

GUIDE SPECIFICATION FOR STRUCTURAL TERRAZZO (Structural system over granular fill)

(9/94 Supersedes all previous Specifications)

SECTION 09

STRUCTURAL TERRAZZO

Structural Terrazzo, both concrete substrate slab and terrazzo topping are provided by terrazzo installer. Minimum thickness of combination of substrate slab and terrazzo topping should be 5 inches.

PART 1-GENERAL

1.01 RELATED WORK SPECIFIED IN OTHER SECTIONS

NOTE: DELETE NONAPPLICABLE ITEMS.

- A. Excavation and site work including compacted granular fill to receive substrate slab. Section _____

NOTE: GRANULAR FILL SPECIFICATIONS ARE DETERMINED BY PROJECT DESIGNER. HOWEVER, PERFORMANCE OF THE FILL IS RELATED TO THE PERFORMANCE OF THE TERRAZZO FINISH.

FOLLOWING ARE RECOMMENDED MINIMUM SPECIFICATIONS FOR FILL: GRANULAR AND/OR SAND FILL COMPACTED TO 95% OF MAXIMUM DENSITY PER MODIFIED PROCTOR TEST ASTM D 1557-70.

- B. Provision of floor drains. Section _____
- C. If required, provide enclosure with temporary heat maintained at a minimum of 45 degrees Fahrenheit.
- D. Sufficient water, temporary heat and light, and adequate electric power with suitable outlets connected and distributed for use within 100 feet of any working space.

1.02 QUALITY ASSURANCE

- A. Acceptable supplier:
1. Materials furnished shall meet NTMA Specifications.
- B. Installer qualifications:
1. Installer shall be a contractor member of NTMA and shall perform all work in accordance with NTMA standards.
 2. If installer is not a contractor member of NTMA, installer shall submit a list of completed projects of a similar magnitude and complexity.

1.03 SUBMITTAL

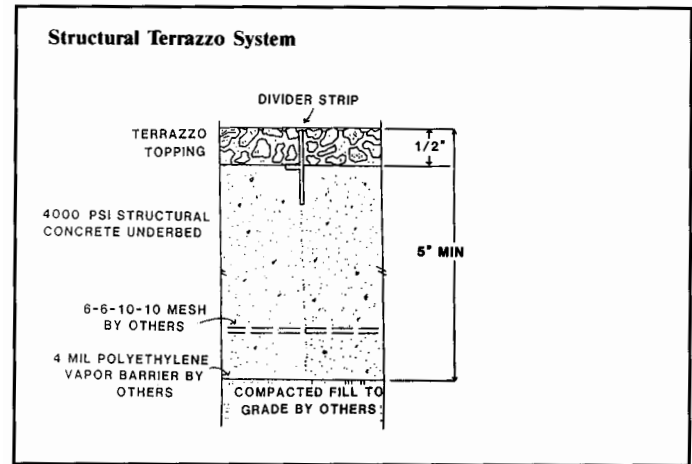
- A. Samples:
1. Submit a maximum of three samples, minimum 6" x 6" for each color and type of Terrazzo.
 2. Submit two, 6" minimum lengths of each type and kind of divider strips.
- B. Maintenance Literature:
1. Submit two copies of maintenance recommendations of NTMA or maintenance product members of NTMA.
- C. Certification:
1. Suppliers shall furnish certification attesting that materials meet specification requirements.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Delivery of materials:
1. Deliver materials in a manner to prevent damage to containers and/or bags.
- B. Storage of materials:
1. Store materials in a clean, dry and heated (if necessary) location.

1.05 GUARANTEE

One year from date of substantial completion of Terrazzo installation.



PART 2-PRODUCTS

2.01 MATERIALS

- A. Portland cement: ASTM C 150, Color _____
- NOTE: SELECT AND SPECIFY WHITE OR GRAY FOR TERRAZZO TOPPING. WHITE CEMENT IS UNIFORM IN COLOR. GRAY CEMENT MAY NOT BE UNIFORM IN COLOR AND MAY PRODUCE A VARIATION OF SHADE IN THE MATRIX.
- B. Sand: Coarse, clean, washed, locally available sand.
- C. Aggregate: 3/8" - 1/2" crushed stone.
- D. Marble Chips:
1. Size: Conform to NTMA gradation standards.
- NOTE: SEE PRODUCT INFORMATION
2. Abrasion and Impact resistance when testing in accordance with ASTM C 131-89 shall not exceed 40% loss.
 3. 24-Hour absorption rate not to exceed 0.75%.
 4. Chips: Contain no deleterious or foreign matter.
 5. Dust content less than 1% by weight.
- E. Strips:
1. Expansion joints: Plastic with a cap strip top with a depth of 1 1/4"; Thickness: _____ Color: _____
- NOTE: SPECIFY MATERIAL AND SIZE. USE ETHAFOAM, BUTYL RUBBER OR CORK. 1/2" IS RECOMMENDED WIDTH, FULL DEPTH OF STRUCTURAL SLAB AND TOPPING. SEE STRIP GUIDE.
2. Divider strips: _____
- Materials: _____
- Gauge: _____
- Depth: _____
- NOTE: SPECIFY MATERIAL TYPE AND GAUGE. STANDARDS ARE 1/8", 1/4", AND 3/8", WITH HEAVY TOP AND NON-CORROSIVE SOLID ZINC OR STAINLESS STEEL BOTTOM IN COLD WEATHER CLIMATES.
- F. Curing materials: 4-mil polyethylene sheeting or water.
- G. Sealant: Polyurethane with appropriate backer rod.
- H. Terrazzo Cleaner:
1. Ph factor between 7 and 10, where applicable.
 2. Biodegradable and phosphate free.
- I. Sealer:
1. Ph factor between 7 and 10, where applicable.
 2. Shall not discolor or amber.
 3. Penetrating type specially prepared for use on terrazzo.
 4. Flash Point: ASTM D 56, 80 degrees Fahrenheit minimum, where applicable.

5. U/L Listed as "Slip Resistant."

2.02 MIXES

A. NTMA Plate: _____

NOTE: SPECIFY COLOR AND DESIGN FROM NTMA COLOR PLATES. ANY DEVIATION FROM NTMA PLATE MUST BE CLEARLY STIPULATED.

B. Proportions:

1. Concrete substrate: 3" maximum slump designed to exceed 4,000 psi 28 days after placement, but using no less than 6 1/2 bags of portland cement per cubic yard of concrete. Observe cold and warm weather pouring recommendation of American Concrete Institute.

NOTE: RECOMMENDED MIX: 3/8 " TO 1/2 " CRUSHED STONE, COURSE SAND, PORTLAND CEMENT AND CLEAN WATER.

2. Terrazzo topping: One 94 pound bag of Portland Cement per 200- 220 pounds of marble chips, color pigment if required and sufficient potable water to produce a workable mix.

C. Mixing: Add aggregate, water, and portland cement in proper proportions, and mix thoroughly to uniform consistency. Maintain consistency by using same amount of water for all batches.

PART 3-EXECUTION

3.01 INSPECTION

- A. Examine areas to receive structural slab for defects in existing work that affect proper execution of the structural terrazzo work.
- B. Granular fill and/or sand fill must be within 1/2 " plus or minus of required elevation and properly pitched to floor drains.
- C. Start work only when all defects have been corrected by others.

3.02 INSTALLATION:

A. Concrete structural slab:

1. Set expansion material around building perimeter, around all column bases, and control joints lines indicated on the drawings, full depth of concrete structural slab.

NOTE: 1/2 " WIDE, UNLESS OTHERWISE INDICATED, INSTALLED APPROXIMATELY 10' 0" x 10' 0" BUT NOT TO EXCEED 125 SQ. FT. OF INCLUDED AREAS.

2. Place reinforcement wire at mid-depth of concrete slab.

3. Place concrete and screed to an elevation of 1/2" to 3/4" below finished floor elevation, depending on size of aggregate used in topping.

4. Install expansion joints and divider strips before concrete hardens.

5. Roughen surface of concrete to broom finish to ensure bond of rustic terrazzo topping.

B. Terrazzo topping:

NOTE: 1/2 " TO 3/4 " THICKNESS DEPENDING ON SIZE OF AGGREGATE.

1. Soak substrate surface thoroughly with clean water.
2. Place terrazzo.
3. Roll and compact surface until all excess cement and water has been extracted.
4. Trowel to a dense uniform flat surface disclosing lines of divider strips.

C. Curing:

1. After completing placement of terrazzo and the composition has sufficiently set, cover with water, wet sand or polyethylene sheeting.
2. Cure until topping develops sufficient strength to prevent lifting or pulling of terrazzo chips during grinding.

D. Finishing:

1. Rough Grinding:
 - a. Grind with 24 or finer grit stones or with comparable diamond plates.
 - b. Follow initial grind with 80 grit or finer grit stones.
2. Grouting:
 - a. Cleanse floor with clean water and rinse.
 - b. Remove excess rinse water and machine or hand apply grout, taking care to fill voids.
3. Cure Grout:

NOTE: GROUT MAY BE LEFT ON TERRAZZO UNTIL ALL HEAVY AND MESSY WORK ON PROJECT IS COMPLETED.
4. Fine Grinding:
 - a. Grind with 80 or finer grit stones until all grout is removed from surface.
 - b. Upon completion, terrazzo shall show a minimum of 70% marble chips.

E. Cleaning and Sealing:

1. Wash all surfaces with a neutral cleaner.
2. Rinse with clean water and allow surface to dry.
3. Apply sealer in accordance with manufacturer's directions.

F. Protection:

1. Upon completion, the work shall be ready for final inspection and acceptance by the owner or his agent.
2. The General Contractor shall protect the finished floor from the time that the Terrazzo Contractor completes the work.