

## **Terrazzo Tile Specification**

### **Section 09 66 16**

#### **Part 1 – General**

##### **1.01 SUMMARY**

- A. Types of Terrazzo Tile work included:
  - 1. Terrazzo Tile Floor and Wall Tile
  - 2. Precast Terrazzo Accessories
- B. Setting material, grouts, sealants and caulks
- C. Installation of terrazzo tiles
- D. Related work not specified under this section
  - 1. Sustainable Design Requirement: Section 01 81 13
  - 2. Concrete Floors: Section: 03 30 00
  - 3. Color, size, thickness, finish and type: Section 06 06 00 Schedule for finishes.
  - 4. Subfloor testing and preparation: Section 09 05 16

##### **1.02 REFERENCES**

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM C-140, C-150, C-293, C-373, C-482, C-485, C-499, C-502, C-609, C-648, C-650, C-674, C-1243, C-1378, C-1523
  - 2. ANSI A137.1 9.6 section
- B. Tile Council of America (TCNA)
  - 1. Tile Council of North America (TCNA) Handbook – latest edition
- C. American National Standards Institute (ANSI)
  - 1. ANSI A108.1 thru A108.17
  - 2. ANSI A118.1 thru A118.15

##### **1.03 QUALITY ASSURANCE**

- A. Setting and Grouting Materials: Provide materials obtained from one source for each type and color of grout and setting materials.
- B. TCNA Standards: Comply with specifications under the current Handbook for Tile Installation
- C. Manufacturer to supply written Terrazzo Tile Protocol upon request.

##### **1.04 DELIVERY, STORAGE AND HANDLING**

- A. Packaging and Shipping: Terrazzo Tile to be delivered in original unopened packaging with legible manufacturer identification including size, color, manufacture date and job number.
- B. Nominal 12" x 12", 16" x 16" and 12" x 24" tiles are boxed, banded and palletized. Our 24" x 24" are unboxed, banded and palletized.
- C. Storage and Protection: Terrazzo Tile is to be stored indoors, in a climate-controlled environment, sheltered from moisture in original packaging. Protect from damage by other trades.
- D. Report all damage due to shipment immediately. Customer is required to sign the Bill of Lading slip noting damaged product. Picture proof is required.

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#### 1.05 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by the installation materials manufacturer for optimum results. Do not install products under environmental conditions outside the installation material manufacturer's absolute limits.

#### 1.06 WARRANTY

- A. Manufacturer/Installer shall warrant installed terrazzo tile and accessories for a period of 1 year from date of substantial completion against product defects.
- B. Maintenance related matters are not considered a product defect and are not warrantable.

### Part 2 – Products

#### 2.01 MANUFACTURERS

- A. Acceptable Manufacturer:
  - a. Wausau Tile, Inc.
- B. Clarification Note: Drawings and specifications are based on manufacturer's proprietary literature from Wausau Tile, Inc. Other manufacturers shall comply with minimum levels of material specifications and detailing indicated on the drawings of specified herein.

#### 2.02 MATERIALS

- A. Portland Cement: ASTM C-150 Specifications for Portland Cement.
- B. Aggregates: All aggregates to meet ASTM C-33 specifications, cleaned and properly graded to size. Aggregate shall be blended to meet individual project requirements.
  - a. The aggregates used have a natural color range and come in a variety of sizes and colors. Therefore, the aesthetic class/shade range as per ASTM test C609 will vary from a V1 rating to a V2 rating.
  - b. The aggregates used have a natural color range. This can cause slight variances in overall color. Tiles should be blended at the job site from several cartons/pallets during installation
- C. Marble chips, size to conform with NTMA gradation standards.
- D. Coloring: Pigments used shall be inorganic, resistant to alkalinity and used per manufacturer's recommendations.
- E. Caulks & Sealants:
  - a. Urethane or Polyurethane Sealant
  - b. Color to be selected by Architect from standard color pallet.
- F. Cleaner: Liquid neutral chemical cleaner, with pH factor between 7 and 8, of
  - a. formulation recommended by sealer manufacture for type of precast terrazzo
  - b. used and complying with NTMA requirements.
- G. Sealer: Scotchgard™ Stone Floor Protector applied to the terrazzo tile prior to packaging.

## 2.03 MANUFACTURED UNITS

- A. Precast Surfaces and Edges:
  - a. Chamfered face edges
  - b. Surfaces to be uniform in appearance and free of blemishes
- B. Color to be selected from Wausau Tile, Inc. Terrazzo Tile color palette.
- C. Custom Colors and Blends
  - a. Custom Colors or Color Matching prepared by request. It is the responsibility of the Architect, Designer or Owner to approve tile samples and corresponding precast samples prior to manufacture.
- D. Finish/Texture:
  - a. Factory Polish or Honed.
  - b. Back of tile will be ground flat and free from protrusions

## 2.03 FABRICATION

- A. Mechanically vibrated in molds.
- B. Hydraulically pressed by 900-ton/3250 psi press
- C. Steam-cured with 100 percent humidity for 18 hours at 140 degrees F
- D. Factory finish: In-line back and face grinding
- E. Factory applied initial protectant
- F. Packaged and palletized

## Part 3 - Execution

### 3.01 SOURCE QUALITY CONTROL

- A. Inspections: Documented inspection of Terrazzo Tile quality control tests.
- B. In house testing is completed on the first day's production and every 5,000 square feet after for all projects. Testing is performed on the 7th day and the 28th day after the tile has been pressed.
  - a. Compression - ASTM C140 > 8,000 psi average
  - b. Absorption - ASTM C140 < 5% average
  - c. Flexural - ASTM C293 > 1000 psi average
  - d. Specular Gloss Testing at 60 degrees - ASTM D523
  - e. Stain testing/initial protection testing
- C. All projects over 10,000 square feet will have one set of tests sent to a third-party test lab.
- D. All records are kept at Wausau Tile, Inc. for a period of 5 years.

### 3.02 TEST RESULTS

- A. Independent Test Lab completed and verified the following data:
  - a. 11 13/16" x 11 13/16" x 1/2" thick Traditional Series Cement Terrazzo Tile
    - i. C373 Water Absorption – Passes (Semi-Vitreous)
    - ii. C482 Bond Strength - > 300 psi.
    - iii. C485 Warpage Edge +/- .001% or .002 in.
    - iv. C485 Warpage Diagonal +/- .003% or .010 in.
    - v. C499 Nominal Size - range of .029 in.
    - vi. C499 Thickness - range of .029 in.
    - vii. C502 Wedging +/- .023% or .028 in.



- viii. C609 Color Uniformity - V1 – V2
- ix. C648 Breaking Strength - > 500 lbs.
- x. C650 Resistance to Chemical Substance- not affected
- xi. C674 Flexural properties - > 1000 psi. average
- xii. Dynamic DCOF – Passes at factory
- xiii. ANSI A137.1 Section 9.6.1 “Wet Dynamic Coefficient of Friction (DCOF)”
- xiv. Average Polished Finish = .46 / Average Honed Finish = .54
- xv. C1243 Deep Abrasion Wear – passes (meets p3 standards)
- xvi. C1378 Resistance to staining - not affected.

### 3.03 INSTALLATION

- A. All installations of Terrazzo Tile shall comply with the appropriate Installation method as depicted in the current edition of the Tile Council of North America Handbook for Ceramic, Glass, and Stone Installation.
- B. The Architect or other design professional shall select which methods to be specified. All Specifications must also conform to local codes, ordinances, trade practices, and climate conditions.
- C. When setting Wausau Tile, Inc. Cementitious Terrazzo Tile an ANSI A118.4 mortar is required. The setting materials manufacturer’s printed installation instructions are to be followed in every instance.
- D. When setting Wausau Tile, Inc. Epoxy Terrazzo Tile an ANSI A118.3 epoxy adhesive is required. The setting materials manufacturer’s printed installation instructions are to be followed in every instance.
- E. A minimum of 95 percent thin-set coverage is recommended on the back of the tile with no voids exceeding two square inches and no voids with 2” of the edges. All corners and edges must be fully supported and back buttering is required on tiles larger than 12” to reach these requirements.
- F. ANSI A-108.5 installation specifications that correspond with the selected TCNA Installation Method are required. This includes substrate and surfaces inspections, location and frequency of EJ171 Movement Joint Guidelines, Placement Techniques, and grouting procedures.
  - a. Minimum recommended grout joint width is 1/8”
  - b. Deflection requirement of L/360
  - c. The maximum allowable substrate variation can be no more the 1/8” in 10' and 1/16” in 24”.
- G. Applied Initial Protectant - 3M Scotchgard™ Stone Floor Protector:
  - a. When using a heavy pigmented grout, it’s recommended to use a grout release prior to grouting. A test area is recommended to ensure the grout release was adequately applied.
  - b. If a slight grout haze occurs, it can be effectively removed from the tile by using a 3M™ Eraser Pad 3600 Pink pad with water and or 3M™ Neutral Cleaner. A floor buffer might be recommended to assist in cleaning
  - c. If a more difficult stain occurs, use a Scotch-Brite™ Doodlebug™ Easy Erasing Pad 4610 along with water and or 3M™ Neutral Cleaner. A floor buffer might be recommended to assist in cleaning.

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- d. For additional protectant information and long-term care guidelines, please contact 3M via 1-800-852-9722 or [www.3m.com/facility](http://www.3m.com/facility)

### 3.04 CARE & MAINTENANCE

#### A. Cleaning

- a. Dust mop or vacuum to remove sand, dust and other contaminants off the surface
- b. Clean up spills immediately and damp mop lightly soiled floors with a neutral cleaner per 3M™
- c. For more aggressive cleaning use a mechanical buffer or auto scrubber along with a 3M™ Red Buffer Pad 5100 and Neutral Cleaner per the manufacturer's recommendations.
- d. For cleaning combined with light polishing, the Scotch-Brite™ Purple Diamond Pad Plus may be used on an auto scrubber.
- e. If a stain occurs, see 3M's technical bulletin titled Repair of Etch or Stained Terrazzo Tiles to assist with the repair.
- f. DO NOT use acidic cleaners, cleaners that contain citrus (d-limonene), 2-butoxyethanol (butyl cellusolve), amine-based cleaners, isopropyl alcohol, solvent based cleaners, degreasers, or non-neutral cleaners
- g. DO NOT use spray buff products or chemical dust mop treatments.
- h. RESTROOM APPLICATION – If the product is installed in a residential or commercial restroom additional coat of a topical seal will be required to protect the floor. Restroom applications will also require a more stringent care and maintenance program.

#### B. Extended Care and Maintenance

- a. Terrazzo Tile may be periodically burnished using Scotch-Brite™ Purple Diamond Pad Plus to maintain gloss. No additional Scotchgard™ Stone Floor Protector needs to be applied to restore gloss.
- b. When the terrazzo tile no longer returns to gloss by burnishing, an additional application of Scotchgard™ Stone Floor Protector should be applied.
- c. Scotchgard™ Stone Floor Protector will wear down over time due to floor traffic. On average, high traffic areas should be recoated as needed. Light to moderate traffic areas should be recoated as needed.
- d. Please contact 3M via 1-800-852-9722 or [www.3m.com/facility](http://www.3m.com/facility) and follow their procedures for reapplication of Scotchgard™ Stone Floor Protector.
- e. Acceptable Alternates:
  - i. Aqua Mix Sealers Choice Gold
  - ii. Premium no-sheen, natural-look, low VOC, water-based penetrating sealer. Apply product per manufactures published instructions. To ensure maximum performance and expected wear of the sealer, use Aqua Mix cleaners.