

GUIDE SPECIFICATION FOR RUSTIC TERRAZZO

Structural system over granular fill

(Revised 6/94 - supersedes all previous Specifications)

SECTION 09 RUSTIC TERRAZZO

Rustic Terrazzo can utilize any cementitious terrazzo system. Most Rustic Terrazzo is installed on exterior, on-grade locations. NTMA considers the Structural System, Bonded or Unbonded System with underbed and Monolithic System suitable for this type of installation.

Structural System: in the Structural System, 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

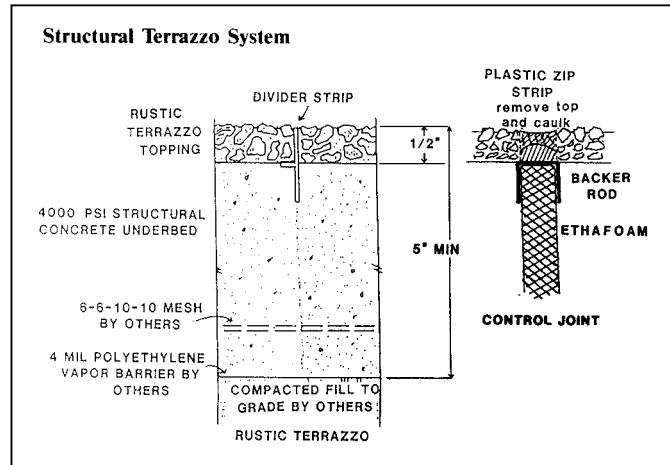
1.01 RELATED WORK SPECIFIED IN OTHER SECTIONS

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. Concrete work other than specified herein.
Section _____
- C. Furnishing temporary power.
Section _____
- D. Furnishing clean water.
Section _____
- E. Provision of floor drains.
Section _____
- F. If required, provide enclosure with temporary heat maintained at a minimum of 45 degrees Fahrenheit.



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 rustic 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. WHERE CLIMATIC CONDITIONS SO DEMAND, SPECIFY AN AIR ENTRAINING AGENT (6% AIR PLUS OR MINUS 1%) FOR STRUCTURAL SLAB TO MINIMIZE FREEZE-THAW CYCLE DAMAGE. PACKAGE AIR ENTRAINING CEMENT MUST NOT BE USED.
- B. Sand: Coarse, clean, washed, locally available sand.
- C. Aggregate: 3/8" - 1/2" crushed stone.

- D. Marble, Quartz, Granite and/or Gravel.
NOTE: SELECT HARD, DURABLE AGGREGATES, PARTICULARLY IN AREAS WHERE FREEZING OCCURS. CONSULT LOCAL TERRAZZO INSTALLER. IN AREAS SUCH AS SWIMMING POOLS DECKS, WHERE SMOOTHER FINISH MAY BE DESIRED, OVAL AGGREGATE SHOULD BE CONSIDERED.
1. Size: Conform to NTMA standards.
 2. 24-hour absorption rate: Not to exceed 0.25%.
 3. Chips: Contain no deleterious or foreign matter.
- 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. Sealer:
1. Shall not discolor or amber.
 2. Penetrating type specifically prepared for use with rustic terrazzo.
NOTE: SOLVENT ACRYLIC TYPE PREFERRED.
- I. Reinforcing mesh 6" x 6" x 10 gauge minimum.
NOTE: OR AS DESIGNED FOR SPECIFIC SLAB LOAD REQUIREMENTS.

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, CLEAN WATER, AIR-ENTRAINING AGENT (6% AIR PLUS OR MINUS 1%), OR AS DESIGNED FOR SPECIFIC SLAB LOAD REQUIREMENTS TO ACHIEVE 4,000 PSI AT A 3" SLUMP.
 2. Terrazzo topping:
NOTE: RECOMMENDED MIX: ONE BAG (94 LBS) OF PORTLAND CEMENT PER 200 LBS OF AGGREGATE AND 4 1/2 TO 5 GALLONS OF CLEAN WATER. DEPTH OF TOPPING 1/2" TO 3/4", DEPENDING ON THE SIZE OF AGGREGATE. CLEAN WHITE FINE SAND MAY BE ADDED TO 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 rustic 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 INSTALLATIONS

- 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 before concrete hardens.
 5. Roughen surface of concrete to broom finish to ensure bond of rustic terrazzo topping.
- B. Rustic terrazzo topping:
NOTE: 1/2" TO 3/4" THICKNESS DEPENDING ON SIZE OF AGGREGATE.
1. Soak substrate surface thoroughly with clean water.
 2. Place rustic terrazzo.
 3. Roll and compact surface until all excess cement and water has been extracted.
- C. Finishing
1. Expose aggregate by hosing, absorbent rolling, or use of a retarder.
- D. Curing:
1. Flood with clean water, or cover with 4 mil. polyethylene sheeting.
- E. Cleaning:
1. When topping is sufficiently cured, in the opinion of the terrazzo installer, apply a 1 to 10 solution of muriatic acid in water, scrub with a stiff broom to remove all laitance, and rinse immediately with clean water to remove all traces of the acid.
NOTE: ACID WASH NO SOONER THAN 7 DAYS AFTER INSTALLATION.
- F. Sealing:
1. Rinse floor with clean water and allow to dry.
 2. When floor is dry, apply the sealer in accordance with manufacturer's directions for use on rustic terrazzo.
- G. Caulking:
1. Place sealant in joints with backer rod as required.

H. 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 rustic terrazzo installer completes the work.

NOTE: COORDINATE WITH THE SPECIFICATIONS FOR PROTECTION IN SECTION 01600, "MATERIALS AND EQUIPMENT."

IMPORTANT NOTE TO SPECIFIER FOR TRANSMITTAL TO OWNER OR OWNER'S AGENT: DE-ICING CHEMICAL AND SALT ARE INJURIOUS TO PORTLAND CEMENT SURFACES AND SHOULD NOT BE USED ON RUSTIC TERRAZZO.

*NOTE: SCHEMATIC DESIGN ILLUSTRATED IN THIS SECTION IS NOT INTENDED TO INDICATE SCALE OR VERTICAL POSITION OF THE WIRE REINFORCEMENT MESH. THE LOCATION OF THE MESH NORMALLY VARIES UP AND DOWN IN THE CONCRETE UNDERBED.

GUIDE SPECIFICATION FOR RUSTIC TERRAZZO

Bonded system with setting bed over concrete
(Revised 6/94 - supersedes all previous specifications)

SECTION 09 RUSTIC TERRAZZO

Rustic Terrazzo can utilize any cementitious terrazzo system. Most Rustic Terrazzo is installed on exterior, on-grade locations. NTMA considers the Structural System, Bonded or Unbonded Systems with underbed and monolithic System suitable for this type of installation.

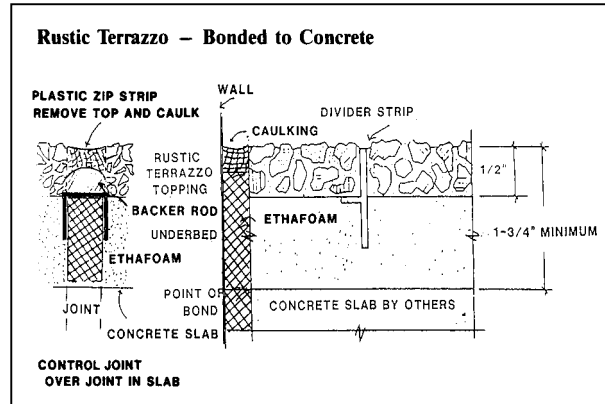
Minimum thickness 1-3/4" Bonded System with setting bed over concrete substrate slab.

PART 1-GENERAL

1.01 RELATED WORK SPECIFIED IN OTHER SECTIONS

NOTE: DELETE NONAPPLICABLE ITEMS.

- A. Furnishing temporary power.
Section _____
- B. Furnishing clean water.
Section _____
- C. Structural Concrete slab to receive terrazzo topping.
Section _____
NOTE: SURFACE MUST NOT BE CURED WITH A LIQUID MEMBRANE OR CONTAIN OTHER ADDITIVES WHICH COULD INHIBIT BOND OF TERRAZZO TOPPING.
- D. Expansion joints in concrete substrate slab.
- E. Provision of surface drains. Section _____
NOTE: SLAB MUST SLOPE A MINIMUM OF 1/8" PER FOOT TO OBTAIN PROPER DRAINAGE.
- F. If required, provide enclosure with temporary heat maintained at a minimum of 45 degrees Fahrenheit.



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 rustic 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. WHERE CLIMACTIC CONDITIONS DO DEMAND, SPECIFY AN AIR ENTRAINING AGENT (6% AIR PLUS OR MINUS 1%) FOR STRUCTURAL SLAB TO MINIMIZE FREEZE-THAW CYCLE DAMAGE. PACKAGE AIR ENTRAINING CEMENT MUST NOT BE USED.
- B. Sand: Coarse, clean, washed, locally available sand.
- C. Marble, Quartz, Granite and/or Gravel.
NOTE: SELECT HARD, DURABLE AGGREGATES, PARTICULARLY IN AREAS WHERE FREEZING OCCURS. CONSULT LOCAL TERRAZZO INSTALLER. IN AREAS SUCH AS SWIMMING POOLS DECKS, WHERE A SMOOTHER FINISH MAY BE DESIRED, OVAL AGGREGATE SHOULD BE CONSIDERED.
 - 1. Size: Conform to NTMA standards.

- 2. 24-hour absorption rate: Not to exceed 0.25%.
- 3. Chips: Contain no deleterious or foreign matter.
- D. 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 UNDERBED AND TERRAZZO TOPPING. PLACE DIRECTLY ABOVE EXPANSION JOINTS IN CONCRETE STRUCTURAL SLAB. SEE STRIP GUIDE.
 - 2. Divider strips:
 Materials _____ Gauge _____
- E. Curing materials: 4-mil polyethylene sheeting or water.
- F. Sealant: Polyurethane with appropriate backer rod.
- G. Sealer:
 - 1. Shall not discolor or amber.
 - 2. Penetrating type specifically prepared for use with rustic terrazzo.
NOTE: SOLVENT ACRYLIC TYPE PREFERRED.
 - 3. Flash point: ASTM D 56, 95 degrees Fahrenheit.
- H. Bonding Agent: Neat Portland Cement.

2.02 MIXES

- A. NTMA Plate:
NOTE: SPECIFY COLOR AND DESIGN FROM NTMA INFORMATION GUIDE COLOR PLATES. ANY DEVIATION FROM NTMA PLATE MUST BE CLEARLY STIPULATED.
- B. Proportions:
 - 1. Underbed: One part portland cement to 4 parts course sand. Air entrainment agent (6% plus or minus 1% air).
 - 2. Terrazzo topping:
NOTE: RECOMMENDED MIX: ONE BAG (94 LBS) OF PORTLAND CEMENT PER 200 LBS OF AGGREGATE AND 4-1/2 TO 5 GALLONS OF CLEAN WATER. DEPTH OF TOPPING 1/2" TO 3/4", DEPENDING ON THE SIZE OF AGGREGATE. CLEAN WHITE FINE SAND MAY BE ADDED TO 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 rustic terrazzo for:
 - 1. Defects in existing work that affect proper execution of terrazzo work.
NOTE: STRUCTURAL CRACKS IN SUBSTRATE WILL USUALLY BE TRANSMITTED THROUGH TOPPING TO SURFACE.
 - 2. Deviations beyond allowable tolerances for the concrete slab work.
- B. Start work only when all defects have been corrected by others.

3.02 INSTALLATIONS

- A. Concrete underbed:
 - 1. Set expansion material around building perimeter, around all column bases, and directly above expansion joints in concrete structural slab.
 - 2. Soak surface of concrete structural slab with clean water.
 - 3. Place concrete and screed to an elevation of 1/2" to 3/4" below finished surface, depending on size of aggregate.
 - 4. Install plastic divider strips before concrete hardens.
- B. Placing Rustic terrazzo topping:
NOTE: 1/2" TO 3/4" THICKNESS DEPENDING ON SIZE OF AGGREGATE.
 - 1. Soak underbed surface thoroughly with clean water.
 - 2. Place rustic terrazzo.
 - 3. Roll and compact surface until all excess cement and water has been extracted.
- C. Finishing
 - 1. Expose aggregate by hosing, absorbent rolling, or use of a retarder.
- D. Curing:
 - 1. Flood with clean water, or cover with 4 mil. polyethylene sheeting.
- E. Cleaning:
 - 1. When topping is sufficiently cured, in the opinion of the terrazzo installer, apply a 1 to 10 solution of muriatic acid in water, scrub with a stiff broom to remove all laitance, and rinse immediately with clean water to remove all traces of the acid.
NOTE: ACID WASH NO SOONER THAN 7 DAYS AFTER INSTALLATION.
- F. Sealing:
 - 1. Rinse floor with clean water and allow to dry.
 - 2. When floor is thoroughly dry, apply the sealer in accordance with manufacturer's directions for use on rustic terrazzo.
- G. Caulking:
 - 1. Place sealant in joints with backer rod as required.
- H. 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 rustic terrazzo installer completes the work.
NOTE: COORDINATE WITH THE SPECIFICATIONS FOR PROTECTION IN SECTION 01600, "MATERIALS AND EQUIPMENT."

IMPORTANT NOTE TO SPECIFIER FOR TRANSMITTAL TO OWNER OR OWNER'S AGENT: DE-ICING CHEMICALS AND SALT CAN BE INJURIOUS TO PORTLAND CEMENT SURFACES AND SHOULD NOT BE USED ON RUSTIC TERRAZZO.

GUIDE SPECIFICATION FOR MONOLITHIC RUSTIC TERRAZZO

Monolithic Rustic Terrazzo – Direct Bond to Concrete Slab

(Revised 6/94 Supersedes all previous specifications)

SECTION 09 RUSTIC TERRAZZO

Rustic Terrazzo can utilize any cementitious terrazzo system. Most Rustic Terrazzo is installed on exterior, on-grade locations. NTMA considers the Structural System, Bonded or Unbonded System with underbed and Direct bond system suitable for this type of installation.

Monolithic system 1/2" to 3/4" thickness to concrete substrate slab by others.

PART 1-GENERAL

1.01 RELATED WORK SPECIFIED IN OTHER SECTION

NOTE: DELETE NONAPPLICABLE ITEMS.

- A. Furnishing temporary power.
Section _____
- B. Furnishing clean water.
Section _____
- C. Structural concrete slab to receive terrazzo topping.
Section _____

- 1. Clean area to receive terrazzo of loose chips, laitance, and foreign matter. Concrete slab specification is determined by project designer. However, performance of the slab is related to the performance of the terrazzo finish.
- 2. Following is recommended minimum specification for slab:
 - a. Maximum 3" slump, designed to exceed 4,000 psi in 28 days after placement.
 - b. Finished 1/2" to 3/4" below finished floor elevation (depending on size of aggregate). Surface roughened to facilitate bond of topping. Broom finish with stiff broom to striate approximately 1/8" deep, 1/8" wide and 1/8" apart.
 - c. Surface must not be cured with a liquid membrane or contain other additives which could prevent bond of terrazzo topping.

- D. Expansion joints in concrete substrate slab.

Section _____

NOTE: INSTALLED AT BUILDING PERIMETER, AROUND ALL COLUMN BASES AND TO DIVIDE THE SLAB APPROXIMATELY 10' x 10' EACH WAY, BUT NOT TO EXCEED 125 SQUARE FEET OF INCLUDED AREA, FULL DEPTH OF THE CONCRETE AND SET FLUSH WITH THE TOP OF THE CONCRETE SLAB. JOINT MATERIAL: 1/2" THICK PREFORMED, NON-EXTRUDED, FIBER EXPANSION JOINT MATERIAL, OR SIMILAR COMPRESSIBLE MATERIAL. SAW CUTTING OF CONTROL JOINTS MUST BE DONE BETWEEN 12-24 HOURS AFTER PLACEMENT OF THE STRUCTURAL CONCRETE.

- E. Provision of floor drains.

Section _____

- F. If required, provide enclosure with temporary heat maintained at a minimum of 45 degrees Fahrenheit.

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

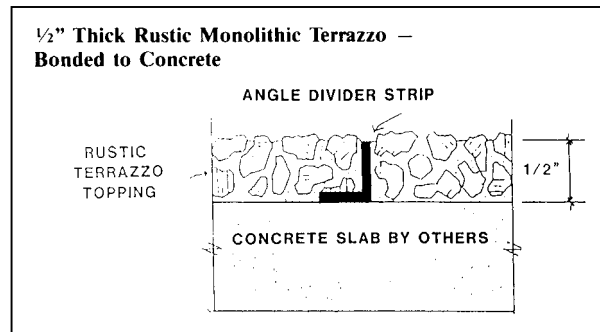
- A. Samples:
 - 1. Submit a maximum of three samples, minimum 6" x 6" for each color and type of rustic terrazzo.
 - 2. Submit two, 6" minimum lengths of each type and kind of divider strips.
- B. Maintenance Literature:
 - 1. Submit two copies of maintenance recommendations of NTMA or maintenance product 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. WHERE CLIMATIC CONDITIONS SO DEMAND, SPECIFY AN AIR ENTRAINING AGENT (6% AIR PLUS OR MINUS 1%) FOR STRUCTURAL SLAB TO MINIMIZE FREEZE-THAW CYCLE DAMAGE. PACKAGE AIR ENTRAINING CEMENT MUST NOT BE USED.
- B. Marble, Quartz,, Granite and/or Gravel.
NOTE: SELECT HARD, DURABLE AGGREGATES, PARTICULARLY IN AREAS WHERE FREEZING OCCURS. CONSULT LOCAL TERRAZZO INSTALLER. IN AREAS SUCH AS SWIMMING POOL DECKS, WHERE A SMOOTHER FINISH MAY BE DESIRED, OVAL AGGREGATE SHOULD BE CONSIDERED.
1. Size: Conform to NTMA Standards.
2. 24-hour absorption rate; Not to exceed 0.75%.
3. Chips: Contain no deleterious or foreign matter
- C. Strips:
1. Expansion joints; Angle plastic material with a depth of 1/2" – 3/4";
Thickness: _____
Color: _____
or saw cuts, inserting straight strips into cuts.
NOTE: SPECIFY MATERIAL AND SIZE. USE ETHAFOAM, BUTYL RUBBER OR CORK. 1/2" IS RECOMMENDED WIDTH, FULL DEPTH OF TOPPING. PLACE DIRECTLY ABOVE EXPANSION JOINTS IN CONCRETE SUBSTRATE SLAB. SEE STRIP GUIDE.
2. Divider Strips:
Material _____
Gauge _____
- D. Curing materials: 4-mil polyethylene sheeting or water.
- E. Sealant: Polyurethane with appropriate backer rod.
- F. Sealer:
1. Shall not discolor or amber.
2. Penetrating type specifically prepared for use with rustic terrazzo.
NOTE: SOLVENT ACRYLIC TYPE PREFERRED.
3. Flash point: ASTM D 56, 95 degrees Fahrenheit.
- G. Bonding agents: Neat Portland Cement, epoxy or acrylic.

2.02 MIXES

- A. NTMA Plate:
NOTE: SPECIFY COLOR AND DESIGN FROM NTMA COLOR PLATE. ANY DEVIATION FROM NTMA PLATE MUST BE CLEARLY STIPULATED.
- B. Proportions:
1. Terrazzo topping:
NOTE: RECOMMENDED MIX: ONE BAG (94LB) OF PORTLAND CEMENT PER 200 LBS OF AGGREGATE AND 4-1/2 TO 5 GALLONS OF CLEAN WATER. DEPTH OF TOPPING 1/2" TO 3/4", DEPENDING ON SIZE OF AGGREGATE. CLEAN WHITE SAND MAY BE ADDED TO 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 rustic terrazzo for:
1. Defects in existing work that affect proper execution of rustic terrazzo work.
2. Check concrete substrate for pitch to drains.
3. Check cleanliness of substrate slab.
- B. Start work only when all defect have been corrected by others.

3.02 INSTALLATION

- A. Set expansion joints at required thickness of topping.
- B. Placing rustic terrazzo topping:
1. Saturate concrete subfloor with clean water.
NOTE: DO NOT SATURATE CONCRETE SUBFLOOR WITH WATER IF AN EPOXY BONDING AGENT IS USED.
2. Apply bonding agent.
3. Place Rustic Terrazzo.
4. Roll and compact surface until all excess cement and water has been extracted.
- C. Finishing:
1. Expose aggregate by hosing, absorbent rolling, or use of a retarder.
- D. Curing:
1. Flood with clean water, or cover with 4-mil. polyethylene sheeting.
- E. Cleaning:
1. When topping is sufficiently cured, in the opinion of the terrazzo installer, apply a 1 to 10 solution of muriatic acid in water, scrub with a stiff broom to remove laitance, and rinse immediately with clean water to remove traces of the acid.
NOTE: ACID WASH NO SOONER THAN 7 DAYS AFTER INSTALLATION.
- F. Sealing:
1. Rinse floor with clean water and allow to dry.
2. When floor is thoroughly dry, apply the sealer in accordance with manufacturer's directions for use on rustic terrazzo.
- G. Protection:

1. Upon substantial 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 the rustic terrazzo installer completes the work.
NOTE: COORDINATE WITH THE SPECIFICATIONS FOR PROTECTION IN SECTION 01600, "MATERIALS AND EQUIPMENT".

IMPORTANT NOTE TO SPECIFIER FOR TRANSMITTAL TO OWNER OR OWNER'S AGENT: DE-ICING CHEMICALS AND SALT ARE INJURIOUS TO PORTLAND CEMENT SURFACES AND SHOULD NOT BE USED ON RUSTIC TERRAZZO.

GUIDE SPECIFICATION FOR UNBONDED RUSTIC TERRAZZO

Unbonded system with setting bed over concrete slab with waterproof membrane

(Revised 6/94 Supersedes all previous specifications)

SECTION 09 RUSTIC TERRAZZO

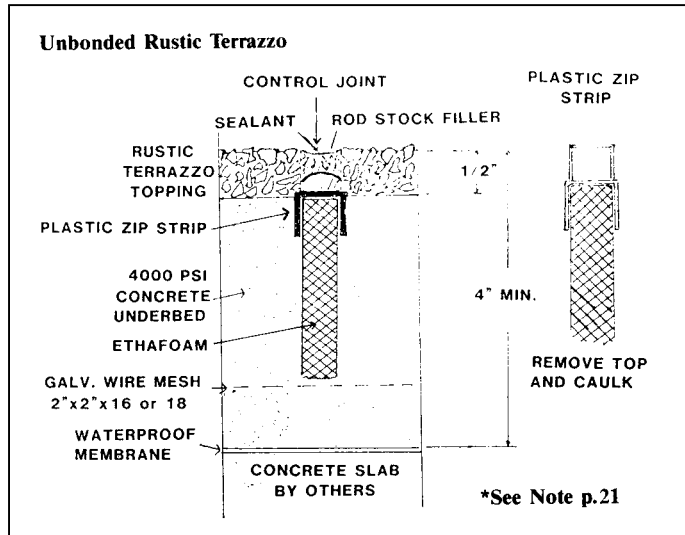
Rustic terrazzo can utilize any cementitious terrazzo system. Most Rustic terrazzo is installed on exterior, on-grade locations. NTMA considers the Structural System, Bonded or Unbonded System with underbed and Monolithic System suitable for this type of installation.

Minimum thickness 4 inches unbonded system with setting bed over waterproof concrete substrate slab.

PART 1-GENERAL

1.01 RELATED WORK SPECIFIED IN OTHER SECTIONS

- NOTE: DELETE NONAPPLICABLE ITEMS*
- A. Furnishing temporary power.
Section _____
 - B. Furnishing clean water.
Section _____
 - C. Structural concrete slab to receive terrazzo topping.
Section _____
 - D. Expansion joints in concrete substrate slab.
Section _____
 - E. Provision of floor drains.
Section _____
NOTE: TYPE WITH WEEP HOLES TO DRAIN WATER FROM SUBSTRATE SLAB. WEEP HOLES MUST BE AT LEAST 1" IN DIAMETER. SLAB MUST SLOPE A MINIMUM OF 1/8" PER FOOT TO OBTAIN PROPER DRAINAGE.
 - F. If required, provide enclosure with temporary heat maintained at a minimum of 45 degrees Fahrenheit.
 - G. Concrete slab and waterproof membrane by others.



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 rustic 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. WHERE CLIMATIC CONDITIONS SO DEMAND, SPECIFY AN AIR ENTRAINING AGENT (6% AIR PLUS OR MINUS 1%)

FOR STRUCTURAL SLAB TO MINIMIZE FREEZE-THAW CYCLE DAMAGE. PACKAGE AIR ENTRAINING CEMENT MUST NOT BE USED.

- B. Sand: Coarse, clean, washed, locally available sand.
- C. Aggregate: 3/8" – 1/2" crushed stone.
- D. Marble, Quartz, Granite and/or Gravel.
NOTE: SELECT HARD, DURABLE AGGREGATES, PARTICULARLY IN AREAS WHERE FREEZING OCCURS. CONSULT LOCAL TERRAZZO INSTALLER. IN AREAS SUCH AS SWIMMING POOL DECKS, WHERE A SMOOTHER FINISH MAY BE DESIRED, OVAL AGGREGATE SHOULD BE CONSIDERED.
 - 1. Size: Conform to NTMA Standards.
 - 2. 24-hour absorption rate; Not to exceed 0.75%.
 - 3. Chips: Contain no deleterious or foreign matter.
- E. Strips:
 - 1. Expansion joints; Plastic with a cap strip top with a depth of 1-1/4";
Thickness: _____,
Color: _____,
or saw cuts, inserting straight strips into cuts.
NOTE: SPECIFY MATERIAL AND SIZE. USE ETHAFOAM, BUTYL RUBBER OR CORK. 1/2" IS RECOMMENDED WIDTH, FULL DEPTH OF TOPPING. PLACE DIRECTLY ABOVE EXPANSION JOINTS IN CONCRETE SUBSTRATE SLAB. SEE STRIP GUIDE.
 - 2. Divider Strips:
Material _____
Gauge _____
- F. Curing materials: 4-mil polyethylene sheeting or water.
- G. Sealant: Polyurethane with appropriate backer rod.
- H. Sealer:
 - 1. Shall not discolor or amber.
 - 2. Penetrating type specifically prepared for use with rustic terrazzo.
NOTE: SOLVENT ACRYLIC TYPE PREFERRED.
 - 3. Flash point: ASTM D 56, 95 Degrees Fahrenheit.
- I. Isolation Membrane: ASTM D 2103 Type 13300, 4 MIL. Polyethylene sheeting.
- J. Reinforcement: ASTM A 185, 2" x 2" x 16 Gauge or 18 gauge galvanized mesh.

2.02 MIXES

- A. NTMA Plate:
NOTE: SPECIFY COLOR AND DESIGN FROM NTMA COLOR PLATE. ANY DEVIATION FROM NTMA PLATE MUST BE CLEARLY STIPULATED.
- B. Proportions:
 - 1. Underbed: One part portland cement to 4 parts course sand. Air entrainment agent (6% plus or minus 1%).
NOTE: RECOMMEND MIX: 3/8" – 1/2" CRUSHED STONE, COURSE SAND, PORTLAND CEMENT, CLEAN WATER, AIR ENTRAINMENT AGENT (6% AIR PLUS OR MINUS 1%) OR AS DESIGNED FOR SPECIFIC SLAB LOAD REQUIREMENTS TO ACHIEVE 4,000 PSI AT A 3" SLUMP.
 - 2. Terrazzo topping:
NOTE: RECOMMENDED MIX: ONE BAG (94 LBS) OF PORTLAND CEMENT PER 200 LBS OF AGGREGATE AND 4-1/2 TO 5 GALLONS OF CLEAN WATER. DEPTH OF TOPPING 1/2" TO 3/4", DEPENDING ON THE SIZE OF AGGREGATE. CLEAN WHITE FINE SAND MAY BE ADDED TO 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 terrazzo for defects in existing work that affect proper execution of Rustic Terrazzo.
- B. Check cleanliness of substrate.
- C. Start work only when all defects have been corrected by others.

3.02 INSTALLATION

- A. Concrete underbed:
 - 1. Set expansion material around building perimeter, around all column bases, and directly above expansion joints in concrete structural slab.
NOTE: 1/2" WIDE, UNLESS OTHERWISE INDICATED, INSTALLED APPROXIMATELY 10' x 10' BUT NOT TO EXCEED 125 SQ. FT. OF INCLUDED AREA.
 - 2. Place and screed to an elevation of 1/2" to 3/4" below finished surface, depending on size of aggregate.
 - 3. Install plastic divider strips before concrete hardens.
- B. Placing rustic terrazzo topping:
NOTE: 1/2" TO 3/4" THICKNESS DEPENDING ON SIZE OF AGGREGATE.
 - 1. Soak underbed surface with clean water.
 - 2. Place rustic terrazzo.
 - 3. Roll and compact surface until all excess cement and water has been extracted.
- C. Finishing:
 - 1. Expose aggregate by hosing, absorbent rolling, or use of a retarder.
- D. Curing:
 - 1. Flood with clean water, or cover with 4-mil polyethylene sheeting.
- E. Cleaning:
 - 1. When topping is sufficiently cured, in the opinion of the terrazzo installer, apply a 1 to 10 solution of muriatic acid in water, scrub with a stiff broom to remove laitance, and rinse immediately with clean water to remove traces of the acid.
NOTE: ACID WASH NO SOONER THAN 7 DAYS AFTER INSTALLATION.
- F. Sealing:
 - 1. Rinse floor with clean water and allow to dry.

2. When floor is dry, apply the sealer in accordance with manufacturers directions for use on rustic terrazzo.
- G. Caulking:
1. Place sealant in joint with backer rod as required.
- H. 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 rustic terrazzo installer completes the work.

NOTE: COORDINATE WITH THE SPECIFICATIONS FOR PROTECTION IN SECTION 01600, "MATERIAL AND EQUIPMENT"

**NOTE: SCHEMATIC DESIGN ILLUSTRATED IN THIS SECTION IS NOT INTENDED TO INDICATE SCALE OR VERTICAL POSITION OF THE WIRE REINFORCEMENT MESH. THE LOCATION OF THE MESH NORMALLY VARIES UP AND DOWN IN THE CONCRETE UNDERBED.*