

**SECTION 09 30 33.13  
GRANITE TILING**

This guide specification utilizes recommendations and formats contained in references of the Construction Specifications Institute (CSI), including the CSI Practice Guides (formerly the Project Resource Manual), incorporating SectionFormat, PageFormat and MasterFormat, latest Editions, insofar as practicable.

This Section must be carefully reviewed and edited by the user to meet the Project requirements and should be coordinated with related Specification Sections and the Drawings.

Where Specification indicates information as "shown on Drawings" or similar phrases, the Drawings are required to show this information or the text needs to be modified appropriately.

Where Specification indicates bracketed text, e.g. [text], make appropriate selection and delete the remainder of text within additional brackets, highlighting, and bold face type.

Consult Dakota Granite Company for assistance in editing this Specification guide for the specific applications.

This Specification was current at the time of publication but is subject to change. Please confirm the accuracy of these specifications with the manufacturer prior to use.

For more information contact:

Dakota Granite Company  
48391 150th Street  
Milbank, SD 57252  
Toll Free: 1(800) 843-3333  
Phone: (605) 432-5580  
Fax: (605) 432-6155  
[www.dakotagranite.com](http://www.dakotagranite.com)  
Email: [dakota@dakgran.com](mailto:dakota@dakgran.com)

## PART 1 - GENERAL

### 1.01 SUMMARY

- A. Section Includes:
  - 01. Granite tile and thresholds.
  - 02. Installation materials.
  - 03. Joint sealant and filler.
  - 04. Miscellaneous materials.

### 1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Sections:

*SPECIFIER: Select applicable Divisions or Sections in subparagraphs below related to the Work of this Section; adjust actual Section numbers and names as necessary.*

- 01. [Division 03 Section "Cast-in-Place Concrete"] [Section 03 30 00 - Cast-In-Place Concrete]; for finishes specified for tile substrates.
- 02. [Division 07 Section "Joint Sealants"] [Section 07 92 00 - Joint Sealants]; for sealant and filler material requirements, and installation requirements.
- 03. [Division 09 Section "Plaster and Gypsum Board"] [Section 09 28 00 - Backing Boards and Underlayment] [Section 09 29 00 - Gypsum Board]; for [cementitious backer units] [glass-mat, water-resistant backer board].
- 04. [Division 09 Section "Granite Flooring"] [Section 09 63 40.13 - Granite Flooring]; for dimension granite flooring.

### 1.03 DEFINITIONS

- A. Definitions contained in ASTM C119 apply to this Section
- B. Metric conversions are shown in a table at the end of this Section.

### 1.04 REFERENCE STANDARDS

*SPECIFIER: Use care when indicating the edition date of the referenced standards; these standards are subject to regular review, and updated accordingly. Edit list below to eliminate references not contained in the final text.*

- A. ACI International/American Society of Civil Engineers/The Masonry Society (ACI/ASCE/TMS)
  - 01. ACI 530.1/ASCE 6/TMS 602-02, Specification for Masonry Structures
- B. American National Standards Institute Specifications (ANSI)
  - 01. ANSI Installation Specifications Series, including:
    - a. ANSI A108.1A-2005, Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar
    - b. ANSI A108.1C-2005, Contractors' Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar
    - c. ANSI A108.5-2005, Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar
    - d. ANSI A108.10-2005, Installation of Grout in Tilework
    - e. ANSI A108.11-2005, Interior Installation of Cementitious Backer Units
  - 02. ANSI Material Specifications Series, including:
    - a. ANSI A118.1-2005, Dry-Set Portland Cement Mortar
    - b. ANSI A118.3-2005, Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive
    - c. ANSI A118.4-2005, Latex-Portland Cement Mortar
    - d. ANSI A118.6-2005, Standard Cement Grouts for Tile Installation
    - e. ANSI A118.7-2005, Polymer Modified Tile Grouts for Tile Installation
    - f. ANSI A118.10-2005, Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation
    - g. ANSI A118.12-2005, Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations
    - h. ANSI A136.1-2005, Organic Adhesives for Installation of Ceramic Tile

C. ASTM International (ASTM)

01. ASTM A82-07, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
02. ASTM A185-07, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
03. ASTM C114-11b, Standard Test Methods for Chemical Analysis of Hydraulic Cement
04. ASTM C11911, Standard Terminology Relating to Dimension Stone
05. ASTM C144-11, Standard Specification for Aggregate for Masonry Mortar
06. ASTM C150-11, Standard Specification for Portland Cement
07. ASTM C20706(2011), Standard Specification for Hydrated Lime for Masonry Purposes
08. ASTM C61511, Standard Specification for Granite Dimension Stone
09. ASTM D226-09, Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
10. ASTM D4397-10, Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

D. National Building Granite Quarries Association, Inc. (NBGQA)

*NOTE: For the Specifier's convenience, a copy of the NBGQA document referenced below is published in the Dakota Granite "Architectural" Catalog, available upon request.*

01. Specifications for Architectural Granite, 2010

E. Tile Council of North America (TCNA)

01. TCNA Handbook for Ceramic Tile Installation 2011 Edition, including the following installation methods:
  - a. TCNA Method B419, Wood or Metal Studs; Coated Glass Mat Water-Resistant Gypsum Backer Board
  - b. TCNA Method F111, Concrete Subfloor; Cement Mortar, Cleavage Membrane.
  - c. TCNA Method F113, Concrete Subfloor; Dry-Set Mortar or Latex-Portland Cement Mortar
  - d. TCNA Method 122, Waterproof Membrane; Thin Set
  - e. TCNA Method F125A, Crack Isolation Membrane; Full Coverage
  - f. TCNA Method F135, Cork Underlayment on Concrete; Latex-Portland Cement Mortar with Epoxy Grout
  - g. TCNA Method W202, Masonry; Dry-Set or Latex-Portland Cement Mortar
  - h. TCNA Method W243, Wood or Metal Studs; Gypsum Board, Dry-Set or Latex-Portland Cement Mortar
  - i. TCNA Method W244C, Wood or Metal Studs; Cementitious Backer Unit
  - j. TCNA Method W245, Wood or Metal Studs; Coated Glass Mat Water-Resistant Gypsum Backer Board

**1.05 ACTION AND INFORMATIONAL SUBMITTALS**

*SPECIFIER: Revise Section number in the paragraph below to match that used in the Project Manual.*

A. Submit in accordance with Section [01 33 00] [Other]:

01. Product Data:
  - a. For each granite type and each manufactured product shown on Drawings or specified.
  - b. For each granite variety used on Project, include physical property data.
02. Shop Drawings:
  - a. Show fabrication and installation details for granite tile.
  - b. Show locations of each type of granite tile and tile pattern.
  - c. Show widths, details, and locations of expansion, contraction, control, and isolation joints in substrates and finished granite tile surfaces.
  - d. Show granite thresholds.
03. Granite Samples: Submit samples of each granite tile type required, exhibiting the full range of color characteristics expected in the completed Work.
  - a. Submit a minimum of 2 each, 12 inches (305 mm) by 12 inches (305 mm) in size, and in each color and finish specified.
04. Other Samples:
  - a. Mortar: Full range of exposed color and texture; furnish 2 mortar keys in each color selected.
  - b. Grout: Full range of exposed color and texture; furnish 2 grout keys in each color selected.
  - c. Sealant: For each type and color of joint sealant selected.
05. Certificates: Submit a letter of certification from the granite fabricator, stating the material being furnished is the specified material and there are sufficient reserves available to supply the Project and furnish replacement units if needed.

B. Quality Assurance/Control Submittals:

01. Stone Test Reports:

- a. Preliminary Test Reports: Submit test reports for proposed granite prior to final selection. Preliminary test reports shall be indicative of the granite to be proposed for the Project.
- b. Material Test Reports: From a qualified independent testing agency.
  - 1) Provide reports for each granite type.

*SPECIFIER: Select Division 07 or Section 07 92 00 in subparagraph below; adjust actual Section number and name as necessary.*

02. Sealant Compatibility Test Report: Submit test report from sealant manufacturer, in accordance with **[Division 07 Section "Joint Sealants"] [Section 07 92 00 - Joint Sealants]** stating that sealants will not stain granite.

03. Qualification Data: Submit qualification data specified under Article 1.07 QUALITY ASSURANCE.

C. Cold Weather Procedures: Detailed description of methods, materials, and equipment.

D. Hot Weather Procedures: Detailed description of methods, materials, and equipment.

E. Maintenance Data: For granite tile to include in maintenance manuals. Include product data for stone-care products used or recommended by installer, and names, addresses, and telephone numbers of local sources for products.

**1.06 QUALITY ASSURANCE**

A. Compliance:

01. Comply with the provisions of the Building Code, these specifications, and standards referenced in Article 1.04 REFERENCE STANDARDS, except where more stringent requirements are shown on the Drawings or specified herein.

B. Granite Supply: Each type of granite shall come from a single quarry, with sufficient reserves to satisfy the requirements of the Project. The granite supplier shall have the capabilities to cut and finish the granite without delaying the project.

C. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate granite tile similar in material, design, and extent to that indicated for this Project, and whose work has resulted in applications with a record of successful in-service performance.

D. Installer Qualifications: Experienced tile setters skilled in installing granite tile similar in material, design, and extent to that indicated for this Project, and whose work has resulted in applications with a record of successful in-service performance.

*SPECIFIER: Delete Paragraph below if a mock-up is not required.*

E. Mock-up: Provide a mock-up of the granite installation in the approved colors and finishes, installed at the site in a location determined by the Architect, and agreed upon by the Contractor, and the installer.

*SPECIFIER: Indicate size of mock-up or reference Drawings for location of mock-up in subparagraph below; approved mock-ups which are subsequently removed on or before Substantial Completion, and not incorporated in the Work, shall be provided at the Owner's expense.*

01. Size: **[Insert dimensions] [Refer to Drawings for size and location]** .

02. Color Consistency: Color range shall not exceed range of color established by samples.

03. Joints: Include grouted joints, control and expansion joints, and sealant, in types, colors, and profiles specified or shown.

04. When approved, the mock-up will become the standard for the Project.

*SPECIFIER: Select removal or incorporation of mock-up in subparagraph below.*

**05. [Remove mock-up(s) at Substantial Completion or when requested by the Architect.] [Approved mock-up(s) may become part of completed Work if undisturbed at time of Substantial Completion.]**

**1.07 DELIVERY, STORAGE, AND HANDLING**

A. Deliver, store and handle materials to prevent deterioration or damage.

01. Deliver materials to Project site in factory wrappings, clearly labeled with identification of manufacturer and lot number.

02. Store tile and cementitious materials on elevated platforms, under cover, and in dry location.

03. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

04. Store polymer additives in unopened containers and protected from freezing.

05. Store installation accessories, including metal items, to prevent corrosion and contamination.

### 1.08 FIELD CONDITIONS

- A. Environmental Limitations: Do not install granite tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in the referenced Standards, and in manufacturer's written instructions.

*SPECIFIER: Paragraph A above is preferred; paragraphs A and B below are suggested when the first paragraph A is not selected.*

- A. Cold-Weather Requirements: Comply with ACI 530.1/ASCE 6/TMS 602.
- B. Hot-Weather Requirements: Comply with ACI 530.1 ASCE 6/TMS 602.

## PART 2 - MATERIALS

### 2.01 GRANITE SOURCE

- A. Varieties and Source: Subject to compliance with requirements, provide granite from the following source:
  - 01. Granite Source: Dakota Granite Company; 1(605) 432-5580.
- B. Substitutions: Suppliers seeking approval of their products are required to comply with the Owner's Instructions to Bidders.

### 2.02 GRANITE MATERIAL

- A. General:
  - 01. Granite: ASTM C615; match Architect's samples.

*SPECIFIER: Indicate individual Types in paragraph below, including applicable characteristics; add paragraphs as necessary to meet Project requirements.*

- B. Granite Tile Type **[Insert Drawing Designation Type]**:
  - 01. Granite Variety: **[Insert granite variety]**.
  - 02. Finish: **[Antique] [Brushed] [Honed] [Polished] [Sandblasted] [Thermal] [Other]**.
  - 03. Module Sizes: **[12 by 12 inches (305 by 305 mm)] [(300 by 300 mm)] [18 by 18 inches (457 by 457 mm)] [24 by 24 inches (610 by 610 mm)] [Other]**.
  - 04. Edges: **[Beveled] [Eased] [Square]**.
  - 05. Thicknesses:
    - a. Unless otherwise indicated, provide units with not less than the following thicknesses: **[3/8 inch (10 mm)] [1/2 inch (12 mm)]**.

*SPECIFIER: Indicate individual Types in paragraph below, including applicable characteristics; add paragraphs as necessary to meet Project requirements.*

- C. Granite Thresholds:
  - 01. Granite Type: Granite, complying with ASTM C 615.
  - 02. Finish: **[Antique] [Honed] [Polished] [Thermal] [Other]**.
  - 03. Edges: **[Beveled] [Eased] [Square] [Other]**.
  - 04. Nominal Threshold Thickness: 1/2 inch (13 mm).

### 2.03 MORTAR MATERIALS

- A. Portland Cement: ASTM C150, Type I or Type II, except Type III may be used for cold-weather construction.
  - 01. Provide natural color or white cement as required to produce mortar color indicated.

*SPECIFIER: Retain subparagraph below if recommended by stone source to limit staining.*

- 02. Low-Alkali Cement: ASTM C114.
- B. Hydrated Lime: ASTM C207.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C150, Type I or III, and hydrated lime complying with ASTM C207; provide products by one of the following:
  - 01. Essroc, Italcementi Group
  - 02. Holcim (US), Inc.
  - 03. Lafarge North America
  - 04. Lehigh Cement Company
- D. Mortar Pigments: Natural and synthetic iron oxides with a record of satisfactory performance in mortar, and containing no carbon black; provide products by one of the following:

01. Davis Colors
02. Solomon Colors
- E. Colored Cement Product: Packaged blend made from portland cement and lime and mortar pigments, all complying with specified requirements, and containing no other ingredients.
  01. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
  02. Do not exceed 10 percent of Portland cement by weight.
  03. Do not exceed 5 percent of masonry cement or mortar cement by weight.
  04. Mix mortar to match Architect's sample.
  05. Provide products by one of the following:
    - a. Holcim (US), Inc.
    - b. Lafarge North America
    - c. Lehigh Cement Company
- F. Aggregate: ASTM C144.
- G. Latex Additive: Acrylic-resin water emulsion recommended by additive manufacturer for use with field-mixed Portland cement mortar bed; provide products by one of the following:
  01. Bonsal
  02. Bostik Findley, Inc.
  03. C-Cure
  04. Custom Building Products
  05. DAP, Inc.
  06. Laticrete International, Inc.
  07. MAPEI Corp.
  08. TEC Specialty Construction Brands; H. B. Fuller Company.
- H. Thin-Set Mortar: Latex-Portland Cement Mortar, ANSI A118.4. Provide products by one of the following:
  01. Bonsal
  02. Bostik Findley, Inc.
  03. C-Cure
  04. Custom Building Products.
  05. DAP, Inc.
  06. Laticrete International, Inc.
  07. MAPEI Corp.
  08. TEC Specialty Construction Brands; H. B. Fuller Company.
- I. Water: Potable.

#### **2.04 MORTAR MIXES**

- A. Portland Cement Mortar (Thickset), and Related Materials: ANSI A108.1A.
- B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:
  01. Prepackaged dry-mortar mix including dry, redispersible, ethylene vinyl acetate additive; and other ingredients, combined with water at the Project site.
  02. Prepackaged dry-mortar mix combined with acrylic-resin liquid-latex additive at the Project site.
  03. For wall applications, provide nonsagging mortar that complies with paragraph F4.6.1 in addition to other requirements in ANSI A118.4.
- C. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
  01. Do not exceed 10 percent of Portland cement by weight.
  02. Do not exceed 5 percent of masonry cement or mortar cement by weight.
  03. Mix mortar to match Architect's sample.
- D. Water-Cleanable Epoxy Adhesive: ANSI A118.3, water-cleanable, tile-setting epoxy adhesive.
- E. Organic Adhesive: ANSI A136.1, Type I.

#### **2.05 GROUT**

- A. Polymer-Modified Tile Grout: ANSI A118.7.
  01. Polymer Type: Acrylic resin in liquid-latex form for addition to prepackaged dry grout mix.

02. Provide products by one of the following:
  - a. Bonsal
  - b. Bostik Findley, Inc.
  - c. C-Cure
  - d. Custom Building Products
  - e. DAP, Inc.
  - f. Laticrete International, Inc.
  - g. MAPEI Corp.
  - h. TEC Specialty Construction Brands; H. B. Fuller Company.
- B. Water-Cleanable Epoxy Grout: ANSI A118.3, chemical-resistant, water-cleanable, tile-setting and -grouting epoxy.
01. Provide products by one of the following:
  - a. Bonsal
  - b. Bostik Findley, Inc.
  - c. C-Cure
  - d. Custom Building Products
  - e. Laticrete International, Inc.
  - f. MAPEI Corp.
  - g. TEC Specialty Construction Brands; H. B. Fuller Company.

## 2.06 JOINT SEALANT

*SPECIFIER: Select Division 07 or Section 07 92 00 in paragraph below; adjust actual Section number and name as necessary.*

- A. Provide elastomeric sealant of single-component, mildew-resistant, neutral-curing silicone sealant that complies with applicable requirements in **[Division 07 Section "Joint Sealants"] [Section 07 92 00 - Joint Sealants]**.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints.

## 2.07 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, Portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Primer-Sealer for Wood Subfloors: Product recommended by manufacturer of tile-setting materials.
- C. Cleavage Membrane: Asphalt-saturated organic felt, ASTM D226, Type I (No. 15); or polyethylene sheeting, ASTM D4397, 4.0 mils thick.
- D. Reinforcing Wire Fabric: Galvanized, welded wire fabric, 2 by 2 inches (51 by 51 mm) by 0.062 inch diameter (1.5 mm); complying with ASTM A185 and ASTM A82 except for minimum wire size.

*SPECIFIER: If a crack isolation membrane is required, research available products and add necessary information in the Paragraph below.*

- E. Crack Isolation Membrane: Manufacturer's standard product that complies with ANSI A118.12, and is recommended by the manufacturer for the performance level and application indicated. Include reinforcement and accessories recommended by manufacturer.

*SPECIFIER: The paragraph below describes a generic metal edge strip; revise paragraph as required to meet Project design.*

- F. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness; metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, and white zinc alloy exposed-edge material with dull finish.
- G. Cleaner: A neutral cleaner capable of removing soil and residue without harming granite tile and grout surfaces, specifically approved for materials and installations indicated by granite tile producers and grout manufacturers.
- H. Floor Sealer: Colorless, slip and stain-resistant sealer, not affecting color or physical properties of granite surfaces, as recommended by granite tile producers for application indicated.

## 2.08 TILE FABRICATION

- A. Facial Dimensions of Granite Tiles: Do not vary facial dimensions from specified dimensions by more than plus or minus 1/64 inch (0.40 mm).
- B. Joint Surfaces: Except for specified beveled or eased edges, if any, dress joint surfaces square for full depth of tile.
- C. Backs of Pieces: Gage units by dressing backs of pieces smooth and flat. When tested with a 24-inch (610-mm) straightedge, gap shall not exceed 1/32 inch (0.80 mm).
- D. Thresholds: Fabricate to size and profile as indicated or required to provide transition between adjacent floor finishes.
  01. Unless otherwise shown or specified, bevel edges of thresholds at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to 1/2 inch (13 mm) or less, and finish bevel to match face of threshold.

## 2.09 MIXING MORTARS AND GROUTS

- A. General: Mix mortars and grouts to comply with referenced Standards and mortar and grout manufacturers' written instructions.
  - 01. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.
  - 02. Do not use admixtures.
  - 03. Calcium chloride is NOT allowed.
  - 04. Combine mortar materials and mix thoroughly. Discard mortar when it has reached initial set.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and areas indicated to receive granite tile and conditions under which tile will be installed, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
  - 01. Verify that substrates for setting tile are firm, dry, and clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
  - 02. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
  - 03. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, consult Architect to adjust joint locations.
  - 04. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION PREPARATION

- A. Sweep concrete substrate to remove dirt, dust, debris, and loose particles.
- B. Remove surface-applied finishes and adhesives from substrates, if any.
- C. Remove coatings that are incompatible with tile-setting materials from substrates, including curing compounds and other substances that contain soap, wax, oil or silicone.
- D. Correct concrete substrates for tile floors installed with adhesives or thin-set mortar, that do not comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
  - 01. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturers' written instructions. Use product specifically recommended by tile-setting material manufacturer.
  - 02. Remove protrusions, bumps, and ridges by sanding or grinding.
- E. Apply primer-sealer to wood and plywood subfloors when recommended by tile-setting material manufacturer.
- F. Lay out tile patterns by marking joint lines on substrates to verify joint placement at edges, corners, doors, and other critical elements.
  - 01. Notify Architect 7 days in advance of dates and times when layout will be done.
  - 02. Obtain Architect's approval of layout before starting tile installation.

### 3.03 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical joints, external corners, and other conspicuous lines, do not exceed 1/8 inch in 8 feet (3 mm in 2.4 m).
- B. Variation in Level: For horizontal joints and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (13 mm) maximum.
- C. Variation in Surface Plane of Flooring: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m) from level or slope indicated when tested with a 10-foot (3-meter) straightedge.
- D. Variation in Plane between Adjacent Units (Lipping): Do not exceed 1/64 inch (0.40 mm) between faces of adjacent units as measured from a straightedge parallel to tiled surface.
- E. Variation in Joint Width: Do not vary joint width more than 1/16 inch (1.5 mm) or one-fourth of nominal joint width, whichever is less.

### 3.04 TILE INSTALLATION

- A. General:
  - 01. ANSI Tile Installation Standards: Comply with ANSI A108 setting and grouting methods.

*SPECIFIER: Large body tile generally requires 100 percent coverage; back-buttering tile may be needed under certain conditions; VERIFY with tile producer.*

- a. Floor Tile: Provide minimum 100 percent mortar coverage.
- 02. TCNA Installation Guidelines: Comply with TCNA's Handbook for Ceramic Tile Installation, and TCNA installation methods
- B. Wipe backs of tiles with damp cloth to remove dirt and dust before units are installed.
- C. Perform cutting and drilling of tile without marring visible surfaces.
  - 01. Finish cut tile edges that will not be concealed by other construction by grinding and honing cut surfaces and easing edges to match factory-fabricated edges.
- D. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- E. Accurately form intersections and returns. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, escutcheons, and collars overlap tile.
- F. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting.

*SPECIFIER: Select desired pattern orientation in paragraph below.*

- G. Pattern Orientation: For stone varieties with directional pattern, orient pattern as **[indicated] [directed by Architect]**.
- H. Match tiles within each space by selecting tiles to achieve uniformity of color and pattern. Reject or relocate tiles that do not match color and pattern of adjacent tiles.
- I. Mix tiles to achieve a uniformly random distribution of color shadings and patterns.
- J. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
  - 01. Locate joints in tile surfaces directly above joints in concrete substrates.

*SPECIFIER: Select Division 07 or Section 07 92 00 in subparagraph below; adjust actual Section number and name as necessary.*

- 02. Prepare joints and install elastomeric sealants to comply with requirements in **[Division 07 Section "Joint Sealants"] [Section 07 92 00 - Joint Sealants]**.

### **3.05 ADJUSTING**

- A. Remove granite tile and related work with the following defects, and replace with new units to match adjacent units, unless otherwise specified herein:
  - 01. Broken, chipped, stained, and otherwise damaged granite tile.
  - 02. Defective joints, including misaligned joints.
  - 03. Granite tile and joints not matching approved samples and mock-ups.
  - 04. Granite tile and joints not complying with other requirements indicated.
- B. Replace in a manner that results in granite tile and joints which match approved samples and mock-ups, complies with other requirements, and shows no evidence of replacement.
  - 01. The Architect will make final decision on acceptance, at their discretion.

### **3.06 CLEANING AND SEALING**

- A. Cleaning: Clean granite tiles after setting and grouting is complete, so that surfaces are free of foreign matter.
  - 01. Remove grout residue from tile as soon as possible. Clean grout smears and haze from tile using tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of granite tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
- B. Apply sealer to cleaned granite tile flooring, according to sealer manufacturer's written instructions.

### **3.07 PROTECTION**

- A. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- B. Protect granite tile flooring during construction period with kraft paper or other heavy covering of type that will not stain or discolor granite, and cover with a layer of untreated plywood where adjoining areas require construction work access..

- C. Before inspection for Substantial Completion, remove protective covering and clean surfaces using procedures and materials recommended by grout and granite tile manufacturers.

### 3.08 GRANITE FLOOR TILE INSTALLATION METHODS (TCNA)

- A. Granite Floor Tile Installation: TCNA Method F111.
  - 01. Granite tile.
  - 02. Location: Interior; concrete; cement mortar bed (thickset).
  - 03. Installation: ANSI A108.1C.
  - 04. Thickset Mortar: Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

- 05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.
- B. Granite Floor Tile Installation: TCNA Method F113.
  - 01. Granite tile.
  - 02. Location: Interior; concrete; cement mortar bond coat (thin-set).
  - 03. Installation: ANSI A108.5.
  - 04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

- 05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.
- C. Granite Floor Tile Installation: TCNA Method F122.
  - 01. Granite tile.
  - 02. Location: Interior; concrete; cement mortar bond coat (thin-set) over waterproof membrane.
  - 03. Installation: ANSI A108.5.
  - 04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

- 05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.
- D. Granite Floor Tile Installation: TCNA Method F125A.
  - 01. Granite tile.
  - 02. Location: Interior; concrete; cement mortar bond coat (thin-set) over full coverage crack isolation membrane.
  - 03. Installation: ANSI A108.5.
  - 04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

- 05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

E. Granite Floor Tile Installation: TCNA Method F135.

01. Granite Tile.
02. Location: Interior; concrete; cement mortar bond coat (thin-set) over acoustical underlayment.
03. Installation: ANSI A108.5.
04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

**3.09 GRANITE WALL TILE INSTALLATION**

A. Granite Wall Tile Installation: TCNA Method W202.

01. Granite tile.
02. Location: Interior; dimensionally stable masonry or concrete; cement mortar bond coat (thin-set).
03. Installation: ANSI A108.5.
04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

B. Granite Wall Tile Installation: TCNA Method W243.

01. Granite tile.
02. Location: Interior; gypsum board; cement mortar bond coat (thin-set).
03. Installation: ANSI A108.5.
04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

C. Granite Wall Tile Installation: TCNA Method W244.

01. Granite tile.
02. Location: Interior; cementitious backer board; cement mortar bond coat (thin-set).
03. Installation: ANSI A108.5.
04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

D. Granite Wall Tile Installation: TCNA Method W245.

01. Granite tile.
02. Location: Interior; glass-mat, water-resistant gypsum backer board; cement mortar bond coat (thin-set).
03. Installation: ANSI A108.5.
04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

*SPECIFIER: Installation method B419 in paragraph below is NOT for use in full-tile shower receptors; review TCNA Guidelines for alternative installation methods and procedures.*

E. Granite Wall Tile Installation: TCNA Method B419 and TCA Method W245.

01. Granite tile.
02. Location: Interior; bathtubs/showers with water-resistant gypsum backer board; cement mortar bond coat (thin-set).
03. Installation: ANSI A108.5.
04. Thin-Set Mortar: Latex-Portland cement mortar.

*SPECIFIER: Sanded grout may not be appropriate for polished granite tile as its use may result in surface scratching; VERIFY with tile manufacturer.*

05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

### 3.10 GRANITE THRESHOLD INSTALLATION

A. Granite Threshold Installation: TCNA Method F113.

01. Granite tile.
02. Location: Interior; concrete; cement mortar bond coat (thin-set).
03. Installation: ANSI A108.5.
04. Thin-Set Mortar: Latex-Portland cement mortar.
05. Grout: Polymer-modified sanded grout.

*SPECIFIER: Select one of 2 subparagraphs below; indicate actual color(s) if known.*

- a. Color: Selected by the Architect from manufacturer's **[standard colors] [full range of colors]**.
- a. Color: **[Match granite] [Match Architect's samples]**.

#### END OF SECTION

NOTE: The following metric conversions shall apply where English measurements are indicated in the text:

1/64 inch	(0.40 mm)	13/16 inch	(20 mm)	8 inches	(203 mm)
1/32 inch	(0.80 mm)	1 inch	(25 mm)	10 inches	(254 mm)
1/16 inch	(1.5 mm)	13/16 inches	(30 mm)	12 inches	(305 mm)
1/8 inch	(3 mm)	11/4 inches	(32 mm)	16 inches	(406 mm)
3/16 inch	(5 mm)	11/2 inches	(38 mm)	18 inches	(457 mm)
1/4 inch	(6 mm)	15/8 inches	(41 mm)	24 inches	(610 mm)(0.6 m)
5/16 inch	(8 mm)	2 inches	(51 mm)	48 inches	(1220 mm)(1.2 m)
3/8 inch	(10 mm)	3 inches	(76 mm)	8 feet	(2440 mm)(2.4 m)
1/2 inch	(13 mm)	4 inches	(102 mm)	10 feet	(3 m)
5/8 inch	(16 mm)	6 inches	(152 mm)	20 feet	(6 m)
3/4 inch	(19 mm)	7 inches	(178 mm)	40 feet	(12 m)