulations under "Hazardous Products Act", Part II of the Schedule, tested to CAN/CGSB-4.2-No.27.6.
- .2 Indoor Air Quality: compliance with CRI/CCI Green Label Indoor Air Quality Program, CRI/CCI-IAQ requirements for maximum total volatile chemicals released into air. Label each carpet product with CRI/CCI-IAQ label.

1.8 DELIVERY, STORAGE AND HANDLING

- .1 Label packaged materials. For carpet tile products indicate nominal dimensions of tile and indicate installation direction.
- .2 Store packaged materials in original containers or wrapping with manufacturer's seals and labels intact.
- .3 Store carpeting and accessories in location as directed by Contract Administrator. Store carpet and adhesive at minimum temperature of 18°C and relative humidity of maximum 65% for minimum of 48 hours before installation.

- .4 Prevent damage to materials during handling and storage. Keep materials under cover and free from dampness.
- .5 Store materials in area of installation for minimum period of 48 hours prior to installation.
- .6 Modular carpet: store on pallet form as supplied by Manufacturer. Do not stack pallets.

1.9 ENVIRONMENTAL REQUIREMENTS

- .1 Temperature: Maintain ambient temperature of not less than 18 °C from 48 hours before installation to at least 48 hours after completion of work.
- .2 Relative humidity: Maintain relative humidity between 10 and 65% RH for 48 hours before, during and 48 hours after installation.
- .3 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
- .4 Ventilation:
 - .1 Ventilate area of work as directed by Contract Administrator by use of approved portable supply and exhaust fans.
 - .2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
 - .3 Provide continuous ventilation during and after carpet application. Run ventilation system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of carpet installation.
- .5 Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete.

1.10 EXTRA MATERIALS

- .1 Provide extra materials of carpet, carpet base, and adhesives in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Extra materials to be from same production run as installed materials.
- .3 Identify each package of carpet and each container of adhesive.
- .4 Deliver to Contract Administrator and store where directed.

1.11 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

- .4 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
- .5 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
 - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
 - .2 LEED Indoor Environmental Quality Credit EQ 4.3 – Carpet: To meet or exceed requirements of the Carpet and Rug Institute’s Green Label Indoor Air Quality Test Program.

Part 2 Products

2.1 GENERAL

- .1 Carpet: To meet or exceed requirements of the Carpet and Rug Institute’s Green Label Indoor Air Quality Test Program.
- .2 Recycled Content: To contain $\geq 20\%$ recycled material by LEED definition. (Post consumer plus ½ post-industrial content.)

2.2 MODULAR CARPET

- .1 Acceptable product:
 - .1 Product Mannington, pattern Elemental Brights with Infinity RE backing, or approved equivalent system in accordance with B6 Substitutes.
 - .1 610x610mm modular size.
 - .2 Colour and patterns from manufacturer’s standard product line.
 - .3 Construction: Graphic Loop
 - .4 Face Fibre: Type 6,6 nylon
 - .5 Dye Method: Solution / Yarn Dyed
 - .6 Gauge: 1/10
 - .7 Stitches per inch: 13.66
 - .8 Pile Thickness: .096 inches
 - .9 Primary backing: 100% Synthetic
 - .10 Secondary backing: Infinity® RE with a minimum 10% post-consumer and 20% pre-consumer recycled content by total product weight.
 - .11 Wear warranty: 15 year Limited Wear Warranty
 - .12 Backing warranty: 15 year Limited Backing Warranty
 - .13 Bleach resistance warranty: 15 Year Limited ColorSafe® Warranty
 - .14 Stain resistance warranty: 15 Year Limited XGUARD® Warranty
- .2 Carpet: to CAN/CGSB-4.129 and as follows:

- .1 Certified for flammability to Health Canada regulations under "Hazardous Products (Carpet) Regulations", Part II of the Schedule.
- .2 Performance rating: to ASTM D5252 or ASTM D5417.
- .3 ASTM D 2859: Pass
- .4 Class 1 to ASTM E 648
- .5 <450 to ASTM E 662
- .6 Aachen Test: Pass.
- .7 < 3.0 KV to AATCC 134
- .8 4125 average density
- .9 45,375 weight density

2.3 ACCESSORIES

- .1 Base:
 - .1 Carpet base: 100 mm high, same material, colour, pattern and texture as adjoining carpet.

Part 3 Execution

3.1 PREPARATION

- .1 Prepare floor surfaces in accordance with CRI 104 Standard for Installation of Commercial Carpet.
- .2 Pre-condition carpeting following manufacturer's printed instructions.

3.2 INSTALLATION

- .1 Install carpeting using minimum of pieces.
- .2 Install in accordance with manufacturer's printed instructions and in accordance with Carpet and Rug Institute Standard for Installation of Commercial Carpet, CRI 104.
- .3 Install carpet after finishing work is completed but before demountable office partitions and telephone and electrical pedestal outlets are installed.
- .4 Finish installation to present smooth wearing surface free from conspicuous seams, burring and other faults.
- .5 Use material from same dye lot. Ensure colour, pattern and texture match within any one visual area. Maintain constant pile direction.
- .6 Adhesive seams and cross-joints. Seam edges must be sealed.
- .7 Fit neatly around architectural, mechanical, electrical and telephone outlets, and furniture fitments, around perimeter of rooms into recesses, and around projections.
- .8 Install carpeting in pan type floor access covers.

- .9 Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- .10 Install carpet smooth and free of bubbles, puckers, and other defects.

3.3 CARPET TACKSTRIPS AND BINDER BARS

- .1 Install carpet grippers at junctions of walls and vertical surfaces. Secure gripper to prevent movement.
- .2 Install binder bars at exposed carpet edges and centre under doors in door openings.

3.4 DIRECT GLUE DOWN CARPET

- .1 Apply adhesive and install carpeting in accordance with manufacturer's written instructions, by direct glue-down method.
- .2 Adhesives: no or low VOC content in compliance with CaGBC LEED NC 1.0, EQ credit 4.3: Carpeting.

3.5 MODULAR CARPET

- .1 Apply release type adhesive and install modular carpet in accordance with manufacturer's written instructions.
- .2 Lay modular carpet with butt seams.
- .3 Roll modular carpet with appropriate roller for complete contact of carpet with mill-applied adhesive to sub-floor.

3.6 SEAMS

- .1 Seal edges of cut-outs with latex, binding method.
- .2 Carpet visibility of seams and joints to acceptable industry standards.

3.7 BASE INSTALLATION

- .1 Install bound edge carpet base to match adjacent carpeting. Install base capstrip aligned straight and level at base height.
- .2 Attach carpet to wall with adhesive. Neatly fit against floor carpet and into cap strip.
- .3 Extend floor carpeting over cove, up wall and into capstrip to form cove carpet base.

3.8 PROTECTION OF FINISHED WORK

- .1 Vacuum carpets clean immediately after completion of installation. Protect traffic areas.
- .2 Prohibit traffic on carpet for a period of 24 hours until adhesive is cured.

3.9 SCHEDULE

- .1 See Room Finish Schedule.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C423-07, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
- .4 Canadian Standards Association (CSA International)
 - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .6 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1113-04, Architectural Coatings.
 - .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- .7 Underwriter Laboratories of Canada (ULC)
 - .1 CAN/ULC-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.

1.2 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.
- .3 LEED Submittals: in accordance with Section 01 35 21 - LEED Requirements.

1.3 ENVIRONMENTAL REQUIREMENTS

- .1 Commence installation after building enclosed and dust generating activities are completed.
- .2 Permit wet work to dry prior to commencement of installation.
- .3 Maintain uniform minimum temperature of 15 degrees C and relative humidity of 20- 40% prior to, during and after installation.

1.4 DELIVERY, HANDLING AND STORAGE

- .1 Delivery and Storage - All materials shall be delivered in their original unopened cartons and stored in an enclosed area providing protection from damage and exposure to the elements.
- .2 Cartons shall be stored flat and not placed in direct contact with floors or walls.
- .3 24 hours prior to installation panels shall be stored at the temperature and humidity conditions present during installation and occupancy.

1.5 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide extra materials of acoustic units and adhesive in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Provide acoustical units for maintenance use amounting to 2% of gross wall area for each pattern and type required for project.
 - .3 Provide sufficient adhesive to install extra material provided.
 - .4 Extra materials from same production run as installed materials.
 - .5 Identify each package of acoustical units including colour and type, and each container of adhesive.
 - .6 Deliver to Contract Administrator, upon completion of the work of this section.
 - .7 Store where directed by Contract Administrator.

1.6 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
- .5 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
 - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
 - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
 - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
 - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.

- .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
- .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.

Part 2 Products

2.1 MATERIALS

- .1 Acceptable Product: CertianTeed, Architectural Solutions 1000 or approved equal.
 - .1 Recycled Content: To contain $\geq 27\%$ recycled material by LEED definition. (Post consumer plus $\frac{1}{2}$ post-industrial content.)
 - .2 Adhesives: Low VOC - see Section 01 35 21 – LEED requirements.
- .2 Panels shall be 19mm (3/4") thick composite consisting of 3mm (1/8") 16-20pcf fiberglass surface, and 16mm (5/8") 24pcf perforated mineral fiber core 1219mm (48") wide x 2438mm (8') long with square edges.
 - .1 Covered in Guilford of Maine FR701® Style 2100 polyester panel fabric color from manufacturer's standard colour range.
 - .2 Panel, fabric and adhesive shall have a Flame Spread of 25 or less according to ASTM E 84.
 - .3 Panels shall have fabric wrapped edges where exposed.
 - .4 Panels shall be installed by means of screws with matching finishing washers. Fasteners, finishing washers and fastening pattern to match MDF panels in gym.

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 INSTALLATION

- .1 Install acoustic units to studs using screws with finishing washers.
- .2 Install acoustic units plumb and aligned. Arrange units symmetrical on each wall and as indicated.
- .3 Scribe acoustic units to fit adjacent work. Butt joints tight, trim 50 mm strip and return bottom (visible) edge to wall.

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Keep acoustic installation and all components clean. Remove blemishes immediately.

3.4 SCHEDULES

- .1 Install 1219mm band of 1219x2438mm panels around the full perimeter of the gymnasium.
Refer to drawings for additional information.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes material and installation of site applied paint finishes to new surfaces, including site painting of shop primed surfaces.

1.2 REFERENCES

- .1 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33
- .2 Environmental Protection Agency (EPA)
 - .1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings).
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specifications Manual, 2004.
- .5 National Fire Code of Canada - 1995
- .6 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.
- .7 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34 .

1.3 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Contractor: minimum of five years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
 - .2 Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.
 - .3 Apprentices: working under direct supervision of qualified trades person in accordance with trade regulations.
- .2 Mock-Ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.

- .1 Provide 300 mm x 300 mm mock-up. Prepare and paint designated surface, area, room or item (in each colour scheme) to specified requirements, with specified paint or coating showing selected colours, gloss/sheen, textures.
- .2 Mock-up will be used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application and workmanship to MPI Architectural Painting Specification Manual standards.
 - .3 Locate where indicated by Contract Administrator.
 - .4 Allow 24 hours for inspection of mock-up before proceeding with work.
 - .5 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.
- .3 Pre-Installation Meeting:
 - .1 Convene pre-installation meeting one week prior to beginning work of this Section and on-site installations in accordance with Section 01 32 16.06 - Construction Progress Schedule - Critical Path Method (CPM) Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Coordination with other building subtrades.
 - .4 Review manufacturer's installation instructions and warranty requirements.
- .4 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 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.
- .3 Samples:
 - .1 Submit full range colour sample chips to indicate where colour availability is restricted.
 - .2 Submit duplicate 200 x 300 mm sample panels of each paint, stain, clear coating and special finish with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:
 - .1 3 mm plate steel for finishes over metal surfaces.

- .2 13 mm birch plywood for finishes over wood surfaces.
- .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
- .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
- .3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
- .4 Test reports: submit certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
 - .1 Lead, cadmium and chromium: presence of and amounts.
 - .2 Mercury: presence of and amounts.
 - .3 Organochlorines and PCBs: presence of and amounts.
- .5 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .6 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation and application instructions.
- .7 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals, include the following:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 MPI Environmentally Friendly classification system rating.

1.5 MAINTENANCE

- .1 Extra Materials:
 - .1 Deliver to site extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Section 01 78 00 - Closeout Submittals.
 - .2 Quantity: provide one - four litre can of each type and colour of primer, stain and finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
 - .3 Delivery, storage and protection: comply with Contract Administrator requirements for delivery and storage of extra materials.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Pack, ship, handle and unload materials in accordance with Section 01 61 00 - Common Product Requirements and manufacturer's written instructions.
- .2 Acceptance at Site:
 - .1 Identify products and materials with labels indicating:
 - .1 Manufacturer's name and address.

-
- .2 Type of paint or coating.
 - .3 Compliance with applicable standard.
 - .4 Colour number in accordance with established colour schedule.
- .3 Remove damaged, opened and rejected materials from site.
 - .4 Storage and Protection:
 - .1 Provide and maintain dry, temperature controlled, secure storage.
 - .2 Store materials and supplies away from heat generating devices.
 - .3 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
 - .5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
 - .6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.
 - .7 Remove paint materials from storage only in quantities required for same day use.
 - .8 Fire Safety Requirements:
 - .1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.
 - .9 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and wood packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan (WMP).
 - .4 Separate for reuse and recycling and place in designated containers Steel, Metal, Plastic and wood waste in accordance with Waste Management Plan (WMP).
 - .5 Place materials defined as hazardous or toxic in designated containers.
 - .6 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal, regulations.
 - .7 Ensure emptied containers are sealed and stored safely.
 - .8 Unused paint and coating materials must be disposed of at official hazardous material collections site as approved by Contract Administrator.
 - .9 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for

disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

- .10 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
- .11 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .12 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into ground follow these procedures:
 - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out.
 - .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 - .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 - .4 Dispose of contaminants in approved legal manner in accordance with hazardous waste regulations.
 - .5 Empty paint cans are to be dry prior to disposal or recycling (where available).
- .13 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
- .14 Set aside and protect surplus and uncontaminated finish materials. Deliver to or arrange collection by employees, individuals or organizations for verifiable re-use or re-manufacturing.

1.7 SITE CONDITIONS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces.
 - .2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .3 Provide continuous ventilation for seven days after completion of application of paint.
 - .4 Coordinate use of existing ventilation system with Contract Administrator and ensure its operation during and after application of paint as required.
 - .5 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
 - .6 Provide minimum lighting level of 323 Lux on surfaces to be painted.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless pre-approved written approval by Paint Inspection Agency Authority and product manufacturer, perform no painting when:

- .1 Ambient air and substrate temperatures are below 10 degrees C.
 - .2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.
 - .4 The relative humidity is under 85 % or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
 - .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
 - .6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.
- .2 Perform painting work when maximum moisture content of the substrate is below:
 - .1 Allow new concrete and masonry to cure minimum of 28 days.
 - .2 15 % for wood.
 - .3 12% for plaster and gypsum board.
 - .3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".
 - .4 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .3 Surface and Environmental Conditions:
 - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
 - .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
 - .3 Apply paint when previous coat of paint is dry or adequately cured.
 - .4 Additional interior application requirements:
 - .1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

Part 2 Products

2.1 GENERAL

- .1 Indoor Environmental Quality Credit EQ - 4.4 Low - Emitting Materials. Co-ordinate with Section 01 35 21 - LEED Requirements.
- .2 Indoor Environmental Quality Credit EQ4-2 Low-Emitting Materials: Paints and Coatings. Interior applications use paints and coatings must comply with the following limits for VOC content when calculated according to Green Seal Standard GS-11 and Green Seal Standard GS-03 and SCAQMD Rule 1113. (Latest editions.)

- .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition:
 - .1 Flat Paints and Coatings: VOC not more than 50 g/L.
 - .2 Non-Flat Paints and Coatings: VOC not more than 150 g/L.
- .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition:
 - .1 Anti-Corrosive Coatings: VOC not more than 250 g/L.
- .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition:
 - .1 Clear wood finishes: varnish & lacquers: VOC not more than 275 g/L.
 - .2 Floor coatings: VOC not more than 50 g/L.
 - .3 Sealers:
 - .1 Waterproofing sealers, VOC not more than 100 g/L.
 - .2 Sanding sealers, VOC not more than 275 g/L.
 - .3 Other sealers, VOC not more than 100 g/L.
 - .4 Shellacs:
 - .1 Clear: VOC not more than 730 g/L.
 - .2 Pigmented: VOC not more than 550 g/L.
 - .5 Stains: VOC not more than 100 g/L.
- .4 Aromatic Compounds: paints and coatings not to contain more than 1.0% by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
- .5 Restricted Components: paints and coatings not to contain the following:
 - .1 Acrolein.
 - .2 Acrylonitrile.
 - .3 Antimony.
 - .4 Benzene.
 - .5 Butyl benzyl phthalate.
 - .6 Cadmium.
 - .7 Di (2-ethylhexyl) phthalate.
 - .8 Di-n-butyl phthalate.
 - .9 Di-n-octyl phthalate
 - .10 1,2-dichlorobenzene.
 - .11 Diethyl phthalate.
 - .12 Dimethyl phthalate.
 - .13 Ethylbenzene.
 - .14 Formaldehyde.
 - .15 Hexavalent chromium.
 - .16 Isophorone.
 - .17 Lead.
 - .18 Mercury.

- .19 Methyl ethyl ketone.
- .20 Methyl isobutyl ketone.
- .21 Methylene chloride.
- .22 Naphthalene.
- .23 Toluene (methylbenzene).
- .24 1,1,1-trichloroethane.
- .25 Vinyl chloride.

2.2 MATERIALS

- .1 Materials and resources in accordance with Section 01 47 15 - Sustainable Requirements: Construction.
- .2 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .3 Provide paint materials for paint systems from single manufacturer.
- .4 Conform to latest MPI requirements for interior painting work including preparation and priming.
- .5 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.
- .6 Linseed oil, shellac, and turpentine: highest quality product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.
- .7 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
 - .1 Water-based, Water soluble, Water clean-up.
 - .2 Non-flammable, biodegradable.
 - .3 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
 - .4 Manufactured without compounds which contribute to smog in the lower atmosphere.
 - .5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
- .8 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
- .9 Flash point: 61.0 degrees C or greater for water-borne surface coatings and recycled water-borne surface coatings.
- .10 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:

- .1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
- .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.
- .11 Recycled water-borne surface coatings must not contain:
 - .1 Lead in excess of 600.0 ppm weight/weight total solids.
 - .2 Mercury in excess of 50.0 ppm weight/weight total product.
 - .3 Cadmium in excess of 1.0 ppm weight/weight total product.
 - .4 Hexavalent chromium in excess of 3.0 ppm weight/weight total product.
 - .5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.

2.3 COLOURS

- .1 Contract Administrator will provide Colour Schedule after Contract award.
- .2 Colour schedule will be based upon selection of twelve base and accent colours. No more than twelve colours will be selected for entire project and no more than four colours will be selected in each area.
- .3 Selection of colours from manufacturers full range of colours.
- .4 Where specific products are available in restricted range of colours, selection based on limited range.
- .5 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.4 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Contract Administrator for tinting of painting materials.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
- .4 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.5 GLOSS/SHEEN RATINGS

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

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

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

2.6 INTERIOR PAINTING AND SYSTEMS

- .1 Vertical Concrete: New basement concrete exterior walls – not painted.
- .2 Concrete masonry units: Basement repainting / new painting of concrete masonry.
- .1 RINT / INT 4.2E - Institutional low odour / VOC.
- .1 Gloss level 5
- .2 Custom grade.
- .3 Coat #1: MPI # 4 – Block Filler, Latex, Interior/Exterior. VOC ≤ 100g/l.
- .4 Coat #2: MPI # 147 – Latex, Interior, Institutional Low Odor/VOC, Semi Gloss (MPI Gloss Level 5). VOC ≤ 10g/l.
- .3 Structural steel & metal fabrications: Columns, Beams, Joists, Misc. metals, etc.
- .1 INT 5.1S – Institutional low odour / VOC.
- .1 Gloss level 3.
- .2 Custom grade.
- .3 SSPC – SP-7 surface preparation. Shop applied.
- .4 Coat #1: MPI #107 – Primer, Rust-Inhibitive, Water Based. VOC ≤ 100g/l. Shop applied by steel supplier / fabricator.
- .5 Coat #2: MPI #145 – Latex, Interior, Institutional Low Odour/VOC (MPI Gloss Level 3). VOC ≤ 10g/l.
- .4 Metal doors, frames, railings, misc. steel, etc.
- .1 Coordinate primer coat to door manufacturer. See Section 08 11 00 – Metal Doors and Frames.
- .2 INT 5.3N – Institutional low odour / VOC.
- .1 Gloss level 5.
- .2 Premium grade.
- .3 Galvanized metal: MPI # 25 – Cleaner, Etching, for Galvanized Metal. VOC ≤ 50 g/l. Shop applied.
- .4 Coat #1: MPI #134 – Primer, galvanized, water based. VOC ≤ 100 g/l. Shop applied by supplier / fabricator. Coordinate to 08 11 00 – Metal Doors and Frames.

- .5 Coats #2 & 3: MPI # 147 – Latex, Interior, Institutional Low Odor/VOC, Semi Gloss (MPI Gloss Level 5). VOC ≤ 10g/l.
- .5 Wood paneling and casework: MDF wall panels.
 - .1 INT 6.4T – Institutional low odour / VOC.
 - .1 Gloss level 4.
 - .2 Custom grade.
 - .3 Coat #1: MPI #39 – Primer, Latex, for Interior Wood. VOC ≤ 100 g/l.
 - .4 Coat #2: MPI#146 – Latex, Interior, Institutional Low Odour/VOC, (MPI Gloss Level 4). VOC ≤ 10 g/l.
 - .2 Varnish / Clear-Coat applications: (Select MDF panels and Ceiling Trellis.)
 - .1 Three coats MPI #128 – Varnish, Clear, Water-based, Satin.
 - .2 VOC ≤ 200 g/l.
- .6 Plaster and gypsum board: (Gypsum.)
 - .1 INT 9.2M – Institutional low odour / VOC.
 - .1 Gloss level 3.
 - .2 Premium grade.
 - .3 Coat #1: MPI # 50 – Primer Sealer, Latex, Interior. VOC ≤ 100 g/l.
 - .4 Coat #2 & 3: MPI # 145 – Latex, Interior, Institutional Low Odour/VOC (MPI Gloss Level 3). VOC ≤ 10g/l.
- .7 Gym line painting:
 - .1 Gameline paint products to be supplied by rubber athletic flooring Manufacturer.
 - .2 Coordinate to Section 09 65 16 – Resilient Sheet Flooring.
 - .3 Provide shop drawing indicating gym line painting layout. See drawings. Do not proceed without approval of Contract Administrator.
 - .4 Paint Sinclair Park Community Centre logo where indicated.

2.7 EXTERIOR PAINTING SYSTEMS

- .1 Exterior Galvanized Metal Fabrications: Not to be painted.
- .2 Exterior metal cladding to be factory pre-painted / finished.
- .3 Exterior metal doors and frames:
 - .1 Coordinate primer coat to door manufacturer. See Section 08 11 00 – Metal Doors and Frames.
 - .2 IMPORTANT: Exterior finish paint system shall only be applied to exterior face of door and frame. (Application to interior side of door will compromise LEED low VOC requirements.)
 - .3 EXT 5.3L – Polyurethane pigmented over epoxy primer.
 - .1 Premium grade.
 - .2 Preparation and prime by door manufacturer.

- .3 Coat #1: MPI # 101 – Primer, Epoxy, Anti-Corrosive, for Metal. VOC ≤ 300 g/l.
- .4 Coat #2 & 3: MPI # 72 – Polyurethane, Two-Component, Pigmented, Gloss. VOC ≤ 300g/l.
- .4 KWP Naturetech panels: See Section 07 44 56 – Exterior Finish Panels.
 - .1 Panels are factory primed.
 - .1 Confirm with manufacturer for compatibility of finish coats to primer.
 - .2 Allow for three panel colours.
 - .2 Coloured panels to be EXT 6.3H – Polyurethane, Pigmented.
 - .1 Two coats.
 - .2 Coat #1 & 2: MPI #72 – Polyurethane, Two-Component, Pigmented, Gloss. VOC ≤ 300 g/l.
- .5 Asphalt Surfaces: Parking lines and other asphalt markings.
 - .1 EXT 2.1A – Latex.
 - .1 Strictly in accordance with manufacturer's recommendations.
 - .2 Surface preparation as determined in consultation with specific manufacturer.
 - .3 MPI # 97 – Traffic Marking Paint. VOC ≤ 100 g/l.
 - .4 To be applied in dry conditions with no forecast of rain for duration of time recommended by manufacturer.

2.8 SOURCE QUALITY CONTROL

- .1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.
 - .1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
 - .2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
 - .3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 GENERAL

- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to 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.
- .3 Maximum moisture content as follows:
 - .1 Stucco, plaster and gypsum board: 12%.
 - .2 Concrete: 12 %.
 - .3 Clay and Concrete Block/Brick: 12 %.
 - .4 Wood: 15%.

3.4 PREPARATION

- .1 Protection:
 - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Contract Administrator.
 - .2 Protect items that are permanently attached, such as Fire Labels on doors and frames.
 - .3 Protect factory finished products and equipment.
 - .4 Protect building occupants and general public in and about the building.
- .2 Surface Preparation:
 - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
 - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
 - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Contract Administrator.

- .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
 - .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
 - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .4 Allow surfaces to drain completely and allow to dry thoroughly.
 - .5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
 - .6 Use trigger operated spray nozzles for water hoses.
 - .7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
 - .2 Apply wood filler to nail holes and cracks.
 - .3 Tint filler to match stains for stained woodwork.
- .6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- .7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, blowing with clean dry compressed air, or vacuum cleaning.
- .8 Touch up shop primers with primer as specified.
- .9 Do not apply paint until prepared surfaces have been accepted by Contract Administrator.

3.5 APPLICATION

- .1 Method of application to be as approved by Contract Administrator.
- .2 Apply paint by brush, roller, air sprayer or airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.
- .3 Brush and Roller Application:

- .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
- .2 Work paint into cracks, crevices and corners.
- .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
- .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
- .5 Remove runs, sags and brush marks from finished work and repaint.
- .4 Spray application:
 - .1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 - .3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
 - .4 Brush out immediately all runs and sags.
 - .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.
- .5 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .6 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .7 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .8 Sand and dust between coats to remove visible defects.
- .9 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.
- .10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

- .1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
- .2 Boiler room, leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .7 Paint natural gas piping yellow.
- .8 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
- .9 Do not paint interior transformers and substation equipment.

3.7 SITE TOLERANCES

- .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
- .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
- .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.8 FIELD QUALITY CONTROL

- .1 Interior painting and decorating work shall be inspected by a Paint Inspection Agency (inspector) acceptable to the specifying authority and local Painting Contractor's Association. Painting contractor shall notify Paint Inspection Agency a minimum of one week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.
- .2 Interior surfaces requiring painting shall be inspected by Paint Inspection Agency who shall notify Contract Administrator and General Contractor in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate.
- .3 Where "special" painting, coating or decorating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer shall provide as part of this work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to Contract Administrator.
- .4 Standard of Acceptance:
 - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

- .5 Field inspection of painting operations to be carried out by independent inspection firm as designated by Contract Administrator.
- .6 Advise Contract Administrator when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .7 Cooperate with inspection firm and provide access to areas of work.
- .8 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Contract Administrator.

3.9 RESTORATION

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

END OF SECTION

UNIT	ROOM NO.	NAME	FLOOR	BASE	WALLS	FINISH	CEILING	FINISH	HEIGHT	REMARKS
BASEMENT	B01	CIRCULATION	S. FLOOR	R.B	CONC./D.W.	PAINT	GYPSUM	PAINT	2448	- PATCH NEW TO EXISTING FINISHES - PAINT NEW BULKHEADS - PAINT EXISTING WALLS AND CEILINGS - NOTE: SEPARATE PRICE FOR NEW SKATE FLOORING IN ROOMS B05, B06, B07, B08, B09, B11, B12, B14.
	B02	STORAGE	CONC. HARD		CONC.				2448	
	B03	CIRCULATION	EXISTING	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B04	ELEC. / MECH.	CONC. HARD		CONC.	PAINT	GYPSUM	PAINT	2448	
	B05	CHANGE ROOM	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B06	CHANGE ROOM	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B07	CHANGE ROOM	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B08	VESTIBULE	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B09	WASHROOM	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B10	SHOWER	EXISTING	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B11	VESTIBULE	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B12	WASHROOM	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B13	SHOWER	EXISTING	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B14	CHANGE ROOM	S. FLOOR	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B15	STORAGE	EXISTING	EXIST.	EXIST./GYP.	PAINT	EXIST.	PAINT	EXIST.	
	B16	STORAGE	EXISTING	EXIST.	EXIST./GYP.	PAINT	EXIST.	PAINT	EXIST.	
	B17	STORAGE	EXISTING	EXIST.	EXIST.	PAINT	EXIST.	PAINT	EXIST.	
	B18	FUTURE ELEVATOR	V.C.T		R.B.	CONC.	PAINT			
STAIRS	S01	STAIRWAY	S. FLOOR	R.B	CONC.	PAINT	GYPSUM	PAINT		RUBBER RISER & NOSING AS PER SPEC STAIRS - 1 PIECE TREAD, LANDINGS - V.C.T.; 150 mm RUBBER BASE
	S02	STAIRWAY	V.C.T. & TREAD	R.B	CONC./GYP.	PAINT	GYPSUM	PAINT		
MAIN	M01	VESTIBULE	D.C.S./R.R.T.	R.B	GYP.	PAINT	GYPSUM	PAINT	3000	
	M02	CIRCULATION	S. FLOOR	R.B	GYP./MDF	PAINT	WOOD		VARIES	150mm RUBBER BASE
	M03	CORRIDOR	CRPT. T.	R.B	GYP.	PAINT	T BAR		2700	
	M04	OFFICE	CRPT. T.	R.B.	GYP.	PAINT	T BAR		2700	
	M05	BOARDROOM	CRPT. T.	R.B.	GYP./MDF	PAINT	T BAR		2700	
	M06	MINI GYM	V.C.T	R.B	GYP./MDF	PAINT	OPEN	PAINT	EXIST.	
	M07	STORAGE	V.C.T	R.B	GYP./MDF	PAINT	GYPSUM	PAINT	2700	
	M08	STORAGE	V.C.T	R.B	GYP./MDF	PAINT	GYPSUM	PAINT	2700	
	M09	STORAGE	CONC. HARD	R.B	GYP./MDF	PAINT	OPEN	PAINT	3800	
	M10	PANTRY	SHEET	S. COVE	GYP.	PAINT	GYPSUM	PAINT	3000	
	M11	LIQUOR	SHEET	S. COVE	GYP.	PAINT	GYPSUM	PAINT	3000	
	M12	KITCHEN	SHEET	S. COVE	GYP.	PAINT	GYPSUM	PAINT	3000	
	M13	GYMNASIUM	R. FLOOR	R.B.	GYP./MDF	PAINT	OPEN	PAINT	VARIES	1219 BAND OF ACOUSTIC PANEL
	M14	VESTIBULE	D.C.S.	R.B.	GYP.	PAINT	GYPSUM	PAINT	2700	
	M15	WASHROOM	S. FLOOR	C.T.	GYP./C.T.	PAINT	GYPSUM	PAINT	2700	150mm RUBBER BASE
	M16	CHANGE ROOM	S. FLOOR	R.B.	GYP./MDF	PAINT	GYPSUM	PAINT	2700	
	M17	CHANGE ROOM	S. FLOOR	R.B	GYP./MDF	PAINT	GYPSUM	PAINT	2700	
	M18	WASHROOM	S. FLOOR	C.T.	GYP./C.T.	PAINT	GYPSUM	PAINT	2700	150mm RUBBER BASE
	M19	JANITORS	CONC. HARD	R.B	GYP.	PAINT	OPEN	PAINT	2700	
	M20	MENS	S. FLOOR	R.B/C.T.	GYP./C.T.	PAINT	GYPSUM	PAINT	2700	150mm RUBBER BASE
	M21	WOMENS	S. FLOOR	R.B/C.T	GYP./C.T.	PAINT	GYPSUM	PAINT	2700	150mm RUBBER BASE
	M22	FUTURE ELEVATOR	V.C.T		R.B.	GYP.	PAINT	OPEN	PAINT	

NOTE: PAINT ALL DOORS AND FRAMES AS INDICATED ON THE DOOR & FRAME SCHEDULE AND SPECIFICATIONS

NOTE: R.B. - RUBBER BASE

CONC. - CONCRETE / CONCRETE BLOCK

GYP. - GYPSUM

BH - BULKHEAD

R.R.T. - RECYCLED RUBBER TILE

T BAR - CEILING TILE

S. FLOOR - SKATE FLOORING

S. COVE - SEAMLESS COVE BASE

V.C.T. - VINYL COMPOSITE TILE

R. FLOOR - ATHLETIC RUBBER GYM FLOORING

CRPT. T. - CARPET TILE

CONC. HARD - CONCRETE HARDENER

C.T. - CERAMIC TILE

SHEET - LINOLEUM SHEET FLOORING

MDF - MDF

D.C.S. - DIRT CAPTURE ENTRANCE GRATE SYSTEM