

SECTION 09 30 00 TILE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Setting materials, grouting materials, self-leveling and methods of installation for tile, stone, veneers, glass tile, waterproof, crack isolation and anti-fracture membranes.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete.
- B. Section 04200 - Unit Masonry.
- C. Section 05400 - Cold-Formed Metal Framing.
- D. Section 06115 - Sheathing.
- E. Section 09260 - Gypsum Board Systems.
- F. Section 09300 - Tile
- G. Section 10800 - Toilet and Bath Accessories

1.3 REFERENCES

- A. ANSI A108 Series - American National Standard Specifications for Installation of Ceramic Tile and stone.
- B. ANSI A108.1A Installation of Ceramic Tile in the Wet Set Method with Portland Cement Mortar.
- C. ANSI A108.1B Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar.
- D. ANSI A108.5 Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
- E. ANSI A108.6 Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy.
- F. ANSI A108.10 Installation of Grout in Tilework.
- G. ANSI A108.11 Specifications for the Installation of Cementitious Backer Units.
- H. ANSI A118.1 Specifications for Dry-Set Portland Cement Mortar.
- I. ANSI A118.3 Specifications for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy.
- J. ANSI A118.4 Specifications for Latex-Portland Cement Mortar.
- K. ANSI A118.6 Specifications for Ceramic Tile Grouts.

- L. ANSI A118.9 Specifications for Test Methods and Specifications for Cementitious Backer Units.
- M. ANSI A118.10 Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installations.
- N. TCNA "Handbook for Ceramic Tile Installation"; Tile Council of North America.
- O. 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 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 the 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, and of full thickness. Obtain Architect's acceptance of visual qualities of the sample panel.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Provide heated and dry storage facilities on site.
- B. Deliver and store all materials on site a minimum of 24 hours before usage.
- C. Deliver and store tile and packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage to materials such as chipping, breakage, freezing, or excessive heat. Prevent contamination by water, moisture, foreign matter, or other causes.

1.7 PROJECT CONDITIONS

- A. Maintain ambient and surface temperatures at not less than 60 degrees Fahrenheit during installation of cementitious materials and for 72 hours thereafter. Maintain ambient and surface temperatures between 65 degrees Fahrenheit and 95 degrees Fahrenheit during installation of epoxy setting and grouting materials and for 72 hours thereafter.
- B. Vent temporary heaters to outside to avoid carbon dioxide damage to new tilework.

- C. Provide adequate lighting for good grouting and clean-up.

PART 2 PRODUCTS

2.1 TILE

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

2.2 SETTING MATERIAL MANUFACTURER

- A. Provide setting and grouting materials manufactured by Omega Products International, Inc.,(Omega) Siena Tile & Stone Installation Products division (Siena), 1681 California Avenue, Corona, CA 92881. Telephone 800-600-6634, Web Site www.SienaProducts.com Fax 951-520-2594, Attn: Siena Sales & Product Representative
 - 1. Substitutions will not be acceptable

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

- A. Latex-Portland Cement Mortar; ANSI A118.4.
 - 1. Siena Multi Purpose M100, polymer modified mortar
 - 2. Siena Fast Set Pro M75, polymer modified fast setting mortar

2.4 LEVELING MATERIALS

- A. Self-leveling Underlayment (Cementitious):
 - 1. Siena Self-Level Underlayment SLU for leveling from 0 inch to 3/4 inch depth.
 - 2. Siena Self-Level SL20 for leveling from 1/2 inch to 1 1/2 inch depth.
 - 3. Siena Self-Level Primer must be used with all Siena Self-Leveling products.

2.5 WATERPROOF, ANTI-FRACTURE AND CRACK ISOLATION MEMBRANE

- A. Load Bearing, Bonded, Waterproofing, Anti-Fracture and Crack Isolation Membranes for Thin-Set Tile and Dimension Stone Installations; ANSI A118.10, and ANSI A118.12
 - 1. Siena Dragon Skin Waterproofing, Anti-Fracture and Crack Isolation Membrane, IAPMO Certified for waterproofing, R&T, File# 6892
 - 2. Siena Fracture Shield, for Water Resistance, Anti-Fracture and Crack Isolation

2.6 SETTING MATERIALS

- A. Portland Cement Mortar; ANSI A108.1.
 - 1. Siena Wall Float, to create a cementitious vertical substrate
 - 2. Siena Deck Mud, to create a cementitious horizontal substrate
- B. Dry-Set Portland Cement Mortar; ANSI A118.1.
 - 1. Siena ThinSet Set 510, for basic non-modified required installations.
 - 2. Siena Premium Set 550, for demanding non-modified required installations
 - 3. Siena FastSet 595, for non-modified installations requiring application in the shortest period of time possible, 8 hours or less.
- C. Latex-Portland Cement Mortar ANSI A118.4.
 - 1. Siena Multi Purpose M100 and Siena Multi Plus Pro M200 for normal to demanding installations requiring modified setting materials.
 - 2. Siena Pro Set Flex M300 and Siena Glass Tile Pro M375 for more demanding

- installations that require increased flexibility and adhesion for substrate due to movement, and the installation of non-porous materials such as glass tiles
3. Siena Medium Set Pro M400 for installations requiring a medium bed mortar or $\frac{3}{4}$ " to compensate for irregularities in the substrate and/or tile or stone.
 4. Siena Fast Set Pro M75, for installations required to be subjected to traffic as soon as possible, in 8 hours or less.
 5. Siena Elasto Pro EP200 (ANSI A118.12) used with Elasto Mix AX200, for substrates requiring a dry-set mortar which functions as a crack isolation membrane and anti-fracture membrane to prevent cracks from transferring through the tile when excessive deflection or vibration is anticipated.

- D. Chemical resistant Water Cleanable Tile Setting and Grouting Epoxy; ANSI A118.3.
1. Siena Epoxy Grout and Mortar.

2.7 GROUTING MATERIALS

- A. Latex Portland Cement Grout; ANSI A118.6.
1. Siena Non-Sanded Grout NS200 (Non-Sanded) in color # _____ as manufactured by Omega Siena. Forms a colorfast, dense matrix grout for absorptive, vitreous, and semi-vitreous tiles with joint widths up to 1/8 inch.
 2. Siena Sanded Grout GS300 (Sanded) in color # _____ as manufactured by Omega Siena. Forms a colorfast, dense matrix grout for absorptive, vitreous, and semi-vitreous tiles with joint widths 1/8 inch to 1/2 inch.
 3. Siena Paver Grout GP350 (Sanded) in color # _____ as manufactured by Omega Siena. Forms a colorfast, dense matrix grout for absorptive, vitreous, and semi-vitreous tiles with joint widths 1/2 inch to 1 inch.
- B. Water Cleanable Tile Setting and Grouting Epoxy; ANSI A118.3.
1. Siena Epoxy Grout; 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 tilework 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.
- 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.
- 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 ribs and Climaseal (TM) finish 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 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.
- G. Cementitious Backer Units: Prepare cementitious backer units complying with the following:
 - 1. Solidly fill gaps between panels with joint material indicated. A two 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.
- H. Waterproof Membrane: Install waterproof membrane, where required, to comply with manufacturer's instructions.
- I. Manufacturer's Instructions: Mix and install proprietary components to comply with manufacturer's instructions.
- J. Install tile to comply with referenced installation standards, using setting materials indicated.
 - 1. ANSI A108.1A Installation of Ceramic Tile in the Wet Set Method with Portland Cement Mortar.
 - a. TCNA Method: _____.
 - 2. ANSI A108.1B Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex- Portland Cement-Mortar.
 - a. TCNA Method: _____.
 - 3. ANSI A108.5 Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
 - a. TCNA Method: _____.
 - 4. ANSI A108.6 Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy.
 - a. TCNA Method: _____.
- K. 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.
- L. Grout the tile to comply with referenced installation standards using grouting materials indicated.
 - 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, non-bonded, 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.

END OF SECTION