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SECTION 09 30 00

TILING

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**PART 1 - GENERAL**

1.1 SUMMARY

- A. Section Includes: Provide tile installations with accessories, as required for complete installation.
  - 1. Provide waterproofing membrane integral with tile setting beds.
  - 2. Provide shower pans integral with tile systems.
  - 3. Provide acoustic (sound deadening) underlayment at tile.
  - 4. Provide cementitious backer unit tile substrate.
  - 5. Provide marble thresholds.
  - 6. Provide epoxy thin set tile at elevator floors.
- B. Related Sections:
  - 1. Section 04 42 50: Surface bonded stone masonry.
  - 2. Section 09 21 00: Metal framing and gypsum board.
  - 3. Section 09 30 90: Exterior tiling.

1.2 REFERENCES

- A. ANSI A108.1: Installation of Tile with Portland Cement Mortar.
- B. ANSI A108.5: Installation of Tile with Latex-Portland Cement Mortar.
- C. ANSI A108.6: Installation of Tile with Chemical Resistant Water Cleanable Tile Setting and Grouting Epoxy.
- D. ANSI A108.10: Installation of Grout in Tilework.
- E. ANSI A108.11: Interior Installation of Cementitious Backer Units.
- F. Tile Council of North America (TCNA): Handbook for Ceramic Tile Installation.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Large Format Tile Framing: Tile Council of North America (TCNA) requires framing at large format tile to be maximum 16" on center and for maximum deflection of L/720 where large format tile as defined by TCNA is indicated.
  - 1. Coordinate with framing installation to ensure proper stud spacing and deflection limits are provided at locations where large format tile is indicated.

1.4 SUBMITTALS

- A. Product Data: Furnish manufacturer's literature for each type of material for Project.

- B. Samples: Furnish each type of tile clearly indicating pattern, coloration and joints.
  - 1. Color Charts: Submit actual tile sections showing full range of colors, textures and patterns available for each type of tile.
  - 2. Prepare two 12" square sample panels of each selected type of tile and grout.

## 1.5 QUALITY ASSURANCE

- A. Sustainability Requirements: Comply with CALGreen requirements including those relative to finish material pollution control for adhesives, sealants, and caulks.

## 1.6 PROJECT CONDITIONS

- A. Provide sufficient heat and ventilation in areas where ceramic tile work is being performed, to allow tile to properly set.
- B. Take precautionary measures necessary to ensure excessive temperature changes do not occur.

## 1.7 WARRANTY

- A. Extended Correction Period: Provide for correcting failure of system to resist water penetration except where failure is result of structural failure of building. Repair system and pay for or replace damaged materials and surfaces.
  - 1. Hairline cracking due to temperature or shrinkage is not considered structural failure.
  - 2. Period: Two years.

# PART 2 - PRODUCTS

## 2.1 MATERIALS

- A. System Description: Provide tile installations with tile, grout, setting materials, and accessories as indicated.
- B. Regulatory Requirements: Provide non-slip units complying with applicable code and ADA Standards requirements for slip resistance.
  - 1. Provide floor tile with wet and dry value 0.60 coefficient of friction or better when tested in accordance with ASTM C1028 or comparable test indicating compliance with Americans with Disabilities Act (ADA) Standards.
- C. Tile: Ceramic, quarry, porcelain, stone, and glass tile as indicated.
  - 1. Manufacturers:
    - a. American Olean Tile Company, Inc.
    - b. Dal-Tile Corp.
    - c. Crossville Tile.
    - d. Summitville Tiles, Inc.
    - e. Manufacturers listed on Finish Schedule.
    - f. Substitutions: Refer to Section 01 25 00.

2. Color, Style and Pattern: As indicated on Finish Schedule, as selected by Architect from manufacturer's full range of types of tiles indicated where not otherwise indicated
    - a. Match Architect approved samples.
  3. Base and Trim: Provide matching trim pieces, coordinated with sizes and coursing of adjoining flat tile as directed by Architect; types as indicated, as selected by Architect where not indicated.
- D. Portland Cement Setting Bed: Portland cement bed conforming to ANSI A108.1 and TCNA recommendations including separator sheet and reinforcing mesh.
1. Separator sheet may be deleted where over waterproof membrane or shower pan.
- E. Latex Thin Set: Thinset bond coat, consisting of latex-cementitious mortar conforming to ANSI A118.4.
1. Manufacturers:
    - a. Laticrete International Inc.
    - b. Bostik Construction Products/Hydroment.
    - c. Custom Building Products.
    - d. Mapei Corp.
    - e. Parex USA/Mer-Krete.
    - f. Substitutions: Refer to Section 01 25 00.
- F. Latex-Cement Grout: ANSI A118.7, latex-cementitious type, uniform in color, resistant to shrinkage.
1. Manufacturers:
    - a. Laticrete International Inc.
    - b. Bostik Construction Products/Hydroment.
    - c. Custom Building Products.
    - d. Mapei Corp.
    - e. Parex USA/Mer-Krete.
    - f. Substitutions: Refer to Section 01 25 00.
  2. Color: Match tile unless otherwise indicated.
- G. Epoxy Mortar and Grout: Chemical resistant and water cleanable thinset epoxy mortar and grout conforming to ANSI A118.3.
1. Manufacturers:
    - a. Laticrete International Inc.
    - b. Bostik Construction Products/Hydroment.
    - c. Custom Building Products.
    - d. Mapei Corp.
    - e. Parex USA/Mer-Krete.
    - f. Substitutions: Refer to Section 01 25 00.
  2. Color: Match tile unless otherwise indicated.

- H. Waterproofing and Crack Isolation Membrane: Manufacturer's standard liquid rubber polymer designed specifically for application under tile in non-immersed applications.
  - 1. Manufacturers:
    - a. Laticrete International Inc./9235 Waterproof Membrane.
    - b. Bostik Construction Products/Hydroment Ultra-Set.
    - c. Custom Building Products/RedGard Membrane.
    - d. Parex USA/Mer-Krete Hydro-Guard 2000.
    - e. The Nobel Company/NobelSeal TS.
    - f. Substitutions: Refer to Section 01 25 00.
  
- I. Shower Pan Liner: Manufacturer's standard sheet membrane designed specifically for application under tile in showers.
  - 1. Manufacturers:
    - a. Parex USA/Mer-Krete BFP Membrane.
    - b. The Nobel Company/Chloraloy.
    - c. Compotite Corp./Composeal Gold or Blue.
    - d. Substitutions: Refer to Section 01 25 00.
  
- J. Acoustic (Sound Deadening) Underlayment: Manufacturer's standard sound deadening underlayment designed specifically for application under tile with minimum Impact Insulation Class of 50 and STC of 52; nominal 3/8" to 1/2" thick.
  - 1. Manufactures:
    - a. Mapei Corp./Kerafonic Two-Component Thin Profile System.
    - b. Laticrete International Inc./Laticrete 18 Sound Control Underlayment.
    - c. Substitutions: Refer to Section 01 25 00.
  
- K. Cementitious Backer Units: ANSI A118.9 aggregated Portland cement with woven glass-fiber mesh on both faces; approximately 1/2" thick; UL fire rated as required to maintain integrity of fire rated assemblies.
  - 1. Manufacturers:
    - a. USG Industries, Durabond Division/Durock.
    - b. National Gypsum Co./PermaBase Cement Board.
    - c. Custom Building Products/Wonderboard.
    - d. Substitutions: Refer to Section 01 25 00.
  - 2. Contractor Option Coated Glass Mat Backer Units: Georgia Pacific/DenShield, UL fire rated as required to maintain integrity of fire rated assemblies.
  
- L. Cleaning and Sealing Materials: As recommended by tile and grout manufacturers, such as Bostik Construction Products/Hydroment CeramaSeal.
  
- M. Marble Thresholds: ASTM C503, Grade A marble, sides beveled 1:2 slope; color matching Architect approved sample.
  - 1. Total height of threshold shall not exceed tile or adjacent flooring by more than 1/2"; maximum 1/4" vertical lift and maximum 1:2 slope.

**2.2 MIXES**

- A. Mix and proportion cementitious materials for site-made leveling coats, setting beds and grout as recommended by the TCNA Handbook for Ceramic Tile Installation.
- B. Mix and proportion pre-mixed setting beds and grout materials in accordance with manufacturer's recommendations.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Prior to installing tile, ensure surfaces are level; comply with TCNA and tile manufacturer recommendations but not greater than following.
  - 1. Bed Set Tile Tolerance: Maximum surface variation of 1/4" in 10'-0".
  - 2. Thin Set Tile Tolerance: Maximum surface variation of 1/8" in 10'-0".
- B. Ensure surfaces are clean and well cured.
  - 1. Drains: Where indicated, ensure surfaces are properly sloped to drains.
- C. Do not commence work until surface conditions are within tolerances required for proper installation; apply latex leveling material where necessary to meet required tolerances.
- D. Waterproof and Crack Isolation Membrane: Install waterproof membrane at tile areas located above grade, in accordance with manufacturer's recommendations; extend membrane minimum 6" up walls.
  - 1. Comply with waterproof membrane manufacturer recommendations for installation of tile over waterproof membrane.
- E. Showers: Install shower pan liners and wall waterproofing at showers in accordance with manufacturer's recommendations; extend pan liners minimum 6" up walls, waterproofing full height at showers.
  - 1. Comply with manufacturer recommendations for installation of tile over shower pan liner and waterproof membrane.
- F. Acoustic (Sound Deadening) Underlayment: Install acoustic underlayment system where indicated in accordance with manufacturer's recommendations and installation instructions to achieve maximum possible IIC and STC ratings.
  - 1. Comply with manufacturer recommendations for installation of tile over acoustic underlayment system.
- G. Backer Units: Install units in accordance with ANSI A108.11, manufacturer's recommendations, and as required to provide fire ratings indicated on Drawings.

**3.2 INSTALLATION**

- A. Install tile in accordance with referenced ANSI Standards and TCNA recommendations for type of substrate and indicated setting method.
  - 1. Bed Set Floors over Concrete: TCNA F111, with latex cement bond coat.
  - 2. Bed Set Floors over Waterproof and Crack Isolation Membrane: TCNA F121, with latex cement bond coat.
  - 3. Latex-Cement Thin Set Floors over Cementitious Backer Unit over Wood: TCNA F144.
  - 4. Latex-Cement Thin Set Floors over Concrete: TCNA F113.
  - 5. Latex-Cement Thin Set Floors over Waterproof and Crack Isolation Membrane: TCNA F122.
  - 6. Latex-Cement Thin Set Floors over Acoustic Underlayment: TCNA F122.
  - 7. Latex-Cement Thin Set Floors over Cementitious Backer Unit over Wood: TCNA F144.
  - 8. Latex-Cement Thin Set Wall Tile over Cementitious Backer Units: TCNA W244.
  - 9. Latex-Cement Thin Set Wall Tile over Coated Glass Mat Backer Units: TCNA W245.
  - 10. Epoxy Thin Set (Elevator Floors): TCNA F143, with epoxy grout.
  - 11. Showers: TCNA B415 latex bond coat over reinforced mortar bed floor with latex cement thin set over cementitious backer unit walls, with shower pan liners and waterproofing at walls.
- B. Place tile in accordance with patterns indicated on Drawings or as directed by Architect; carefully plan tile layouts, ensure pattern is uninterrupted from one surface to the next and through doorways.
  - 1. Apply latex thin set to back of tile where necessary to ensure 100% bond between bond coat and substrate; replace tiles which break due to voids between tile and substrate.
- C. Place marble thresholds level and true to line; in correct alignment with tile, doors and partitions.
- D. Neatly cut tile around fixtures and drains; accurately form corners, base, intersections and returns.
  - 1. Base, Coves: Flush cove type with base grout joint on wall, cove tile on floor, unless otherwise indicated.
  - 2. Corners and Edges: Bullnose tile unless otherwise indicated.

- E. Locate expansion joints, control joints, contraction joints, and isolation joints where indicated; where not indicated, provide as recommended by TCNA Handbook and as approved by Architect.
- F. Ensure tile joints are uniform in width, subject to normal variance in tolerance allowed in tile size; ensure joints are watertight, without voids, cracks, excess mortar or grout.
- G. Sound tile after setting, remove and replace hollow sounding units.
- H. Allow tile to set for a minimum 48 hours prior to grouting.
- I. Grout tile to comply with recommendations of TCNA and as specified.
- J. Leave completed installation free of broken, damaged and faulty tile.

### **3.2 CLEANING AND SEALING**

- A. Clean tile surfaces free of foreign matter upon completion of grouting.
- B. Seal tile and grout surfaces where recommended by manufacturer for materials and applications involved; comply with manufacturer's recommendations.

**END OF SECTION**