



Summary

SECTION 09 30 00 SUGGESTED SPECIFICATION FOR CERAMIC TILING

This section is based on products from Sienna Tile & Stone Installation Products, 1681 California Avenue Corona, California 92881. (800) 851-6303. Sienna offers a complete line of products for the installation of ceramic, porcelain tile and stone, including; surface prep, self-leveling, waterproof membrane, polymer modified mortars, epoxy mortars and grouts.

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Setting materials, grouting materials and methods of installation for ceramic tile and dimension stone.

1.2 RELATED SECTIONS

EDITOR NOTE: DELETE ANY SECTIONS BELOW NOT RELEVANT TO THIS PROJECT; ADD OTHERS AS REQUIRED.

- A. Section 03 30 00 - Cast-In-Place Concrete.
- B. Section 04 20 00 - Unit Masonry.
- C. Section 05 40 00 - Cold-Formed Metal Framing.
- D. Section 06 11 50 - Sheathing.
- E. Section 09 26 00 - Gypsum Board Systems.
- F. Section 09 30 00 - Tile
- G. Section 09 31 33 – Thin Set Stone Tile

1.3 REFERENCES

- A. ANSI A108 - American National Standard Specifications for Installation of Ceramic Tile.
- B. ANSI A108.01 General Requirements: Subsurfaces and Preparations by Other Trades.
- C. ANSI A108.02 General Requirements: Materials, Environmental, and Workmanship.
- D. ANSI A108.1A Installation of Ceramic Tile in the Wet Set Method with Portland Cement Mortar.
- E. ANSI A108.1B Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland cement Mortar.
- F. ANSI A108.5 Installation of Ceramic Tile with Dry-Set Portland cement Mortar or Latex-Portland Cement Mortar.
- G. ANSI A108.6 Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy.
- H. ANSI A108.10 Installation of Grout in Tilework.
- I. ANSI A108.11 Specifications for the Installation of Interior Cementitious Backer Units.
- J. ANSI A108.13 Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
- K. ANSI A108.14 Installation of Paper-Faced Glass Mosaic Tile.
- L. ANSI A108.15 Alternate Method: Installation of Paper-Faced Glass Mosaic Tile.

- M. ANSI A108.16 Installation of Paper-Faced, Back-Mounted, Edge Mounted, or Clear Film Face-Mounted Glass Mosaic Tile.
- N. ANSI A108.17 Installation of Crack Isolation Membranes.
- O. ANSI A118.1 Specifications for Dry-Set Portland Cement Mortar.
- P. ANSI A118.3 Specifications for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy.
- Q. ANSI A118.4 Specifications for Latex-Portland Cement Mortar.
- R. ANSI A118.6 Specifications for Ceramic Tile Grouts.
- S. ANSI A108.7 Specifications for Polymer Modified Ceramic Tile Grouts.
- T. ANSI A118.9 Specifications for Test Methods and Specifications for Cementitious Backer Units.
- U. ANSI A118.10 Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile And Dimension Stone Installations.
- V. ANSI A118.12 Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations.
- W. ANSI A118.13 Specification for Bonded Sound Reduction Membranes for Thin-Set Ceramic Tile Installation.
- X. ANSI A118.15 American National Standard Specifications for Improved Modified Dry-Set Cement Mortar
- Y. TCNA 2012 "Handbook for Ceramic Tile Installation"; Tile Council of America Method #_____.
- Z. U.S. Product Standard PS-I for Construction and Industrial Plywood.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data for Membranes, Mortars, Grouts, and Adhesives:
 1. Submit manufacturer's product data demonstrating compliance with specified requirements.
 2. Submit manufacturer's instructions for use.
 3. Submit manufacturer's certification that materials are suitable for intended use.
- C. Samples: Submit samples of each type and color of grouting material and tile.
- D. Tile Certificates:
 1. Submit Master Grade Certificates issued and signed by the manufacturer and the Contractor when the tile is shipped. State grade, kind of tile, and identification marks for tile packages.
 2. Submit Certification from tile manufacturer of satisfactory performance of frost proof tile.

1.5 QUALITY ASSURANCE

- A. Mock-ups: Provide mock-up panel using materials specified for final work. Construct mock-up as directed. Obtain Architect's acceptance of mock-ups before start of final unit of Work.
- B. Installer Qualifications: Installer is (a five-star member of the National Tile Contractors Association) or (a Trowel of Excellence member of the Tile Contractors' Association of America).
- C. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.
- D. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacture.

- E. Source Limitations for Other Products: Obtain each of the following products specified in this Section from one source and by a single manufacturer for each product.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store all materials on site a minimum of 24 hours before usage
- B. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements of ANSI A137.1 for labeling sealed tile packages.
- C. Prevent damage or contamination to materials by water, freezing, foreign matter and other causes.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Environmental: Install mortar, set and grout tile when surfaces and ambient temperature is minimum 60 degrees F (10 degrees C) and maximum 95 degrees F (32 degrees C). Consult with manufacturer for specific requirements.
- C. Do not install mortar, set or grout tile exterior when inclement weather conditions are expected within 48 hours after work is completed unless properly protected.
- D. Protection: Protect adjacent work surfaces during tile work. Close rooms or spaces to traffic of all types until mortar and grout has set.

PART 2 PRODUCTS

2.1 TILE

EDITOR NOTE: SPECIFY TILE IN THE FOLLOWING PARAGRAPH, OR IN A SCHEDULE AT THE END OF THIS SPECIFICATION SECTION, OR ON THE DRAWINGS.

IF MORE THAN ONE TYPE OR COLOR OF TILE, MORTAR OR GROUT MATERIAL, OR SETTING METHOD IS SPECIFIED, INDICATE WHICH RESPECTIVE COLOR, MATERIAL AND METHOD IS TO BE USED IN EACH OF THE LOCATIONS TILE IS REQUIRED.
DELETE ONE OF THE TWO FOLLOWING PARAGRAPHS.

- A. Ceramic tiles shall be _____ manufactured by _____.
- B. Tile: As scheduled.

2.2 SETTING MATERIAL MANUFACTURER

- A. Basis of Design: Siena Tile & Stone Installation Products, 1681 California Avenue Corona, CA 92881. Contact: Christine Camponovo, Director of Marketing and Sales (951.737.7447 or 800.600.6634)
 - 1. Substitutions must be approved.

IN THE ARTICLES BELOW, SELECT THE MATERIALS BASED ON PROJECT REQUIREMENTS.
DELETE ANY UNUSED MATERIALS.

2.3 JOINT AND SKIM COAT MATERIALS (For Cementitious Backer Units)

- A. Latex-Portland cement Mortar; ANSI A118.4:
 - 1. Siena Multi Purpose M100 is a high-quality mortar for higher bond strength, greater open time and coverage than standard mortars. M100 complies with the requirements of ANSI A118.4 and A118.11.
 - 2. Siena Fast Set Pro M75 is a fast setting polymer-modified mortar which enables the install of tile and grout to be done within two hours, and is ready for foot traffic in four hours. M75 complies with the requirements of ANSI A118.4 and A118.11.

2.4 LEVELING MATERIALS

- A. Self-Leveling Underlayment (Cementitious):
 - 1. Siena Self-Leveling Primer is a latex based primer for use with Self-Leveling Underlayment (SLU). It is recommended that Siena Self-Leveling Primer be used in all self-leveling install projects.
 - 2. Siena Self-Leveling Underlayment (SLU) is designed for fast leveling of floors from 0" - 3/4" and surfaces can be walked on in 2 to 4 hours and the floor coverings can be installed within 12 to 24 hours.
- B. Leveling Underlayment (Cementitious):
 - 1. Gripping Primer: a premixed ready to use acrylic primer and aggregates used to bond to difficult substrates.
 - 2. Siena Deck Mud is a factory blended mortar bed which complies with ASTM C150 and graded sand which complies with ASTM C144 and can be installed from 1/4" to 2"
 - 4. Siena Floor Patch SP820 is designed to repair, fill and smooth surfaces from feather edge to 1" in a single application on horizontal interior substrates.

2.5 SOUND REDUCTION MEMBRANE

- A. Sound Reduction Membrane for Thin-Set Tile and Dimension Stone Installations ANSI A 118.13.

2.6 CRACK ISOLATION MEMBRANE

- A. Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations, A118.12.
 - 1. Siena Fracture Shield is a single component fast drying elastomeric, crack isolation membrane that protects tile floors from transfer of shrinkage and non-structural substrate cracks up to 1/8" to the finished ceramic, quarry, porcelain or stone tile finish.

2.7 WATERPROOF MEMBRANE

- A. Load Bearing, Bonded, Waterproof Membrane for Thin-Set Ceramic Tile and Dimension Stone Installations; ANSI A118.10:
 - 1. Siena Dragon Skin is a premium elastomeric fast drying, low VOC ready to use waterproofing and anti-fracture membrane, and can be used residential, commercial, interior and exterior installations. Dragon Skin protects tile floors from transfer of shrinkage and non-structural substrate cracks up to 1/8" to the finished ceramic, quarry, porcelain or stone tile finish. IAPMO has listed for use as a shower pan liner (IAPMO R&T, File # 6892).

2.8 SETTING MATERIALS

- A. Portland cement Mortar, ANSI A108.1:
1. Siena Wall Float: is a mortar complying with ASTM C150, hydrated lime complying with ASTM C207, and sand complying with ASTM C144. Siena Wall Float is designed to be used as a scratch and brown coat for most tile and stone installations. Flexibility, adhesion, and water resistance of the wall float are improved when Siena Admix AX300 or AX400 are used in lieu of water.
 2. Siena Deck Mud is a factory blended mortar bed which complies with ASTM C150 and graded sand which complies with ASTM C144 and can be installed from ¼" to 2"
 - [a. Gripping Primer: a premixed ready to use acrylic primer and aggregates used to bond to difficult substrates.
- B. Latex-Portland Cement Mortar ANSI A118.11, and ANSI A118.15.

EDITOR'S NOTE: THE FOLLOWING MATERIALS MAY BE USED ON INTERIOR OR EXTERIOR AREAS OVER PROPERLY PREPARED PLUMB AND TRUE MASONRY, CONCRETE, CEMENTITIOUS BACKER UNITS, CURED PORTLAND CEMENT MORTAR BEDS, BRICK, CERAMIC TILE, MARBLE, AND PROPERLY CURED DRAGON SKIN WATERPROOF MEMBRANE. INTERIOR DRY AREAS ONLY, THEY MAY BE USED OVER GYPSUM BOARD, AND EXTERIOR GRADE PLYWOOD. DELETE ARTICLES NOT REQUIRED.

1. M300 PRO SET FLEX: is a high performance polymer-modified mortar that can be used on floors and walls up to 3/16" thick in high traffic commercial projects, and residential. M300 complies with the requirements of ANSI A118.4, A118.11 and A118.15.
2. M500 LHT Pro: is a professional high-performance LHT non-sag polymer-modified mortar. M500 can be used as a setting bed up to 3/4" thick on floors and walls in residential and commercial projects, both interior and exterior. M500 complies with the requirements of ANSI A118.4, A118.11 and A118.15.

EDITOR NOTE: THE FOLLOWING EPOXY SETTING MATERIAL IS FOR USE WHEN HEAVY OR EXTRA HEAVY PERFORMANCE LEVELS ARE REQUIRED OR WHEN ACID RESISTANCE IS NEEDED.

- C. Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy; ANSI A118.3.
1. Siena Epoxy Grout & Mortar: is a high performance, stain resistant, water cleanable epoxy grout and mortar that is manufactured with 100% epoxy resin solids, graded aggregates and proprietary additives to produce a high strength, impermeable, shock resistant mortar and a high chemical and stain resistant grout.

2.9 GROUTING MATERIALS

- A. Polymer Modified Latex Portland cement Grout with built in anti-microbial; ANSI A118.3 & ANSI A118.7.
1. Siena Radiant: a professional grade, premixed ready to use grout. Which provides a color consistent, efflorescence free grout, with no sealing required. Radiant is designed for use with all types of ceramic, porcelain, glass and dimensional stone. Joint widths 1/16 to 1/2 inch. Color # _____.

EDITOR NOTE: THE FOLLOWING EPOXY SETTING MATERIAL IS FOR USE WHEN HEAVY OR EXTRA HEAVY PERFORMANCE LEVELS ARE REQUIRED OR WHEN ACID RESISTANCE IS NEEDED.

- B. Water Cleanable Tile Setting and Grouting Epoxy; ANSI A118.3:
 - 1. Siena Epoxy Grout & Mortar: is a high performance, stain resistant, water cleanable epoxy grout and mortar that is manufactured with 100% epoxy resin solids, graded aggregates. Excellent for moisture sensitive and resin backed stones. Color # _____.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Before work commences, examine the areas to be covered and report any flaw or adverse condition in writing. Do not proceed with the tile work until surfaces and conditions comply with the requirements indicated in the manufacturer's instructions and in ANSI A108.5
- B. Verify that slope, when required, is in subfloor.
- C. Protect adjoining work surfaces before tile work begins.

3.2 PREPARATION:

- A. Floor Flatness: Install leveling material if necessary to bring floors to required flatness. Maximum variation from plane:
 - 1. 1/4 inch in 10 feet for installations with a thick mortar bed.
 - 2. 1/8 inch in 10 feet for thin-set mortar.
 - 3. Leveling, when necessary, is to be accomplished using leveling materials specified in Part 2.

EDITOR NOTE: IF TILE OVER PLYWOOD SUBFLOORS IS REQUIRED, REQUIREMENTS SIMILAR TO THE FOLLOWING MINIMUM STANDARDS SHOULD BE INCLUDED IN THE DIVISION 6 SECTION COVERING PLYWOOD SUBFLOORS.

DELETE THE FOLLOWING PARAGRAPH IF PLYWOOD SUBFLOORS ARE NOT REQUIRED.

- B. Verify that plywood substrates conform to the following:
 - 1. Limit plywood surfaces to interior floor applications only.
 - 2. 2 layers of 5/8 inch (minimum) veneer core plywood, APA grade marked Exterior Grade, Group I, Type C/C or better and complying with U. S. Product Standard PS-1.
 - 3. Joists shall be a minimum of 16 inches o.c.
 - 4. Assembly: Underlayment placed at right angles to the subfloor and the joints of the two layers staggered. Underlayment screwed 6 inches o.c. around the perimeter and 8 inches o.c. throughout the body of each sheet in each direction. Deflection not greater than 1/360 of the span.
 - 5. Installed with 1/4 inch (6 mm) wide gaps between panels and between panels and walls or other restraining abutments. If installed without a 1/4 inch (6 mm) gap between panels, joints shall be opened by cutting the underlayment to its full depth to provide a gap for expansion. This gap shall remain empty after the installation is complete.
 - 6. Dry and free of contaminants such as sealers, cleaning compounds, coatings, oil, dust, dirt, etc. Contaminated surfaces shall be cleaned by sanding to expose raw wood.

EDITOR NOTE: IF TILE OVER CEMENTITIOUS BACKER UNITS IS REQUIRED, REQUIREMENTS SIMILAR TO THE FOLLOWING MINIMUM STANDARDS SHOULD BE INCLUDED IN THE DIVISION 6 SECTION COVERING EXTERIOR SHEATHING OR THE DIVISION 9 SECTION COVERING INTERIOR TILE BACKER BOARD.

DELETE THE FOLLOWING TWO PARAGRAPHS IF CEMENTITIOUS BACKER UNITS ARE NOT REQUIRED.

- C. Verify that framing and plywood sheathing to receive cementitious backer unit conform to the following:
 - 1. Straight, true, of uniform dimension, and properly aligned.
 - 2. Free and clear of any nail heads or screw heads or any other protrusions which could cause the panel to be deflected from true plane.
 - 3. Wood Studs - These must be dry, 3-1/2 inch deep and no more than 16 inches o.c.

4. Steel Studs: 20 gauge or heavier and spaced not more than 16 inches o.c.
- D. Verify that cementitious backer units are installed in conformance with the following:
 1. ANSI A108.11, the TCNA Handbook Methods, and the manufacturer's recommendations.
 2. Installation temperature: Temperature within the structure is above 55 degrees F.
 3. Fasteners: Wood Studs: Use conventional 1-1/2 inch galvanized roofing nails, preferably screw type, spaced a maximum of 8 inches apart; Steel studs: Use 1-1/4 inch S-12(TM), Flat Wafer Head Screws with countersinking spaced a maximum of 8 inches apart.
 4. Where two panels abut on a stud: A 3/4 inch round countersunk stainless steel washer slipped over fasteners in the joint between two panels so that the washer securely catches the edge of both panels.
 5. Joints: All horizontal and vertical joints and corners including joints with dissimilar materials: gap approximately 1/8 inch to 3/16 inch.
 6. Surface: Plumb and true within 1/8 inch in 8 feet.

3.3 INSTALLATION - GENERAL

- A. Comply with applicable ANSI 108 series of the "American National Standard Specifications for the Installation of Ceramic Tile."
- B. Comply with current TCNA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.
- C. Coverage and Terminations: Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown.
- D. Intersections and Returns: Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints.
- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining floor tile with tile, base, or trim on walls when wall tile, base or trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.
- F. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction and isolation joints, where indicated, or if not indicated, at spacing and locations recommended by EJ 171 in the TCNA "Handbook for Ceramic Tile Installation", and approved by Architect.
 1. Prepare joints and apply sealants to comply with referenced installation standards and sealant manufacturer's instructions.

DELETE THE FOLLOWING PARAGRAPH IF CEMENTITIOUS BACKER UNITS ARE NOT REQUIRED.

- G. Cementitious Backer Units: Prepare cementitious backer units complying with the following:
 1. Solidly fill gaps between panels with joint material indicated. A 2 inch wide fiber glass mesh tape shall then be embedded in skim coat of the same mortar over the joints and in the corners. Apply skim coat material indicated to bring wall to acceptable tolerances. Do not exceed manufacturer's recommended thickness of materials.
 2. Allow material to cure as per manufacturer's directions before application of additional materials.

DELETE THE FOLLOWING PARAGRAPH IF SOUND REDUCTION MEMBRANE IS NOT REQUIRED.

- H. Sound Reduction Membrane: Install membrane, where required, to comply with manufacturer's instructions.

DELETE THE FOLLOWING PARAGRAPH IF CRACK ISOLATION MEMBRANE IS NOT REQUIRED.

- I. Crack Isolation Membrane: Install membrane, where required, to comply with manufacturer's instructions.

DELETE THE FOLLOWING PARAGRAPH IF WATERPROOFING MEMBRANE IS NOT REQUIRED.

- J. Waterproof Membrane: Install waterproof membrane, where required, to comply with manufacturer's instructions.

1. Manufacturer's Instructions: Install proprietary components to comply with manufacturer's instructions.

EDITOR NOTE: EDIT THE FOLLOWING PARAGRAPH TO INCLUDE APPLICABLE SETTING METHODS. IF SETTING METHODS ARE SCHEDULED ON THE DRAWINGS, DELETE THE FOLLOWING PARAGRAPH.

- K. Install tile to comply with referenced TCNA and ANSI installation standards, using setting materials indicated.
- L. Curing set tile:
 1. 72 hours before grouting when the temperature is low or the humidity is high.
 2. 48 hours before grouting when hot, dry conditions exist.
 3. Check the bond strength carefully before grouting.
- M. Grout the tile to comply with referenced installation standards using grouting materials indicated.

DELETE ONE OF THE FOLLOWING TWO PARAGRAPHS IF BOTH ARE NOT REQUIRED.

1. Chemical Resistant, Water Cleanable Grouting Epoxy; ANSI A108.6
2. Latex Portland cement Grout ANSI A108.10

3.4 CLEANING AND PROTECTION

- A. Upon completion of setting and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
- B. Acid Cleaning: Tile may be cleaned with sulfamic acid solutions complying with the following:
 1. Only if permitted by tile and grout manufacturer's printed instructions.
 2. No sooner than 14 days after installation.
 3. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning.
 4. Flush surface with clean water before and after cleaning.
 5. Do not clean Chemical Resistant, Water Cleanable Grouting Epoxy (A118.3) with acid.
- C. Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining damage and wear.
 1. Protective Coatings: Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.
- D. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.
- E. Protect tile installation from traffic as specified in ANSI specifications.
- F. Protect tile installation from traffic according to manufacturer's instructions.

SCHEDULES: IF MORE THAN ONE TYPE OR COLOR OF TILE, MORTAR, GROUT, OR SETTING METHOD IS SPECIFIED, INCLUDE A SCHEDULE EITHER IN THE SPECIFICATION OR ON THE DRAWINGS TO INDICATE WHICH TYPE AND COLOR OF TILE, MORTAR, GROUT, AND SETTING METHOD IS TO BE USED IN EACH LOCATION WHERE TILE IS REQUIRED.

END OF SECTION

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Disclaimer: This guide specification is intended for use by a qualified designer. The guide specification is not intended to be used verbatim as an actual specification without appropriate modifications for the specific use intended. The guide specification must be integrated into and coordinated with the procedures of each design firm, and the requirements of a specific project. For additional assistance, contact Siena Tile & Stone Installation Products, 1681 California Avenue Corona, CA 92881 800.600.6634