

SECTION 09300 (09 30 00 Masterformat 2004 Tile Setting Materials and Accessories)
TILE

This section is based on products from Mer-Krete Systems a division of Mer-Kote Products Inc. 501 Van Ness Ave. Torrance, CA. 90501, (800) 851-6303. Mer-Krete Systems offers a complete line of products for waterproofing, setting and grouting ceramic tile and dimension stone, including latex-Portland cement mortars and grouts, epoxy mortars and grouts, joint and skim coat material for cementitious backer units, leveling material for concrete, and a waterproof membrane for tile applications.

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

Delete any sections below not relevant to this project; add others as required.

- 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.
- 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. TCA "Handbook for Ceramic Tile Installation"; Tile Council of America Method #_____.
- X. U.S. Product Standard PS-1 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.
- B. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- 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 manufacturer and each aggregate from one source or producer.
- 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. 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 F during installation of cementitious materials and for 72 hours thereafter. Maintain ambient and surface temperatures between 65 degrees F and 95 degrees F 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

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. Mer-Krete Systems
 - 1. Substitutions will not be acceptable.

In the Articles below, select the materials below 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. Thin-Set 750; a fast setting superior grade latex modified Portland cement dry set mortar.

2.4 LEVELING MATERIALS

A. Self leveling Underlayment (Cementitious):

1. ProPrimer; is a concentrated, solvent free acrylic primer and admixture used for the application of Underlay SLU; self-leveling underlayment.

1. Underlay SLU; a professional grade Portland cement based self leveling floor underlayment, for leveling from 0 inch to 3/4 inch depth, in a single pour.

2.5 CRACK ISOLATION MEMBRANE

A. Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations, A118.12.

1. Fracture Guard 5000; Crack Isolation Membrane, an elastomeric membrane.

2.6 WATERPROOF MEMBRANE

A. Load Bearing, Bonded, Waterproof Membrane For Thin-Set Ceramic Tile And Dimension Stone Installations; ANSI A118.10:

Delete one of the following two paragraphs if both are not required.

1. HydroGuard One; Waterproofing Membrane; an elastomeric waterproofing and crack isolation membrane.

1. Hydro Guard 2000; an elastomeric waterproofing and crack isolation membrane.

1. BFP Membrane, an elastomeric waterproofing and crack isolation membrane, for over occupied spaces.

2.7 SETTING MATERIALS

A. Portland Cement Mortar; ANSI A108.1:

1. WallMud; a scratch and brown leveling coat. WallMud shall be gauged with 150 Acrylic Latex; latex admixture.

2. Underlay C a cement based mortar bed mixture.

B. Dry-Set Portland Cement Mortar; ANSI A118.1:

The following materials may be used without latex modification on interior areas with residential or light commercial performance level requirements according to the TCA Handbook. Substrates must be properly prepared plumb and true masonry, concrete, cured Portland cement mortar beds, or brick. In interior dry areas only, they may be used over gypsum board.

1. Thin-Set 700; a high grade Portland cement dry set mortar, for normal installations.

C. Latex-Portland Cement Mortar ANSI A118.4.

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 HydroGuard One Waterproof Membrane. In interior dry areas only, they may be used over gypsum board, and exterior grade plywood. Delete one of the following four paragraphs if all are not required.

1. Thin-Set 7d10; flexible latex modified Portland cement dry set mortar with Dust Less Technology, for normal installations.

2. Thin-Set 735; a superior grade flexible latex modified Portland cement dry set mortar, for demanding above grade installations.

3. Thin-Set 720; a medium bed latex modified Portland cement dry set mortar for installations requiring a medium bed mortar to compensate for irregularities in the substrate or tile.

4. Thin-Set 750; a fast setting latex modified Portland cement dry set mortar for installations required to be subjected to traffic as soon as possible .

The following epoxy setting material is for use when heavy or extra heavy performance levels are required or when acid resistance is needed.

D. Chemical resistant Water Cleanable Tile Setting and Grouting Epoxy; ANSI A118.3.

1. ProEpoxy a 100% solids epoxy grout and mortar for extra heavy performance.

2.8 GROUTING MATERIALS

A. Polymer Modified Latex Portland Cement Grout with built in anti-microbial; ANSI A118.6 & ANSI A118.7.

1. Sanded ColorGrout; a sanded latex modified Portland cement grout with built in Sanitized, color #_____. Forms a colorfast, dense matrix grout for absorptive, vitreous, and semi-vitreous tiles with joint widths 1/8 inch to 1/2 inch.

2. Non Sanded ColorGrout; a non-sanded latex modified Portland cement grout with built in Sanitized, color #_____. Forms a colorfast, dense matrix grout for absorptive, vitreous, and semi-vitreous tiles with joint widths up to 1/8 inch.

The following epoxy grout 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. ProEpoxy a 100% solids epoxy grout and mortar for extra heavy performance, 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.

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 1, 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.

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 TCA 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 TCA 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 TCA "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 installation over cementitious backer units is 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 installation of crack isolation membrane is not required.

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

Delete the following paragraph if installation of waterproof membrane is not required.

I. 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.

Edit the following paragraph to include applicable setting methods. If setting methods are scheduled on the drawings, delete the following paragraph.

J. Install tile to comply with referenced TCA and ANSI installation standards, using setting materials indicated.

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.

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.

END OF SECTION

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.