

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 09 91 99 – Painting for Minor Works
- .2 Section 06 40 00 – Architectural Woodwork
- .3 Mechanical Divisions
- .4 Electrical Divisions

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C1396/C1396M-09a, Standard Specification for Gypsum Wallboard.
 - .2 ASTM C475/C475M-02(2007), Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .3 ASTM C514-04(2009)e1, Standard Specification for Nails for the Application of Gypsum Board.
 - .4 ASTM C645-09a, Standard Specification for Non-structural Steel Framing Members.
 - .5 ASTM C754-09a, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 - .6 ASTM C840-08, Standard Specification for Application and Finishing of Gypsum Board.
 - .7 ASTM C954-10, Standard 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 0.122 in. (2.84 mm) in Thickness.
 - .8 ASTM C1002-07, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - .9 ASTM C1047-10, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - .10 ASTM C1178/C1178M-08, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.
- .2 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.
- .3 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-07, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum, framing, sealants and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Test and Evaluation Reports: submit test reports in accordance with Section 01 45 00 - Quality Control, from approved independent testing laboratory, certifying partition system complies with , fire-resistance rating as specified.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements .
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
 - .3 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.
 - .4 Store and protect partition materials from nicks, scratches, and blemishes.
 - .5 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Performance / Design Criteria:
 - .1 Partition assembly Type C to be 1 hour fire resistance rated.
 - .2 Minimum sound transmission class rating of installed panel partition to be STC 30, tested to ASTM E90.
- .2 Non-structural Metal Framing:
 - .1 Non-load bearing channel stud framing: to 92 mm stud size, roll formed from 0.53 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.

- .2 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
- .3 Metal channel stiffener: 19 x 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.
- .3 Gypsum Board:
 - .1 Metal furring runners, hangers, tie wires, inserts, anchors: to ASTM C1002.
 - .2 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
 - .3 Steel drill or tapping screws: to ASTM C954 or ASTM C1002.
 - .4 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, metal, 0.5 mm base thickness, perforated flanges, one piece length per location.

2.2 ACCESSORIES

- .1 Acoustical insulation: type recommended by manufacturer to achieve STC rating specified.
- .2 Sealants: in accordance with Section 07 92 00 - Joint Sealants to ASTM C475.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to partition installation.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative .

3.2 ERECTION OF FRAMING

- .1 Install steel framing members to receive screw-attached gypsum board in accordance with ASTM C754 except where specified otherwise.
- .2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.
- .3 Place studs vertically at 400 mm on centre and maximum of 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

- .4 Erect metal studding to tolerance of 1:1000.
- .5 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .6 Include two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .7 Install heavy gauge single jamb studs at openings.
- .8 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
- .9 Include 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
- .10 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .11 Extend partitions to ceiling height except where indicated.
- .12 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.
- .13 Install continuous insulating strips to isolate studs from uninsulated surfaces.
- .14 Install insulating strip under studs and tracks around perimeter of sound control partitions.

3.3 ERECTION OF GYPSUM BOARD AND ACCESSORIES

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .3 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.
- .5 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

- .8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .9 Install acoustical insulation sealant in sound rated partitions to correspond with tested assembly.
- .10 Install gypsum boards in direction that will minimize number of end-butt joints. Stagger end joints 250 mm minimum.

3.4 APPLICATION

- .1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single layer gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.

3.5 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 using contact adhesive for full length 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. Seal joints with sealant.
- .4 Install access doors to electrical and mechanical fixtures specified in respective sections.
 - .1 Rigidly secure frames to furring or framing systems.
- .5 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .6 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .7 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .8 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each work day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

- .3 Waste Management: separate waste materials for reuse recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal .
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

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

3.8 SCHEDULES

- .1 Construct fire rated assemblies where indicated. Refer to drawing A1 for locations and Partition Type Drawing Details.
 - .1 Partition Type A: 0 hours fire rated partition assembly from finished floor to underside of structural ceiling: 92 mm steel studs @ 600mm o.c. with 89 mm sound absorptive batt & 12.7 mm Gypsum Board both sides; perimeter caulking. Clearstory lites as per Drawing A1 detail.
 - .2 Partition Type B: 0 hours fire rated partition assembly from finished floor to underside of structural ceiling: 92 mm steel studs @ 600mm o.c. with 89 mm sound absorptive batt & 15.9 mm Gypsum Board both sides, perimeter caulking
 - .3 Partition Type C: 1 hours fire rated partition assembly from finished floor to underside of structural ceiling: 92 mm steel studs @ 600mm o.c. with 89 mm sound absorptive batt & 15.9 mm Type X Gypsum Board both sides, perimeter caulking
ULC Design No. UL Des U465.
 - .4 Partition Type D: EXISTING PARTITION: 45 min. hour fire rated partition assembly from floor to underside of suspended ceiling: inspect partition and repair all openings and penetrations at mechanical and electrical services above finished ceiling. Ensure partition meets fire stop requirements and match existing assembly of 15.9 mm Type X Gypsum Board both sides.
ULC Design No. UL Des U423 (minimum requirement)

END OF SECTION

Approved: 2007-12-31

Part 1 General

1.1 RELATED REQUIREMENTS

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
 - .1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).
 - .2 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).
 - .3 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-75.1-M88, Tile, Ceramic.
- .3 Canadian Standards Association (CSA International)
- .4 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- .5 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.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Include manufacturer's information on:
 - .1 Ceramic tile, marked to show each type, size, and shape required.
 - .2 Levelling compound.
 - .3 Latex cement mortar and grout.
 - .4 Waterproofing isolation membrane.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Wall tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.

1.4 QUALITY ASSURANCE

- .1 Quality Assurance Submittals:

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

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 AMBIENT CONDITIONS

- .1 Maintain air temperature and structural base temperature at ceramic tile installation area above 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.

1.7 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.
 - .3 Maintenance material same production run as installed material.

Part 2 Products

2.1 WALL TILE

- .1 Ceramic tile: to CAN/CGSB-75.1, 4" x 16" (102 x 406 mm) size, glazed surface, Olympia QT.CD.TPE.O416.BR, Bright Taupe colour.
- .2 Edge trim to be: Schluter JOLLY as per Finish Schedule on Drawing A3.

2.2 MORTAR AND ADHESIVE MATERIALS

- .1 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.
- .2 Adhesives:
 - .1 Maximum VOC limit 65 g/L to SCAQMD Rule 1168.

- .2 Bond Coat: maximum VOC limit 65 g/L to SCAQMD Rule 1168.

2.3 GROUT

- .1 Un-sanded Cement Grout: to ANSI A118.1. Product name: Mapei, Col: 02 pewter

2.4 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 Compliance: comply 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 Apply tile or backing coats to clean and sound surfaces.
- .3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.
- .4 Maximum surface tolerance 1:800.
- .5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.
- .6 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .7 Install divider strips at junction of tile flooring and dissimilar materials.
- .8 Allow minimum 24 hours after installation of tiles, before grouting.
- .9 Clean installed tile surfaces after installation and grouting cured.

3.3 WALL TILE

- .1 Install in accordance with TTMAC in "Brick" pattern. See detail Drawing A5 Elevation 1.

3.4 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Mechanical Divisions
- .2 Electrical Divisions

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C635/C635M-07, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
 - .2 ASTM C636/C636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - .3 ASTM E1477-98a(2008), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
 - .2 GS-11-2008, 2nd Edition, Paints and Coatings.
- .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, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2007, Architectural Coatings.
- .5 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-2007, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for ceiling panels and ceiling suspension system and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and 01 35 43 - Environmental Procedures.

- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in New Brunswick, Canada.
 - .2 Submit reflected ceiling plans for special grid patterns as indicated.
 - .3 Indicate lay-out, insert and hanger spacing and fastening details, splicing method for main and cross runners, change in level details, and acoustical unit support at ceiling fixture lateral bracing and accessories.
- .4 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate full size samples of each type acoustical units.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
 - .3 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.
 - .4 Store and protect acoustic ceiling materials from nicks, scratches, and blemishes.
 - .5 Replace defective or damaged materials with new.

Part 2 Products

2.1 COMPONENTS

- .1 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1.
 - .1 Type Fibreglass, 50% Re-cycled content.
 - .2 Pattern , Class A.
 - .3 Flame spread rating of 25 or less in accordance with CAN/ULC-S102.
 - .4 Smoke developed 50 or less in accordance with CAN/ULC-S102.
 - .5 Noise Reduction Coefficient (NRC) designation of 0.9.
 - .6 Light Reflectance (LR) range of .80 to ASTM E1477.

- .7 Edge type Square Lay-In
- .8 Colour white.
- .9 Size 610mm x 122mm x 12.7 mm thick.
- .10 Shape flat.
- .2 Acoustical Suspension:
 - .1 Intermediate duty system to ASTM C635.
 - .2 Basic materials for suspension system: commercial quality cold rolled steel, zinc coated.
 - .3 Suspension system: non fire rated, two directional exposed tee bar grid.
 - .4 Exposed tee bar grid components: shop painted satin sheen, white colour. Components die cut. Main tee with double web, rectangular bulb and 25 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.
 - .5 Hanger wire: galvanized soft annealed steel wire, 3.6 mm diameter for access tile ceilings.
 - .6 Hanger inserts: purpose made.
 - .7 Carrying channels:
 - Equivalent to existing in scope of work area.
 - .8 Accessories: splices, clips, wire ties, retainers and wall moulding flush , to complement suspension system components, as recommended by system manufacturer.
- .3 Performance/Design Criteria:
 - .1 Maximum deflection: 1/360th of span to ASTM C635 deflection test.

2.2 ACCESSORIES

- .1 Touch-up paint: in accordance with manufacturer's recommendations for surface conditions:
 - .1 Paint: VOC limit 250 g/L maximum to GS-11 SCAQMD Rule 1113.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to acoustical ceiling installation.
 - .1 Visually inspect substrate in presence of Departmental Representative
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

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

3.2 INSTALLATION

- .1 Installation: in accordance with ASTM C636 except where specified otherwise.
- .2 Suspension System:
 - .1 Erect ceiling suspension system after work above ceiling has been inspected by Departmental Representative.
 - .2 Secure hangers to overhead structure using attachment methods acceptable to Departmental Representative .
 - .3 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.
 - .4 Lay out system according to reflected ceiling plan.
 - .5 Install wall moulding to provide correct ceiling height.
 - .6 Completed suspension system to support super-imposed loads, such as lighting fixtures diffusers grilles and speakers.
 - .7 Support at light fixtures diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
 - .8 Interlock cross member to main runner to provide rigid assembly.
 - .9 Ensure finished ceiling system is square with adjoining walls and level within 1:1000.
- .3 Acoustic Panels:
 - .1 Install acoustical panels and tiles in ceiling suspension system.
 - .2 Co-ordinate ceiling work with work of other sections such as interior lighting, fire protection communication, and intrusion and detection systems.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

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

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C501-84(2009, Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by Taber Abraser.
 - .2 ASTM D2047-04, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
 - .3 ASTM F1066-04, Standard Specification for Vinyl Composition Floor Tile.
- .2 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2007, Architectural Coatings.
 - .2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for flooring, adhesive, primer, sealer, and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and 01 35 43 - Environmental Procedures.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate 300 x 300 mm sample pieces of sheet material.
 - .4 Submit duplicate full size samples of each type of flooring material.
 - .5 Recycled Content:
 - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing percentages of post-consumer post-industrial content.
 - .2 Low-Emitting Materials:
 - .3 Submit listing of adhesives primers coatings used in building, showing compliance with VOC and chemical component limits or restriction requirements.

1.4 CLOSEOUT SUBMITTALS

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

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements .
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect resilient flooring from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, packaging materials as specified in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal .

1.6 SITE CONDITIONS

- .1 Ensure high ventilation rate, with maximum outside air, during installation.
 - .1 Vent directly to outside.
 - .2 Do not let contaminated air recirculate through a district or whole building air distribution system.
 - .3 Maintain extra ventilation for 1 month minimum after building occupation.

Part 2 Products

2.1 RESILIENT SHEET FLOORING MATERIALS

- .1 Linoleum sheet flooring: composed of natural ingredients which are mixed and calendered onto a jute backing:
 - .1 L1 Flooring:
 - .1 Pattern: marbleized.
 - .2 Thickness: 2.5 mm.
 - .3 Colour & Product: as noted on Drawing A3 Finish Schedule from manufacturer's standard colour range.
 - .4 Slip resistance: static coefficient of friction to ASTM D2047.
 - .5 Wear resistance to ASTM C501.
 - .2 L3 Flooring: flooring supplied by ESDC.

- .1 Product: Linoleum-Forbo 3038 Caribbean.
- .2 Quantities available:
 - .1 3 rolls with 25.6 m² (30.62 yd²) on each roll, 2 m (79") wide
 - .2 One large bucket of glue, enough to lay all flooring

2.2 RESILIENT TILE FLOORING MATERIALS

- .1 Vinyl composition tile: to ASTM F1066, Composition 1 - non asbestos Class 2 - through pattern tile, 3.2 mm, 300 x 300 mm size, in standard colour as selected noted on Drawing A3 Finish Schedule from manufacturer's standard colour range.
- .2 Static dissipative vinyl composition tile: to ASTM F1066, Composition 1 - non asbestos Class 2 - through pattern tile, 3.2 mm, 300 x 300 mm size, in standard colour as selected noted on Drawing A3 Finish Schedule from manufacturer's standard colour range.

2.3 ACCESSORIES

- .1 Resilient base: continuous, top set, complete with pre-moulded end stops and external corners:
 - .1 Type: rubber, 3.0 mm thick.
 - .2 Style: straight and cove as noted on Drawing A3 Finish Schedule
 - .3 Height: 101.6 mm.
 - .4 Lengths: cut lengths minimum 2400 mm.
 - .5 Colour: as noted on Drawing A3 Finish Schedule from manufacturer's standard colour range.
- .2 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
 - .1 Adhesives: VOC limit 50 g/L maximum to SCAQMD Rule 1168.
 - .2 Primer: in accordance with manufacturer's recommendations for surface conditions:
 - .1 VOC limit: 50 g/L maximum to SCAQMD Rule 1113
- .3 Sub-floor filler and leveller: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.
- .4 Cap moulding; Polyvinyl chloride, square top cap for 3.18 mm resilient sheet material. Cap extends 6.35 mm over coved material with 1.91 cm glue surface.
- .5 Transition strip; Polyvinyl chloride, 6.35mm carpet to 3.18mm resilient materials, 1.59cm cap with 3.18mm wide support
- .6 Metal edge strips: extruded aluminum, smooth, mill finish stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

- .7 Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.
 - .1 Coating: VOC limit 50 g/L maximum to SCAQMD Rule 1113.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative .
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- .2 Ensure concrete floors are clean and dry by using test methods recommended by flooring manufacturer.

3.2 PREPARATION

- .1 Prepare for installation in accordance with manufacturer's written recommendations.
- .2 Remove sub-floor ridges and bumps and fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface.
 - .1 Prohibit traffic until filler is completely cured and dry.
- .4 Ensure existing carpet & linoleum flooring is removed by trained personnel.
- .5 Remove or treat existing adhesives to prevent residual bleeding through to new flooring or interfering with bonding of new adhesives.
- .6 Prime concrete slab as recommended by resilient flooring manufacturer's written instructions.

3.3 APPLICATION: FLOORING

- .1 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive that can be covered by flooring before initial set takes place.
- .2 Resilient sheet flooring:
 - .1 Lay flooring with seams parallel to building lines to produce minimum number of seams.
 - .2 Border widths: 1/3 minimum width of full material.

- .3 Run sheets in direction of traffic. Double cut sheet joints and heat weld according to manufacturer's written instructions.
 - .1 NOTE: Install in Rooms 018 & 019 install best way to reduce waste using L1 flooring supplied by ESDC.
- .4 Heat weld seams of linoleum sheet flooring in accordance with manufacturer's written instructions.
- .3 Resilient tile flooring:
 - .1 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern.
 - .2 Border tiles: half tile width minimum.
 - .3 Install flooring to square grid pattern with joints aligned in colour pattern indicated on Finish Schedule, drawing A3.
- .4 As installation progresses, and after installation roll flooring with manufacturer's recommended roller weight minimum roller to ensure full adhesion.
- .5 Cut flooring neatly around fixed objects.
- .6 Continue flooring over areas which will be under built-in furniture.
- .7 Terminate resilient flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
- .8 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 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 pre-moulded end pieces at flush door frames.
- .7 Cope internal corners using pre-moulded corner units for right angle external corners and 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.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.

- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove excess adhesive from floor, base and wall surfaces without damage.
 - .2 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Protect new floors in accordance with manufacturer's printed instructions.
- .3 Repair damage to adjacent materials caused by resilient flooring installation.

3.7 SCHEDULES

- .1 Drawing A3 Finish Plan & Finish Schedule.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 09 65 99 - Resilient Flooring For Minor Works.

1.2 REFERENCES

- .1 American Association of Textile Chemists and Colorists (AATCC)
 - .1 AATCC Test Method 16-2004, Colorfastness to Light.
 - .2 AATCC Test Method 23-2005, Colorfastness to Burn Gas Fumes.
 - .3 AATCC Test Method 129-2005, Colourfastness to Ozone in the Atmosphere Under High Humidities.
 - .4 AATCC Test Method 134-2006, Electrostatic Propensity of Carpets.
 - .5 AATCC Test Method 171-2005, Carpets: Cleaning of; Hot Water Extraction Method.
 - .6 AATCC Test Method 175-2008, Stain Resistance: Pile Floor Coverings.
 - .7 AATCC Test Method 189-2007, Fluorine Content of Carpet Fibers.
- .2 ASTM International
 - .1 ASTM D297-93(2006), Standard Test Methods for Rubber Products-Chemical Analysis.
 - .2 ASTM D1335-05, Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings.
 - .3 ASTM D2661-08, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings.
 - .4 ASTM D1667-05, Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
 - .5 ASTM D3574-08, Standard Test Methods for Flexible Cellular Materials - Slab, Bonded, and Molded Urethane Foams.
 - .6 ASTM D3936-05, Standard Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Covering.
- .3 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-4.2 No. 22-2004, Textile Test Methods - Colourfastness to Rubbing (Crocking).

- .2 CAN/CGSB-4.2 No.27.6M-2004, Textile Test Methods - Flame Resistance - Methemine Tablet Test for Textile Floor Coverings.
- .3 CAN/CGSB-4.2 No. 76-94/ISO 2551: 1981, Textile Test Methods - Machine-Made Textile Floor Coverings - Determination of Dimensional Changes Due to the Effects of Varied Water and Heat Conditions.
- .4 CAN/CGSB-4.2 No.77.1-94/ISO 4919:2000, Textile Test Methods - Carpets - Determination of Tuft Withdrawal Force.
- .5 CAN/CGSB-4.129-93(R1997), Carpets for Commercial Use.
- .5 Health Canada
 - .1 C.R.C., c.923-10, Hazardous Products Act - Carpet Regulations, Part II of Schedule 1.
- .6 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .7 National Floor Covering Association (NFCA)
 - .1 National Floor Covering Specification Manual 2007.
- .8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2007, Architectural Coatings.
 - .2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.
- .9 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-07, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
 - .2 CAN/ULC-S102.2-07, Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-Installation Meetings:
 - .1 Convene pre-installation meeting 1 week prior to beginning work of this Section , with Contractor's Representative & Departmental Representative in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other construction subtrades.
 - .4 Review manufacturer's written installation instructions and warranty requirements.

- .2 Sequencing: sequence with other work in accordance with Section 01 32 16 Construction Progress Schedule. Comply with manufacturer's written recommendations for sequencing construction operations.
- .3 Scheduling: schedule with other work in accordance with Section 01 32 16 Construction Progress Schedule .

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for each carpet tile adhesive carpet protection subfloor patching compound and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and 01 35 43 - Environmental Procedures.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of New Brunswick, Canada.
 - .2 Information on shop drawings to indicate:
 - .1 Nap: direction, open edges, special patterns.
- .4 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate samples of each type of carpet tile specified and duplicate tiles for each colour selected.
- .5 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .6 Manufacturer's Instructions: submit manufacturer's installation storage instructions.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for installed products for incorporation into manual.
- .3 Warranty Documentation: submit warranty documents specified.
 - .1 Indicate: Carpet Tile.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra stock materials: deliver to Owner 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.
 - .1 Quantity: provide minimum 2% of:
 - .1 Carpet tile: 2%.
 - .2 Adhesives: 2%.
 - .2 Delivery, storage and protection : comply with Owner's requirements for delivery and storage of extra materials. Protect as follows:
- .2 Store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and
 - .1 according to manufacturer's instructions.

1.7 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Prequalification: compliance with Health Canada regulations under "Hazardous Products Act", Part II of Schedule 1, to CAN/CGSB-4.2 No. 27.6.
- .2 Qualifications:
 - .1 Manufacturer: capable of providing field service representation during construction and approving application method.
 - .2 Supplier: Shaw Industries.
 - .3 Flooring Installer/ Contractor:
 - .1 Experienced in performing work of this Section who has specialized in installation of work similar to that required for this project.
 - .2 Certified by carpet manufacturer prior to tender submission.
 - .3 Must not sub-contract labour without written approval of Departmental Representative .
 - .4 Responsible for proper product installation, including floor testing and preparation as specified and in accordance with carpet manufacturer's written instructions.

1.8 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:

- .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
- .3 Store and protect carpet tile adhesive in original containers or wrapping with manufacturer's seals and labels intact.
- .4 Store and protect carpet tile and accessories in location as directed by Departmental Representative.
- .5 Store carpet and adhesive at minimum temperature of 18 degrees C and relative humidity of maximum 65% for minimum of 48 hours before installation.
- .6 Prevent damage to materials during handling and storage. Keep materials under cover and free from dampness.
- .7 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
- .8 Replace defective or damaged materials with new.

1.9 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Moisture: ensure substrate is within moisture limits and alkalinity limits recommended by manufacturer. Prepare moisture testing and provide report to Departmental Representative .
 - .2 Temperature: maintain ambient temperature of not less than 18 degrees C from 48 hours before installation to at least 48 hours after completion of work.
 - .3 Relative humidity: maintain between 10% and 65% for 48 hours before, during and 48 hours after installation.
 - .4 Ventilation:
 - .1 Departmental Representative will co-ordinate operation of ventilation system during installation of carpet. Ventilate area of work as directed by Departmental Representative by use of approved portable supply and exhaust fans.
 - .2 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 Install carpet tile after space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete.

1.10 WARRANTY

- .1 Manufacturer's warranty: submit, for Departmental Representative's acceptance, manufacturer's standard warranty document executed by authorized company

official. Manufacturer's warranty is in addition to and does not limit other rights Owner may have under Contract Documents.

- .2 Warranty period: 1 year, commencing on date of substantial performance of work.
 - .1 Warranty covers labour, repair or replacement of defective components for 1 year after date of substantial performance.

Part 2 Products

2.1 MATERIALS

- .1 Manufacturers:
 - .1 Ensure manufacturer has minimum 5 years' experience in manufacturing components similar to or exceeding requirements of project.
- .2 Description:
 - .1 Adhesives: VOC limit 50 g/L maximum to SCAQMD Rule 1168 GS-36.
 - .2 Primer Sealer: in accordance with manufacturer's recommendations for surface conditions:
 - .1 VOC limit: 50 g/L maximum to SCAQMD Rule 1113
 - .3 Carpet and Accessories:
 - .1 Green Label Plus certified.
 - .2 10% minimum Post-consumer 32% pre-consumer recycled content.

2.2 PERFORMANCE

- .1 Flammability: certified for flammability to Health Canada regulations under "Hazardous Products - Carpet Regulations", Part II of Schedule 1.
- .2 Flame Spread: maximum flame spread rating 300, maximum smoke developed classification 500, when tested to CAN/ULC-S102.2.
- .3 Smoke Development: 450 or less per ASTM E662.
- .4 Dry Breaking Strength: to ASTM D2661, minimum acceptable tear strength in both length and width:
 - .1 11.3 kg for carpets installed by glue down installation.
- .5 Wear: maximum 10% of pile face fiber by weight for 10 years.
- .6 Edge Ravel: none for 10 years.
- .7 Static Resistance: permanent static control to AATCC 134, 3000 V maximum at 20% RH and 22 degrees C.
- .8 Static Generation: less than 3.0 kV per AATCC 134 for 10 years.

- .9 Tuft Bind: Tuft Lock: to ASTM D1335 CAN/CGSB-4.129, minimum acceptable 1.6 kilograms for cut pile product 3.6 for loop pile product.
- .10 De-lamination of Secondary Backing: Lamination Strength of Secondary Backing: to ASTM D3936, minimum acceptable peel strength of 1.6 kg/25 mm.
- .11 Stain resistance: to AATCC 175, 8.
- .12 Soil Resistance: Fluorine Durability Level to AATCC 189 350 ppm fluorine minimum.
- .13 Colourfastness to light: to CAN/CGSB-4.2 No.18.3 AATCC 16.
- .14 Colourfastness to atmosphere: to AATCC 129 AATCC 23.
- .15 Colourfastness to crocking: to CAN/CGSB-4.2 No. 22.
- .16 Indoor Air Quality Certification: certified to CRI Green Label Plus IAQ requirements.

2.3 FABRICATION

- .1 Type Shaw Industries, Multi-level loop, Carpet Tile, pattern Evolve, colour 59415, size 600 mm x 600 mm. See Drawing and finish schedule A-3
- .2 Pile Surface Appearance:
 - .1 Multi-level loop: concealed-pile sculptured.
- .3 Pile fibre: to CAN/CGSB-4.129.
 - .1 Nylon: BCF staple.
 - .1 Eco solution nylon
- .4 Dyeing Method: 50% solution dyed& 50% space dyed.
- .5 Tufted Carpet Backing: to CAN/CGSB-4.129.
 - .1 Primary backing:
 - .1 Synthetic
- .6 Secondary and Unitary Backings: to CAN/CGSB-4.129.
- .7 Tufted Weight Density: 22lb./745 g/m².

2.4 ACCESSORIES

- .1 Adhesive:
 - .1 Multi-purpose Adhesive Type: recommended by carpet tile manufacturer for direct glue down installation.
 - .2 On site application VOC limit: 50 g/L maximum to SCAQMD Rule 1168.
 - .3 Adhesive in compliance with CCD-152.
- .2 Transition Mouldings:
 - .1 Carpet edge / reducer strip: Carpet to Linoleum threshold strip: PVC. See Drawing and finish schedule A-3

- .3 Carpet protection: non-staining heavy duty kraft paper.
- .4 Concrete floor sealer primer:
 - .1 VOC limit: 100 g/L maximum to SCAQMD Rule 1113.
- .5 Subfloor patching compound: Portland cement base filler, mix with latex to form cementitious paste.

Part 3 Execution

3.1 INSTALLERS

- .1 Use experienced and qualified technicians to carry out assembly and installation of tile carpet.

3.2 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for carpet tile installation in accordance with manufacturer's written instructions.
 - .1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.3 PREPARATION

- .1 Subfloor Preparation:
 - .1 Inspect concrete and determine special care required to make it a suitable for carpet tile.
 - .2 Fill and level cracks 3 mm wide or protrusions over 0.8 mm with appropriate and compatible latex patching compound.
 - .3 Comply with manufacturer's written recommendations for maximum patch thickness.
 - .4 Prime large patch areas with compatible primer.
 - .5 Ensure concrete substrates are cured, clean and dry.
 - .6 Ensure concrete substrates are free of paint, dirt, grease, oil, curing or parting agents, and other contaminates, including sealers, that interfere with the bonding of adhesive.
 - .7 Where powdery or porous concrete surface is encountered, apply primer compatible with adhesive to provide a suitable surface for glue-down installation.
- .2 Surface Preparation: prepare surface in accordance with manufacturers written.

- .1 Prepare floor surfaces in accordance with CRI Carpet Installation Standard.
- .3 Tile Carpeting Preparation:
 - .1 Pre-condition carpeting: following manufacturer's written instructions.
- .4 Demolition / Removal:
 - .1 Remove and divert or return carpet for recycling & reclamation in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal. Co-ordinate with Departmental Representative.
 - .2 Vacuum used carpet before removal.
 - .3 Maintain possession of removed used carpet.
 - .4 Remove used tiles and pack in container pallets. Use effective packing techniques to maximize amount of material in container.
 - .5 Sort only clean, dry carpet tiles for reclamation. Clean is defined as carpet free from demolition debris, asbestos contamination, garbage, knife blades and tack strips.
 - .6 Carpet under-cushion: provide recycling of carpet padding where locally available or as designated by carpet reclamation program.

3.4 INSTALLATION

- .1 Install carpet tiles in accordance with manufacturer's written instructions, and CRI Carpet Installation Standard.
- .2 Co-ordinate tile carpeting work with work of other trades, for proper time and sequence to avoid construction delays.
- .3 Install carpet tile after finishing work is completed but before demountable office partitions and telephone and electrical pedestal outlets are installed.
- .4 Install carpet tile as per manufacturer's recommendation in quarter-turn format.
- .5 Snugly join carpet tiles in completed installation.
 - .1 Measure distance covered by 11 carpet tiles (10 joints) and ensure distance is in compliance with manufacturer specifications.
 - .2 Do not trap yarn between carpet tiles.
- .6 Apply thin film of pressure-sensitive adhesive according to manufacturer's recommendations.
- .7 Ensure finished installation presents smooth wearing surface free from conspicuous seams, burring and other faults.
- .8 Use material from same dye lot.
 - .1 Ensure colour, pattern and texture match within visual areas.
 - .2 Maintain constant pile direction.

- .9 Fit around architectural, mechanical, electrical and telephone outlets, and furniture fitments, around perimeter of rooms into recesses, and around projections.
- .10 Install carpet tiles to underfloor duct system and to access covers.
- .11 Install carpeting in pan type floor access covers.
- .12 Extend carpet tiles into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- .13 Install carpet tiles smooth and free from bubbles, puckers, and other defects.
- .14 Protect exposed carpet tile edges at transition to other flooring materials with suitable transition strips.
- .15 Base Installation: See: Section 09 65 99 - Resilient Flooring For Minor Works.

3.5 SITE QUALITY CONTROL

- .1 Site Tests and Inspections:
 - .1 Co-ordinate site test with Section 01 45 00 - Quality Control.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
 - .1 Vacuum carpets clean immediately after completion of installation.
- .2 Waste Management: separate waste materials for reuse recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Prohibit traffic on carpet for period of 24 hours minimum after installation and until adhesive is cured.
- .3 Install carpet protection to satisfaction of Departmental Representative.
- .4 Repair damage to adjacent materials caused by tile carpeting installation.

3.8 ATTACHMENTS

- .1 Schedules:

- .1 See Drawing A3 for Finish Schedule and carpet tile location and pattern.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

1.2 REFERENCES

- .1 Green Seal Environmental Standards (GS)
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
 - .2 Maintenance Repainting Manual - current edition.
- .4 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2007, Architectural Coatings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for paint and coating products and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and 01 35 43 - Environmental Procedures.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards.
 - .4 Low-Emitting Materials:
 - .1 Submit listing of paints and coatings used in building, comply with VOC and chemical component limits or restriction requirements.

1.4 DELIVERY, STORAGE AND HANDLING

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

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Provide and maintain dry, temperature controlled, secure storage.
 - .2 Store painting materials and supplies away from heat generating devices.
 - .3 Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.
- .4 Fire Safety Requirements:
 - .1 Supply 1 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.
- .5 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, packaging materials as specified in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal .

1.5 **SITE CONDITIONS**

- .1 Heating, Ventilation and Lighting:
 - .1 Co-ordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
 - .2 Provide minimum lighting level of 323 Lux on surfaces to be painted.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.
 - .2 Test concrete, masonry and plaster surfaces for alkalinity as required.
 - .3 Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.
- .3 Additional application requirements:
 - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
 - .2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

2.1 MATERIALS

- .1 Supply paint materials for paint systems from single manufacturer.
- .2 Conform to latest MPI requirements for painting work including preparation and priming.
- .3 Materials in accordance with MPI - Architectural Painting Specification Manual MPI - Maintenance Repainting Manual "Approved Product" listing.
 - .1 Use MPI listed materials having E3 rating where indoor air quality requirements exist.
 - .2 Primer: VOC limit 100 g/L maximum to GS-11.
 - .3 Paint: VOC limit 100 g/L maximum to GS-11 .
- .4 Colours:
 - .1 Submit proposed Colour Schedule to Departmental Representative for review.
- .5 Mixing and tinting:
 - .1 Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written recommendations. Obtain written approval from Departmental Representative for tinting of painting materials.
 - .2 Use and add thinner in accordance with paint manufacturer's recommendations.
 - .1 Do not use kerosene or similar organic solvents to thin water-based paints.
 - .3 Thin paint for spraying in accordance with paint manufacturer's written recommendations.
 - .4 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.
- .6 Gloss/sheen ratings:
 - .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

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

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

- .7 Interior painting:
 - .1 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
 - .1 INT 5.1E Alkyd - 5 finish.
 - .2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
 - .1 INT 5.3C - Alkyd 5 finish (over cementitious primer).
 - .3 Dressed Lumber: doors, door and window frames, casings, mouldings, etc.:
 - .1 INT 6.3A - Latex 5 finish.
 - .2 INT 6.3B - Alkyd 5 finish.
 - .4 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.
 - .1 INT 9.2A - Latex 3 finish (over latex sealer).
- .8 Interior re-painting:
 - .1 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
 - .1 RIN 5.3C - Alkyd 5.
 - .2 Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock" type material, etc.
 - .1 RIN 9.2A - Latex 3.

Part 3 Execution

3.1 GENERAL

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

3.2 EXAMINATION

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

3.3 PREPARATION

- .1 Protection of in-place conditions:

- .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative .
- .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .3 Protect factory finished products and equipment.
- .2 Surface Preparation:
 - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
 - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
 - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative .
 - .4 Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual specific requirements and coating manufacturer's recommendations.
 - .5 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 pre-treatment as soon as possible after cleaning and before deterioration occurs.
 - .6 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.
 - .7 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.
 - .8 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.
 - .9 Touch up of shop primers with primer as specified.

3.4 APPLICATION

- .1 Paint only after prepared surfaces have been accepted by Departmental Representative
- .2 Use method of application approved by Departmental Representative .

- .1 Conform to manufacturer's application recommendations.
- .3 Apply coats of paint in continuous film of uniform thickness.
 - .1 Repaint thin spots or bare areas before next coat of paint is applied.
- .4 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .5 Sand and dust between coats to remove visible defects.
- .6 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.
 - .1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
 - .2 Do not paint over nameplates.
 - .3 Keep sprinkler heads free of paint.
 - .4 Paint fire protection piping red.
 - .5 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
 - .6 Paint natural gas piping yellow.
 - .7 Paint both sides and edges of backboards for telephone and electrical equipment before installation.
 - .1 Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal .
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .4 Place paint primer defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.

END OF SECTION