
York University Building Standards

Note to the Designer/Architect/Engineer: These standards are basic minimum criteria to be met in preparing the final project specifications for this section, which is the responsibility of the Designer

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1.0 GENERAL

1.1 Conditions

- .1 This section defines relevant York University standards related to ceramic floor tiles, tile installation as well as ceramic and glass (mosaic) wall tiles and ceramic and glass wall tile installation

1.2 Sustainable Design Requirements

- .1 LEED Credit EQ 4.1: Where there are LEED requirements for a major renovation, or new construction project. Submit manufacturers' product data information for adhesives and sealant, including a printed assessment of VOC content

1.3 Scope of Work

- .1 This Section covers all materials, equipment, tools and labour required for the supply and installation of ceramic floor and wall tiles
- .2 Ceramic tiles referenced in this document refer to ceramic surfacing units manufactured from clay, or other ceramic materials
- .3 Types of ceramic tiles include:
 - 1. Interior glazed ceramic tile for interior walls
 - 2. Interior unglazed porcelain tile for interior floor applications
 - 3. Ceramic tile trim for floor base
 - 4. Glass tiles for walls

1.4 Related York University Standards

- .1 Painting Section 09 91 00
- .2 Metal Supports for Gypsum and Cement Board Section 09 21 00

1.5 References

- .1 Comply with applicable municipal, provincial, and federal building codes, and trade standards, unless more stringent requirements are given herein
- .2 All work covered by this Section shall be undertaken in accordance with the latest version of the Tile Installation Manual produced by the Terrazzo Tile and Marble Association of Canada (TTMAC)
- .3 ASTM C1028 -07e1 Standard Test method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Surfaces by the Horizontal Dynamometer Pull-Meter Method

- .4 CAN/CGSB-75.1-M88 Tile, Ceramic, Standards Council of Canada
- .5 Comply with relevant sections of the most up-to-date version of the Ontario Building Code
- .6 ASTM C373 – 88 (reapproved 2006) Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products
- .7 ASTM C1026 – 10 Standard Test Method for Measuring the Resistance of Ceramic Tile to Freeze-Thaw Cycling
- .8 ASTM C650 – 06 (2009) Standard Test Method for Resistance of Ceramic Tile to Chemical Substances
- .9 ASTM C648 - 04 (2009) Standard Test Method for Breaking Strength of Ceramic Tile
- .10 ANSI A118.7-2010 Specifications for Polymer Modified Cement Grouts for Tile Installation
- .11 ASTM A185/A185M-07 Standard Specification for Welded Wire Reinforcement, Plain, for Concrete
- .12 ASTM A82/A82M-07 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
- .13 ASTM C171-07 Standard Specification for Sheet Materials for Curing Concrete
- .14 ANSI A108/A118/A136.1 2011 American National Standards Specifications for the Installation of Ceramic Tile
- .15 ANSI A137.2 American National Standard Specifications for Glass Tile
- .16 ASTM C67 Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
- .17 CSA A82.5 Structural Clay Load-Bearing Wall Tile/ Structural Clay Non-Load-Bearing Tile/ Standard Methods for Sampling and Testing Structural Clay Tile
- .18 ASTM C847-12 Standard Specification for Metal Lath

1.6 Submittals

- .1 Contractors undertaking work must provide proof of membership to the Terrazzo Tile and Marble Association of Canada (TTMAC)
Product Data: Submit manufacturer's technical information and installation instructions for materials required and covered in this Section
- .2 Certified Test Reports: For large projects, submit certified test reports from qualified independent testing laboratory evidencing compliance of tile and tile setting products with requirements specified in this Section, based on comprehensive testing of current products. Include in reports testing laboratory's interpretation of test results relative to specified requirements

- .3 Shop Drawings: For large projects, submit shop drawings indicating tile patterns (if applicable) and locations and widths of control and expansion joints in tile surfaces, tile joints in relation to washrooms and other fixtures
- .4 Product Samples (P.S.):
 - .1 Submit full size samples of each type of tile specified for the project
- .5 Mock-ups:
 - .1 Submit:
 - .1 Grout mock-up 610mm x 610mm (24" x 24") sample panels of each tile type and colour, texture, size and pattern of tile and grout for the project
 - .2 Non-grouted dry laid mock up for acceptance by project Architect/Designer/Engineer or Consultant. The accepted mock-up shall form the standard of workmanship for the project. Mock-up shall consist of floor wall/base corner intersection, with 300mm_(12") of finish product of each face
- .6 Extra Material:
 - .1 Provide a minimum of 10% of the total tile work extra material for each type and colour of tile required for the project (Work) for maintenance use, where the tile used in the project is a standard product line from the manufacturer
- .7 Product Information:
 - .1 Provide manufacturers' written installation instructions, product information and data sheets
- .8 MSDS:
 - .1 Provide two copies of Workplace Hazardous materials Information System (WHMIS) Material Safety Data Sheets (MSDS) indicate VOC
- 1.7 Qualifications (P.Q.)**
 - .1 Ceramic and glass tiles are to be installed by an installer with not less than three (3) years experience in similar sized commercial or institutional work
 - .2 Ceramic and glass tiles are to be installed in accordance with the latest version of the Tile Installation Manual produced by the Terrazzo Tile and Marble Association of Canada (TTMAC)
 - .3 Ceramic and glass tiles are to be installed by an installer who is a member of the Terrazzo Tile and Marble Association of Canada (TTMAC)

1.8 Delivery and Storage

- .1 Deliver and store packaged materials in the manufacturer's original unopened containers with seals unbroken, and labels intact until time of use.
- .2 Store materials off ground and under cover to prevent damage, or contamination to materials by water, freezing, foreign matter or other causes
- .3 Promptly remove from site any materials that show evidence of damage, and immediately make all replacements necessary

1.9 Quality Assurance

- .1 Source of Materials: Provide materials obtained from one source for each type and colour of tile, grout, and setting materials
- .2 Tile installer must examine the condition of the substrate and assess environmental conditions under which the tile is to be installed to ensure that conditions comply with manufacturers' written requirements and standards of this Section
- .3 Beginning installation of the work indicates acceptance and therefore responsibility for the substrate and environmental conditions by the installing contractor

1.10 Environmental Requirements

- .1 Environmental Conditions: Execute work in accordance with manufacturers' written instructions and guidelines from standards in this Section
- .2 Ensure that temperatures for installation and post installation are within the manufacturers' prescribed temperature tolerances during installation and for a period of 72 hours before, and following tile installation
- .3 Avoid concentrated or irregular heating during curing period
- .4 Protection: protect work of this Section against damage by work of other sections for a period of 72 hours after application of grouting by prohibiting passage of traffic over tile
- .5 Do not immerse tile in water and protect tile work from freezing for at least 28 days after installation
- .6 Where pedestrian use is required after tile installation – pedestrian access should be permitted only after a minimum 72 hours of curing period has elapsed. Protect floor tile surface with a heavy gauge Kraft paper (or similar protective material) until other work is completed on the project

1.11 Standard Warranties and Extended Warranties (S.W. / E.W.)

- .1 Warrant work covered in this Section for a period of 2 years
- .2 Tile and grout, and tile-setting materials shall carry a manufacturers' warranty for 5 years from date of acceptance

2.0 PRODUCTS

2.1 Ceramic Tiles for floor applications:

- .1 Ceramic tiles must conform to CAN/CGSB-75.1
Composition: Unglazed porcelain, natural stone, ceramic glazing is permitted on floor applications only if tiles meet slip resistance requirements
- .2 Nominal Face Dimension: shall be standard manufacturers' size with square edges
- .3 Wearing Surface: Shall be slip resistant grid or sand blasted finish with a static coefficient of friction of .60 or higher as per ASTM C1028 -07e1
- .4 Water Absorption: Less than ½ percent as per ASTM C373
- .5 Frost Resistance: Shall be frost resistant as per ASTM C1026
- .6 Chemical Resistance: Tile shall be unaffected as per ASTM C650
- .7 Break Strength: 114 kilogram minimum as per ASTM C648
- .8 Bond Strength: 35,153.479 Kilogram per square meter as per ASTM C482
- .9 Porcelain tile must conform to the standards for stain resistance, crazing and thermal shock requirements when tested in accordance with CAN/CGSB-75.1-M88
- .10 Porcelain tile shall have a minimum hardness MoH factor of 7
- .11 Porcelain tile shall have a minimum PEI (Porcelain Enamel Institute) factor of 5

2.2 Ceramic Tile Trim:

- .1 Where tile trim units are specified, provide tile trim units to match characteristics of adjoining flat tile and to comply with the following requirements:
 - .1 Size: trim units shall be coordinated with size and coursing of adjoining flat tile
 - .2 Shapes: Shapes shall be as follows:
 - .1 Base: Coved
 - .2 External corners: Surface bullnose
 - .3 Internal corners: Field-buttet square corners, except use internal cove and cap angle designed to member with stretcher shapes.

2.3 Ceramic Tiles for wall applications:

- .1 Glazed wall tile (porcelain, ceramic or glass) suitable for wall application in corridors, countertops, bathroom walls and general commercial institutional use and complying with the following minimum requirements:
 - .1 Glazed finish
 - .2 Porcelain tile, ceramic or glass tiles are acceptable
 - .3 Wearing surface: smooth
 - .4 back mounting:

2.4 Glass Tiles (mosaic) for wall applications:

- .1 Glass tiles used in the project must conform to *ANSI A137.2 American National Standard Specifications for Glass Tile*
- .2 Glass tiles shall be used only on wall applications
- .3 Follow glass tile manufacturers' installation instructions
- .4 Use a white thin-set mortar system that conforms to ISO C2FS2Ps or a 2-compound, flexible, rapid cure, acrylic modified thin-set mortar system compounds must be formulated for interior use
- .5 For pools and submerged applications where glass tiles may be installed may require that the glass mosaic tiles be face-mounted with film instead of back mesh mounted

2.4 Adhesive:

- .1 Use organic adhesive as per ANSI A136.1 thin set bond type
- .2 Use Type I in areas subject to prolonged moisture exposure
- .3 Use Type II for general use application not in areas subject to prolonged moisture exposure
- .4 Thin-set (Portland cement mortar) dry set or latex modified are acceptable.
- .5 Thin-set dry set Portland cement mortar must conform to ANSI A108/A118/A136.1:2011
- .6 Thin-set latex modified Portland cement mortar must conform to ANSI A108/A118/A136.1:2011

2.5 Grout:

- .1 Use polymer modified cement grout
- .2 Use sanded polymer modified cement grout for joints between 3.2 mm (1/8") and 12.7 mm (1/2")
- .3 Use Un-sanded polymer modified cement grout for joints greater than 1.5mm (1/16") and up to 3.2mm (1/8") and for glass tiles

- .4 Grout shall be frost, and shock resistant
- .5 Grout shall meet the requirements of ANSI A118.7-2008
- .6 Use grout sealer that is recommended by the grout manufacturer
- .7 Where tile work is intended for washrooms ensure that grout used is acid and stain resistant

2.6 Sand:

- .1 Shall conform to CSA A82.5

2.7 Accessories:

- .1 Reinforcing metal wire fabric: shall be galvanized welded wire fabric, 50mm X 50mm (2") – 16 ASW gauge or 1.6 mm (0.0625") diameter, to ASTM A185/A185M-07 and ASTM A82/A82M-07 standards except for minimum wire size
- .2 Joint sealants shall be mildew resistant
- .3 Floor leveling and repair compound: use high compressive strength self-leveling underlayment
- .4 Use finishing and edge protection trim as well as perimeter joints against walls and floors
- .5 Metal edge strips (unless otherwise specified) use zinc alloy or stainless steel, with integral provision for anchorage to substrate.
- .6 Cleavage membrane (slip sheet): 0.102 mm (4 mill) polyethylene film per ASTM C171 type 1.1.2
- .7 Metal lath shall be in accordance to ASTM C847 having a galvanized finish
- .8 Use tile cleaner recommended by tile manufacturer
- .9 Use extruded aluminum transition manufactured of tempered aluminum 6063-T6, strips at doorways, or where butting tiles against dissimilar flooring

3.0 EXECUTION

3.1 Coordination

- .1 Coordinate tile installation with other trades and with York University Project Representative

3.2 Examination

- .1 Ensure the compatibility of products supplied under this Section that come into contact with the substrate

- .2 Inspect substrate and examine work conditions ensuring that these meet with the products manufacturers' installation instructions and requirements. Contact the York University Project Representative in writing if there are any adverse conditions that need to be addressed before tile installation can proceed
- .3 Defective, miss-calibrated tiles, damaged tiles (i.e., chipped corners) or tiles with any other defects will not be accepted for installation
- .4 Inspect the tiles for colour and shade variations. Tiles presenting noticeable variations shall be carefully selected, set aside and used in areas where they fit in the pattern homogeneously. Provide for appropriate lighting equipment in addition to existing lighting in the immediate area where the installation is being performed so that any shade differences which are normally very slight can be identified.

3.3 Preparation

- .1 Wall Surfaces:
 - .1 Where wall surfaces have been painted high gloss finish, roughen paint finish with sandpaper or other abrasive medium, and completely remove the glossy finish that may not be compatible with tile adhesives specified by tile manufacturer.
 - .2 Remove all foreign matter from the walls such as loose mortar, plaster, visible laitance, cement, from release agent, dust and other materials which would otherwise impede bonding of leveling coat, adhesives or mortar.
 - .3 Prime very dry gypsum (in accordance with York University Painting standard Section 09 91 00 porous concrete with primer, brush or roller applied at full strength in accordance with adhesive manufacturer's recommendations.
 - .4 On block walls, if deemed necessary after removal of loose material, parge the surface to provide a level installation surface
 - .5 On wood surfaces use a concrete backer board before tile installation follow latest version of TTMAC manual for installation
- .2 Floor Surfaces:
 - .1 Completely remove oil, grease, waste and all other contaminants from floor areas scheduled to receive

- new ceramic tile.
- .2 Mechanically, or chemically (using trisodium phosphate or similar cleaning agent degreaser) remove all paint, adhesives or other previously applied compounds to expose clean surface of existing concrete substrate. Do not use any acids.
- .3 Leveling Underlayment: where substrate varies beyond limitations as set forth by this standard, prime the substrate, then mix and apply an underlayment in accordance with the manufacturer's instructions.
- .4 Before any work can commence on tile floor preparation the concrete must have cured for at least 28 days, or as recommended by the flooring manufacturer's installation instructions
- .5 Where installation of tiles is required on steel substrate, wire brush the steel substrate to remove deleterious substrate and rust, to promote full adhesion to steel.
- .3 Mixing:
 - .1 Mix mortars, adhesives and grouts in strict accordance with manufacturer's requirements and instructions.
 - .2 Installer shall follow the manufacturers' written instructions for mixing mortars, adhesives and grouts when using either a rotating blade mechanical mixer or a pail batch mix using a low revolution drill

3.4 Installation

- .1 General Requirements:
 - .1 Install products in accordance with the manufacturer's specifications and as indicated in this standard
 - .2 Install tiles (ceramic or glass mosaic) in accordance with most recent iteration of the TTMAC Manual Specifications Guide 09 30 00 Tile Installation Manual as produced by the Terrazzo, Tile and Marble Association of Canada, unless where specified otherwise
 - .3 Install in accordance with ANSI A108/A118/A136.1 2011
 - .4 Use acid resistant grout for washrooms, and other type of wet surface applications. Allow the leveling compound to completely cure prior to tile installation

- .5 Lay out floor tile pattern symmetrically from room or area centerline. Refer to manufacturers' installation instructions
- .6 Provide anti-slip flooring surface treatments to all areas with sloping or inclined surfaces
- .7 Provide a waterproof membrane behind floor tiles subject to water exposure (i.e., showers)
- .8 Make joints even, straight, plumb and of uniform width
- .9 Provide uniform positive slope to floor drains, to minimum allowable slopes of 20mm/m (1/4 inch/ft.)
- .10 Provide edge protection at tile edges and corners, unless otherwise indicated, using maximum length pieces
- .11 Provide edge protection and transition strips at tile transitions, unless otherwise indicated, using maximum length pieces
- .12 Lap tile and seal with tile sealant at inside corners and washroom fixtures
- .13 Apply the tile sealant at interface with frames at openings. Apply tile sealant in accordance with manufacturer's instructions
- .14 Install tiles in accordance with the project schedule and project tile shop drawings. Where the project does not result in a project shop drawing or layout pattern lay out tiles to entire area maintaining overall continuity of colour and patterns. Tightly butt edges to perimeter of floor around cover plates and to cover plates.
- .15 Do not install floor tiles over floor drains occurring within finished floor areas
- .16 If no shop drawing or tile pattern layout drawings are available, consult the York University project Representative the location of tile accessories
- .17 Make internal angles square, and external angles bullnosed
- .18 Use bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane
- .19 Install divider strips at junction of tile flooring and dissimilar flooring material
- .20 Allow 24hours after installation of tiles, before grouting
- .21 Clean installed tile surfaces after installation and grouting cured

.2 Installation Tolerances:

- .1 Maximum allowable lippage (uneven surface of a floor) tolerances:
 - .1 Tile up to 152mm X 152mm (6" X 6") in size: 0.79mm (1/32")
 - .2 Tile greater than 152mm X 152mm (6" X 6") in size: 1.5mm (1/16")
 - .3 Finish planes shall be straight and plumb to within 6mm in 3 m (1/4" in 10 feet)
 - .4 Make joints between tiles uniform
 - .5 Layout tiles so that perimeter tiles are a minimum ½ tile size

.3 Setting:

- .1 Use a damp towel, wipe off the back side of floor tile to remove dust or other residue that may be left over from the manufacturing process
- .2 Place as much tile as possible in one operation before setting bed reaches initial set. Clean back and remove bed when it has set before tile is laid
- .3 Prime materials and by methods specified by manufacture of bond coat
- .4 Except where tiles have setting tabs, and except for expansion, control and isolation joints, maintain joint width as defined by York's Project Representative
- .5 Back up tile coves, curbs and other shaped pieces solid with mortar. Rigidly set, reinforced, or otherwise make firm and secure such pieces
- .6 Beat tiles in thoroughly and sufficiently to cause mortar ribs or notches to come together into a continuous void free bed and allow the mortar to flow up partially into the joint space to maximum 1/3 the thickness of the tile. Sound floor tiles and reset all tiles with voids (hollow-sounding) in setting bed
- .7 Tile shall contact setting materials for a minimum of 95% coverage
- .8 Remove any excess setting material from the joint area so that 2/3 of the depth of the tile is available for grouting
- .9 Remove any smudges or smears of setting material from the tile surface with a damp sponge or cloth immediately after final adjustments and beat-in while the mortar is fresh

- .10 Do necessary cutting and drilling of fixtures, fittings, and built-in or penetrating units without marring the tile face. Replace all cracked, or damaged tile
- .11 Extend tile into recesses at windows, doors, or other openings
- .12 Extend tiles 100mm (4") behind mirrors, and fully behind cabinets, cupboards and other fixed objects at walls
- .13 Cut tiles to conform to irregularities in wall lines and vertical planes along outer edges. Smooth cut edges to provide clean straight edge

.4 Thin-Set Method:

- .1 Install latex Portland cement mortar in compliance with current version of ANSI A108/A118/A136.1
- .2 Use the appropriate trowel notch size to ensure full bedding of the tile
- .3 Work the latex Portland cement mortar into good contact with the substrate and comb with notched side of the trowel
- .4 Spread only as much latex Portland cement mortar as can be covered while the mortar surface is still wet and tacky
- .5 When installing large format tiles, stone, rib button, lug back tiles, pavers or sheet mounted ceramics mosaics, spread latex Portland cement mortar onto the back of (i.e., back-butter) each piece/sheet in addition to trowelling latex Portland cement mortar over the substrate
- .6 Beat each piece/sheet into the latex Portland cement mortar with a beating block or rubber mallet to insure full bedding and flatness
- .7 Allow installation to set until firm
- .8 Clean excess latex Portland cement mortar from tile face and joints between pieces
- .9 Do not cover, or fill tile joints located over expansion joints with adhesive

.5 Tiling over Control Joints:

- .1 Carry substrate control and movements joints through to tile work
- .2 Install control joints around the perimeter of tiled areas, around columns and where tile abuts other hard materials, also incorporate control joints over all

building expansion joints.

- .3 Cut tiles on both sides along the edges of control or expansion joints
- .4 Provide control joints equal to width of interior tile joints in floors and walls at perimeters of floor and within 7300mm to 11m (24ft to 36 ft.) centre-to-centre by raking out joints to full depth of tile and cleaning joints for application of sealant
 - .1 Review location of control or expansion joints prior to tile installation with York University Project Representative

.6 Grouting or Pointing

- .1 Use Polymer Modified Cement Grout in accordance with ANSI A108/A118/A136.1 2011
 - .1 Allow tile installation to cure a minimum of 24 hours at 21°C
 - .2 Verify joints are free of dirt, debris or tile spacers
 - .3 Sponge or wipe dust/wipe off veneer face and remove any water standing in joints
 - .4 Apply grout release to face of absorptive, abrasive, non-slip or rough textured tile units that are not hot paraffin coated to facilitate cleaning
 - .5 Surface temperature must be between 4°C and 35°C
 - .7 Install polymer modified cement grout in compliance with current revisions of ANSI A108/A118/A136.1 2011
 - .7 Dampen dry surfaces with clean water
 - .8 Spread using a sharp edged, hard rubber float and work grout into joints
 - .9 Using diagonal (at 45° angle to direction of grout line) strokes, pack joints full and free of voids/pits
 - .10 Hold float face at 90° angle to grouted surface and use float edge to “squeegee” off excess grout, stroking diagonally to reduce pulling grout out of filled joints
 - .11 Initial cleaning can begin as soon as grout has become firm, typically 20 to 30 minutes after grouting depending on temperature. Drag a clean towel dampened with clean water, or wipe clean, dampened sponge, diagonally over

- the veneer face to remove any grout haze left after “squeegeeing”
- .12 Once excess grout is removed, begin cleaning grout haze approximately 20 to 30 minutes after grouting, but no later than once grout is fully cured. Using a circular motion, lightly scrub grouted surfaces with the damp sponge to dissolve grout film/haze. Then drag sponge diagonally over the scrubbed surfaces to remove froth. Rinse towel/sponge frequently and change rinse water at least every 2 m² (20 ft²). Repeat this cleaning sequence again if grout haze is still present.
 - .13 Allow the grout joints to become firm, then buff surface of grout with a clean course cloth. Inspect joint for pinholes/voids and repair them with freshly mixed grout. Within 24 hours, check for remaining haze and remove it with warm soapy water and a nylon-scrubbing pad, using a circular motion, to lightly scrub surfaces and dissolve haze/film
 - .1 Apply grout in strict accordance with the manufacturer’s printed instructions. Use sanded grout for joint size of 3mm (1/8”) and greater
 - .2 Grout joint width to be 3.2mm (1/8”) unless otherwise indicated
 - .3 Use caution when using sanded grout to prevent scratching of tile or other material surfaces
 - .4 Do not cover, bridge or fill any expansion joints in tile with grout

3.5 Installation of glass tiles

- .1 Confirm the colour, size and mounting (back or face mounted, and appropriate layout) of the entire batch of tiles before installation
- .2 Verify that sufficient tile has been ordered to complete the installation (including extra tile to make up for losses due to cutting, breakage and waste) as colour matching of different batches of different tiles may not be possible
- .3 Spread the adhesive with a notched trowel following the manufacturer’s instruction. Use a trowel to flatten the ridges without removing thin-set. Use the thin-set manufacturer’s

- minimum recommended thickness of thin-set.
- .4 Do not over build the adhesive, as it may shrink and add stress or crack the glass tiles. Spread only as much adhesive as will be covered with tile within 15 minutes
 - .5 Mosaics and meshed assemblies may be installed directly to the thin-set adhesive. Large format glass tiles should have a thin skim coat of thin-set applied to the back of the tile to reduce voids and improve adhesion. Firmly press the glass tile against the surface to eliminate voids in the adhesive that may show through the glass tile.
 - .6 Install glass tile on the wall leaving even spacing between tiles. Use plastic spacers whenever possible. Install control joints where tile abuts restraining surfaces and around the perimeter of the tile work.
 - .7 Allow adhesive to cure according to the adhesive manufacturer's instructions (generally at least 24 hours)
 - .8 Grout with an un-sanded grout to prevent scratching of the glass tile surface

Cutting

Porcelain tile

Glass tile should be cut using a wet saw fitted with a diamond blade designed for cutting glass.

Orient the tile so that the blade rotates into the glazed side first to minimize chipping.

Use plenty of water or lubricant to keep the blade and glass tile cool.

Whenever possible cut edges should be placed into corners where they can be covered or hidden.

Drilling a hole requires the use of a drill bit or coring bit designed specifically for glass.

Ensure that sufficient cooling water, or liquid lubricant is used. If the drill and glass tile cannot be securely clamped in place, use a guide to assist alignment of the bit

3.5 Protection and Clean up

- .1 Clean installed tile surfaces after installation and grouting

- cured
- .2 Re-point joints after cleaning to eliminate imperfections.
Avoid scratching tile surface
 - .3 Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surfaces with clean water before and after cleaning
 - .4 Leave finished tile work installation clean and free of cracked, chipped, broken, unbounded or otherwise defective tile work
 - .5 When recommended by tile manufacturer, apply a coat of natural protective cleaner to completed tile walls and floors
 - .1 Grout Sealer: Provide and apply manufacturer's standard (Silicone or Teflon) product for sealing grout joints that does not change colour or alter appearance of the grout
 - .6 Protect installed tile work with Kraft paper and cardboard or other heavy covering during construction period to prevent staining, damage and wear. Prohibit foot and wheel traffic over freshly tiled floors (within 7 days after grouting is completed)
 - .7 As a last step, remove all protective covering and rinse the tiled area with neutral cleaner compatible for use with tile and approved by the tile and grout manufacturer

The compilation of this standard is based on York University's past and existing building specifications, information from subject matter experts, and industry best practices

End of Section