

PART 1 - GENERAL**1.1 RELATED REQUIREMENTS**

- .1 Section 01 74 19 – Waste Management and Disposal.
- .2 Section 05 50 00 – Metal Fabrications.
- .3 Section 06 40 00 – Architectural Woodwork.
- .4 Section 08 80 50 – Glazing.
- .5 Division 14.

1.2 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI)/Tile Council of North America
 - .1 ANSI A108/A118 /A136.1-2013, American National Specification for the Installation of Ceramic Tile - A Collection of 20 ANSI A108.1A-C, 108.4-13, A118.1-10, ANSI A136.1.
 - .2 ANSI A208.1-09, Particleboard.
 - .2 ASTM International
 - .1 ASTM C 144-11, Standard Specification for Aggregate for Masonry Mortar.
 - .2 ASTM C 150/C 150M-12, Standard Specification for Portland Cement.
 - .3 ASTM C 207-06(2011), Standard Specification for Hydrated Lime for Masonry Purposes.
 - .4 ASTM C 568/C 568M-10, Standard Specification for Limestone Dimension Stone.
 - .5 ASTM C 615/C 615M-11, Standard Specification for Granite Dimension Stone.
 - .6 ASTM C 629/C 629M-10, Standard Specification for Slate Dimension Stone.
 - .7 ASTM C 847-14, Standard Specification for Metal Lath.
 - .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .4 CSA Group
 - .1 CSA A3000-13, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
 - .2 CSA O151-09(R2014), Canadian Softwood Plywood.
 - .3 CAN/CSA-Z809-08(R2013), Sustainable Forest Management.
 - .5 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001 (V4-0)-2013, FSC Principle and Criteria for Forest Stewardship.
 - .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
 - .7 South Coast Air Quality Management District (SCAQMD)
 - .1 SCAQMD Rule 1168-A2011, Adhesive and Sealant Applications.
 - .8 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2010-2014 Standard.
 - .9 Terrazzo Tile and Marble Association of Canada (TTMAC)
 - .1 Tile Specification Guide 09 30 00 2013, Tile Installation Manual.
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- .2 Tile Maintenance Guide 2000.
- .10 Tile Council of America (TCA), Inc.
 - .1 2014 Handbook for Ceramic, Glass and Stone Tile Installation.

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 stone flooring and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 The drawings must show special pattern, dimensions, as well as joint location and details.
- .3 Samples:
 - .1 Submit one (1) 300 x 300 mm size panel c/w approved grout colour; mounted to 19 mm thick plywood backer.

1.4 CLOSEOUT SUBMITTALS

- .1 Submit 2 copies of TTMAC maintenance recommendations to Departmental Representative in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide specific warning of maintenance practices or materials that may damage or disfigure finished work.
- .3 Submit product data and WHMIS MSDS sheets for floor sealer products.
- .4 Where more than one manufacturer's products are part of single tile assembly, arrange for each manufacturer to submit written statement compatibility with respect to other manufacturers' materials.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Materials:
 - .1 Provide extra stock in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Extra Stock: 4 m² or 2 %, whichever is greater, of each type and colour of tile; marked to identify:
 - .1 Manufacturer's name.
 - .2 Product's name.
 - .3 Product colour and pattern.
 - .3 Package tile products in original containers, to prevent damage.

1.6 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Installer's Qualifications: skilled, trained and experienced in tile work and registered as members of Terrazzo Tile and Marble Association of Canada.
 - .2 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.
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1.7 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 off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect specified materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Waste Management and Disposal:
 - .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .2 Package Waste Management: recover packaging waste for reuse and manufacturer reuse of packaging materials such as pallets, crates, boards and other packaging material, in accordance with Section 01 74 19 – WASTE MANAGEMENT AND DISPOSAL.

1.8 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.
 - .2 Maintain temperatures at or above 12 degrees C until cementitious materials have fully cured.
 - .3 Do not apply epoxy mortar and grouts at temperatures below 20 degrees C or above 35 degrees C.

PART 2 - PRODUCTS

2.1 TILE MATERIALS

- .1 Stone Tile : granite, to ASTM C 615/C 615M, as follows:
 - .1 Mass absorption rate (ASTM C97) : 0,1015 metric
 - .2 Volumetric weight (ASTM C97) : 2 867.3 kg/m³
 - .3 Flexural strength (ASTM C880) : 20,2 MPa
 - .4 Dimensions : cut to measure, dimensions as indicated in drawings. Provide 4 different dimensions. Provide 2 mm joints.
 - .5 Thickness: 12 mm
 - .6 Colour and finish: Cambrian Black, without resin or stain, polished mat finish.
 - .7 Quarry: St-Nazaire in Quebec
 - .8 Reference product: Polycor, colour Cambrian Black, distributed by Ciot.

2.2 MORTAR MATERIALS

- .1 Portland cement: to ASTM C 150/C 150M, Type I.
 - .2 Dry-Set Portland cement mortar: to ANSI A118.1.
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- .3 Polymer-modified very smooth cement-glue, superior quality for large format heavy tiles ayant les caractéristiques suivantes :
 - .1 Shear strength, tiles on plywood (ANSI A118.11)
 - .2 Cement-glue for large format heavy tiles (ANSI A118.15H): successful
 - .3 Adherence to plywood (ISO 1307) : P1 > 0,5 MPa
 - .4 Life span of mixture: 4 hours at 23°C and 50 % humidity
- .4 Accelerated curing mortar screed for slope, to be used in the elevator pit, aggregate-free, with the following properties :
 - .1 Compressive strength (CAN/CSA-A5 (ASTM C109) :
 - .1 1 day >13,8 MPa
 - .2 7 days > 18,6 MPa
 - .2 Flexural strength CAN/CSA-A23.2-8C (ASTM C348) : at 28 days > 5 MPa
- .5 Polymer-modified, two-component flexible cementitious mortar, with the following properties :
 - .1 Tensile strength (ASTM C307) : at 28 days > 5 MPa
 - .2 Water vapour permeability (ASTM E96) : 4,8 perms

2.3 GROUT MATERIALS

- .1 All-in-one grout, fast-drying, polymer-modified, with fine aggregates and ultra-superior quality, shrinkage-free for narrow joints, to ISO 13007 and with the following properties:
 - .1 Stain resistant, sans efflorescence (free of Portland cement)
 - .2 Compressive strength (ANSI A118.7) : 20,7 to 37,9 MPa at 28 days
 - .3 Water absorption (ANSI A118.7) : < 5 % (50 % relative humidity to immersion)
 - .4 Flexural strength (ANSI A118.7) : 6,90 to 9,66 MPa at 28 days
- .2 Water: clean, cold and drinkable.

2.4 TILE SEALANT

- .1 Protection sealant for granite tiles, such as standard Lithofin PSI or type recommended by granite tile distributor.

2.5 ACCESSORIES

- .1 Floor moulding for tiling, rounded shape, stainless steel, type 304 brushed finish, 25 mm x 6 mm.

2.6 MIXES

- .1 Follow manufacturer's written recommendations.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for stone flooring 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 Verify substrate surfaces are clean, dimensionally stable, cured and free of contaminants such as oil, sealers and curing compounds.
- .3 Beginning of installation implies acceptance of existing conditions.
- .4 Report in writing any unsuitable conditions to Departmental Representative. Proceed with work only after written instruction is received from Departmental Representative.

3.2 MANUFACTURER'S INSTRUCTIONS

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

3.3 PREPARATION

- .1 Protect surrounding work from damage or disfiguration.
- .2 Clean surfaces which are to receive tile finish to ensure removal of grease, oil or dust film.
- .3 Securely screw or staple underlay to subfloor, smooth face up. Space sheets 6 mm apart.
- .4 Apply latex cementitious levelling coat wherever slight substrate irregularity exists.
 - .1 Limit levelling coat thickness to less than 8 mm where thin-set tile methods are to be used.
- .5 Follow manufacturer's written recommendations.
- .6 Granite is a natural material composed of a wide variety of chemical and mineral elements that can cause unpredictable reactions. As a result, determine compatibility of all materials before doing the work and perform a product test to ensure that there is no discoloration and stain formation. Submit and wait for Departmental Representative's written acceptance before proceeding with work.

3.4 INSTALLATION

- .1 Install materials to requirements of TTMAC Tile Installation Manual - Specification Guide 09300 as scheduled below.
 - .2 Fit tile units around corners, fitments, fixtures, drains and other built-in objects to maintain uniform joint appearance.
 - .3 Make cut edges smooth, even and free from chipping. Do not split tile.
 - .4 Lay out tiles as indicated so that perimeter and cut tiles are no less than half size.
 - .5 Set tiles in place while bond coat is wet and tacky, prior to skinning over. Slide tile back and forth to ensure a proper bond and level surface. Avoid slippage.
 - .6 Clean backs of tiles and back butter tiles to ensure a 95% bond coverage.
 - .7 Clean excess mortar from surface prior to final set.
 - .8 Sound tiles after setting materials have cured and replace hollow sounding tile before grouting.
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- .9 Keep 2/3 of depth of grout joints free of setting material.

3.5 JOINTS DE FRACTIONNEMENT

- .1 Not Used.

3.6 GROUTING

- .1 Allow proper setting time prior to grouting. Sound tiles after setting materials have cured and replace hollow sounding tile before grouting.
- .2 Preseal tiles requiring protection from grout staining.
- .3 Force grout into joints to ensure dense finish.
- .4 Remove excess and polish with clean cloths.

3.7 TOLERANCES

- .1 Level tiles to a tolerance of 0.5 mm per joint.

3.8 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 Apply floor sealer in accordance with manufacturer's instructions.

3.9 SEALANT APPLICATION

- .1 Apply a sealant to protect the granite, as recommended by manufacturer.

3.10 PROTECTION

- .1 Protect finished areas from traffic until setting materials have sufficiently cured.
- .2 Protect grouted areas from traffic for 24 hours after grouting.
- .3 Provide protective covering until Completion of Contract.
- .4 Protect wall tiles and bases from impact, vibration, heavy hammering on adjacent and opposite walls for at least 14 days after installation.

END OF SECTION
