

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 09 21 16 – Gypsum Board Assemblies

1.2 REFERENCE STANDARDS

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C 144-04, Specification for Aggregate for Masonry Mortar.
 - .2 ASTM C 207-06, Specification for Hydrated Lime for Masonry Purposes.
- .2 Canadian General Standards Board (CGSB)
 - .1 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
 - .2 CAN/CGSB-75.1-M88, Tile, Ceramic.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .4 Terrazzo Tile and Marble Association of Canada (TTMAC)
 - .1 Tile Specification Guide 09 30 00 2016/2017, 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 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.

- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Base tile: submit 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
 - .2 Floor tile: submit 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
 - .3 Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, colour, and size.

1.4 QUALITY ASSURANCE

- .1 Quality Assurance Submittals:
- .2 Manufacturer's Instructions: manufacturer's installation instructions.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
- .2 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

1.6 AMBIENT CONDITIONS

- .1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C for 48 hours before, during, and 48 hours after, installation.
- .2 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.
- .3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.

PART 2- PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

- .1 Materials and products in accordance with Section 01 47 15 – Sustainable Requirements

2.2 FLOOR TILE

- .1 Porcelain tile(PT1): to CAN/CGSB-75.1, Type 4 Class MR 1, 300 x 600 x 10 mm size, edges, slip resistant surface, pattern, colour as selected by Departmental Representative. Matching square base, 300 x 100 mm high.
- .2 Porcelain tile (PT2): 50 x 50 x 6 mm size, mosaic, unglazed square edge, slip resistant surface, water resistant, colour as selected by Departmental Representative.

2.3 WALL AND CEILING TILE

- .1 Ceramic tile (CT1): to CAN/CGSB-75.1, Type 5, Class MR 4, 100 x 100 mm size, 8 mm size, cushion edges, glazed surface, plain pattern, solid colour as selected by Departmental Representative.

2.4 TRIM SHAPES

- .1 Conform to applicable requirements of adjoining floor and wall tile.
- .2 Use slip resistant trim shapes for horizontal surfaces of showers, overflow ledges, recessed steps, shower curbs, drying area curbs, and stools.
- .3 Use trim shapes sizes conforming to size of adjoining field wall tile, including existing spaces, unless specified otherwise.
- .4 Internal and External Corners: provide trim shapes as follows where indicated.
 - .1 Bullnose shapes for external corners including edges.
 - .2 Coved shapes for internal corners.
 - .3 Special shapes for:
 - .1 Base to floor internal corners to provide integral coved vertical and horizontal joint.
 - .2 Base to floor external corners to provide bullnose vertical edge with integral coved horizontal joint. Use as stop at bottom of openings having bullnose return to wall.
 - .3 Wall top edge internal corners to provide integral coved vertical joint with bullnose top edge.
 - .4 Wall top edge external corners to provide bullnose vertical and horizontal joint edge.

2.5 MORTAR AND ADHESIVE MATERIALS

- .1 Cement: to CSA-A5, type 10.
- .2 Sand: to ASTM C 144, passing 16 mesh.
- .3 Hydrated lime: to ASTM C 207, Type N.
- .4 Latex additive: formulated for use in cement mortar and thin set bond coat.
- .5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

2.6 BOND COAT

- .1 Epoxy bond coat: non-toxic, non-flammable, non-hazardous during storage, mixing, application, and when cured. To produce shock and chemical resistant mortars having the following physical characteristics:

- .1 Compressive Strength: 246 kg/cm².
- .2 Bond Strength: 53 kg/cm².
- .3 Water Absorption: 4.0% Max.
- .4 Ozone Resistance, 200 hours @ 200 ppm: no loss of strength.
- .5 Smoke Contribution Factor: 0.
- .6 Flame Contribution Factor: 0.
- .7 Finished mortar and grout to be resistant to urine, dilute acid, dilute alkali, sugar, brine and food waste products, petroleum distillates, oil and aromatic solvents.

2.7 GROUT

- .1 Colouring Pigments:
 - .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C 979.
 - .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 Chemical-Resistant Grout:
 - .1 Epoxy grout: to ANSI A108.1, having quality, colour and characteristics to match epoxy bond coat. Adhesive and grout by same manufacturer.

2.8 ACCESSORIES

- .1 Reinforcing mesh: 50 x 50 x 1.6 x 1.6 mm galvanized steel wire mesh, welded fabric design, in flat sheets.
- .2 Water Proofing and Crack Control membrane:
 - .1 Fabric-reinforced, fluid applied membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.
- .3 Transition Strips: purpose made metal extrusion; anodized aluminum type.
- .4 Reducer Strips: purpose made metal extrusion; anodized aluminum type; maximum slope of 1:2.
- .5 Prefabricated Movement Joints: purpose made, having a Shore A Hardness not less than 60 and elasticity of plus or minus 40 percent when used in accordance to TTMAC Detail 301EJ.
- .6 Sealant: in accordance with Section 07 92 00 - Joint Sealants.
- .7 Prefabricated shower base: Trapezoid-imprinted, prefabricated, sloped tiled shower tray base, made of 44 kg/m³ density, self-extinguishing expanded polystyrene, with 313 mm diameter removable recessed section with 3 mm wide ribs on top and channels on the underside.
- .8 Prefabricated shower curb: Trapezoid-imprinted, prefabricated, tiled shower curb base, made of 44 kg/m³ density, self-extinguishing expanded polystyrene, curb dimensions: 1220 mm x 150 mm x 115 mm.

2.9 MIXES

- .1 Dry set mortar: mix to manufacturer's instructions.
- .2 Mix bond and levelling coats, and grout to manufacturer's instructions.
- .3 Adjust water volumes to suit water content of sand.

2.10 PATCHING AND LEVELLING COMPOUND

- .1 Cement base, acrylic polymer compound, manufactured specifically for resurfacing and leveling concrete floors. Products containing gypsum are not acceptable.
- .2 Have not less than the following physical properties:
 - .1 Compressive strength - 25 MPa.
 - .2 Tensile strength - 7 MPa.
 - .3 Flexural strength - 7 MPa.
 - .4 Density - 1.9.
- .3 Capable of being applied in layers up to 50 mm thick, being brought to feather edge, and being trowelled to smooth finish.
- .4 Ready for use in 48 hours after application.

2.11 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 2016/2017, "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 Lay out tiles so perimeter tiles are minimum 1/2 size.
- .7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .8 Make internal angles square, external angles with decorative edge protection trim.
- .9 Use round edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.
- .10 Install divider strips at junction of tile flooring and dissimilar materials.
- .11 Clean installed tile surfaces after installation and grouting cured.
- .12 Make control joints at 4.5 m in each direction. Make joint width same as tile joints. 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 Tile installed over gypsum board: Install in accordance with TTMAC detail 304W.
- .2 Tile installed over coated glass mat backer board: Install in accordance with TTMAC detail 305W.

3.4 FLOOR TILE

- .1 Install in accordance with TTMAC detail 313 F.

3.5 SHOWER RECEPTORS

- .1 Install in accordance with TTMAC detail 319SR.

3.6 FLOOR SEALER AND PROTECTIVE COATING

- .1 Apply in accordance with manufacturer's instructions.

3.7 CLEANING

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

END OF SECTION