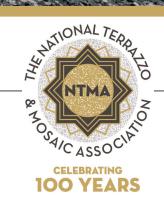
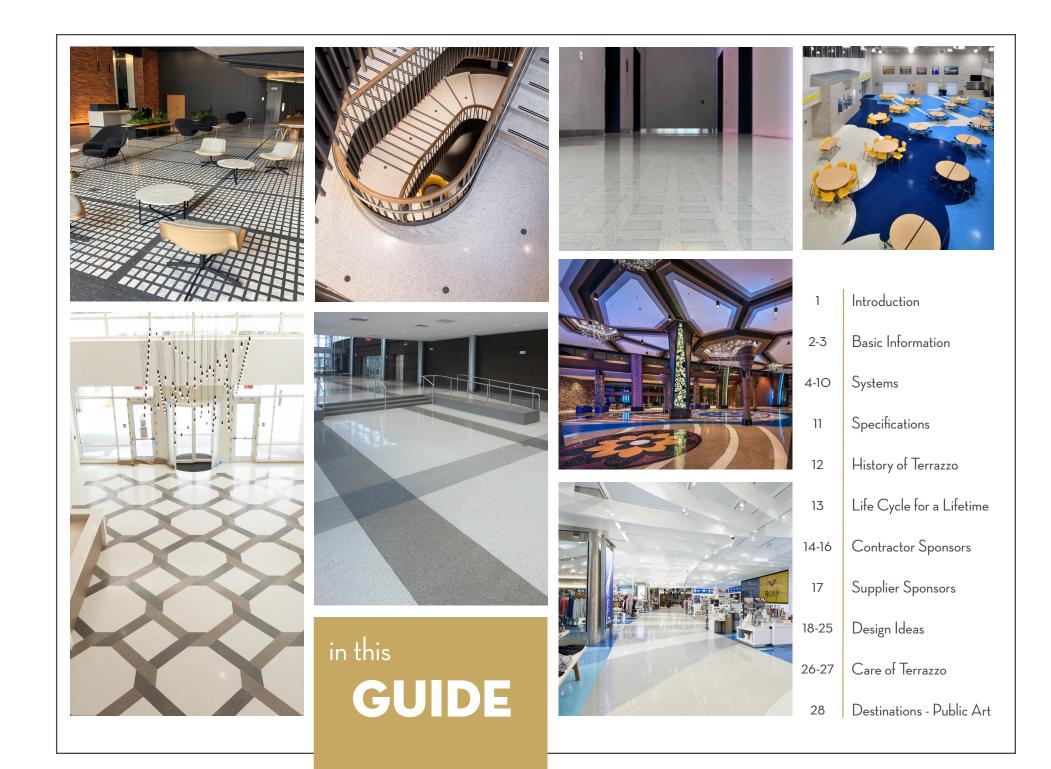
# NATIONAL TERRAZZO & MOSAIC ASSOCIATION



# TERRAZZO SYSTEMS REFERENCE GUIDE





### Introduction

Terrazzo, def., A composite flooring system consisting of either a cement or resinous matrix with marble, granite, onyx, glass (in resinous system) or other aggregate. Terrazzo is poured-in-place, cured, and ground to a smooth, hard surface finish.

Terrazzo is a custom flooring crafted essentially from natural products and subject to slight shade variations. Cement, both white and gray, may not be uniform in color.

### Cement Terrazzo Systems

Sand Cushion, def., Cement matrix terrazzo system that is installed independent of the concrete slab. Cement underbed, with wire reinforcing, isolation sheet, and light dusting of sand and terrazzo topping. Interior System. 2-1/2 inch to 3 inch thickness, including a 1/2 inch nominal thickness terrazzo topping.

Bonded Terrazzo, def., Cement matrix terrazzo system that bonds directly to the concrete slab. Cement underbed and terrazzo topping. Interior System. 1-3/4 inch thickness, including 1/2 inch nominal thickness terrazzo topping.

Monolithic, def., Cement matrix terrazzo system that bonds directly to the concrete slab. Dependent on quality of the concrete slab for flatness and crack prevention. Interior System. 1/2 inch nominal thickness terrazzo topping.

Polyacrylate, def., Polymer modified cement matrix terrazzo system that bonds directly to the concrete slab. Dependent on quality of the concrete slab for flatness and crack prevention. Interior System. 3/8 inch nominal thickness terrazzo topping.

### Resin Terrazzo Systems

Epoxy def., Resin matrix terrazzo system that bonds directly to the concrete slab. Dependent on quality of concrete slab for flatness and crack prevention. Interior System. 3/8 inch nominal thickness terrazzo topping.

### BASIC TERRAZZO SYSTEMS INFORMATION AVAILABLE TO FIT VARIABLE JOB CONDITIONS

System	Description	Advantages	Thickness	Weight	Dividers	
Ероху	A nominal 3/8" thick resin matrix veneer placed upon an interior flat concrete slab; in addition to traditional marble chips, also can be specified with granite, glass, plastics, metal, and other aggregates to provide brilliant colors, unique accents, chemical resistance, etc. Epoxy terrazzo has the greatest tensile, compressive, and flexural strength of any system.	Unlimited matrix colors, color control, resiliency, chemical resistance and tensile-compressive strengths not available in cement based systems. Excellent for multi-colored patterns and designs. Light weight and flexibility make it ideal for multi-story use. It has a lower maintenance cost due to low permeability. In sanitary areas it can be installed with minimal dividers providing seamless characteristics. When used in conjunction with a flexible membrane as a specified extra, it can absorb some horizontal concrete crack or control joint movement. Can be installed with a flexible membrane to aid in the suppression of reflective cracking. It also has the quickest pour to grind installation time. Can also be used over properly installed and prepared plywood. Glass and other decorative aggregates normally increase the cost.	Nominal 3/8" epoxy terrazzo topping. #0-1 chip sizes optional. #2 chip for 3/8"	3-4 lbs. PSF.	All these systems adhere to the concrete and require dividers. To minimize cracking in the concrete, "ACI 302.1 Concrete Joint Placement" must be followed. Concrete joints should run off all corridor intersections and corners.In addition other dividers can be set to separate colors or as an accent themselves. In these systems the dividers not located over concrete joints are strictly decorative. They do not function as leveling devices or crack preventers.Dividers may vary in width from 18 gauge to 1/2". 16 gauge or 1/8" are standards. Zinc and brass are avail- able for cement. Zinc, brass, plastic and aluminum divider strips are allowable for use in epoxy terrazzo systems.	
Monolithic	This nominal 1/2" thick ce- ment matrix veneer placed upon a provided concrete slab is dependent on the concrete quality for flatness and crack prevention.	Fast installation and the most economical price make it ideal where time and budget are critical but where beauty, low maintenance, and the performance of terrazzo is desired.	1/2" terrazzo topping.	5-7 lbs. PSF.		
Bonded	A cement matrix and underbed system for interior and exterior areas where conditions require $1-1/4$ " to $1-3/4$ " of recessed depth to be filled in addition to the $1/2$ " terrazzo topping.	With the sand-cement mortar underbed it has less dependence on the concrete slab for flatness when compared to monolithic.	1-3/4" to 2-1/4" in- cluding 1/2" terrazzo topping.	18-22 lbs. PSF.		
Polyacrylate	A nominal 3/8" thick polymer modified cement matrix veneer placed upon a provided flat concrete slab. Polymer provides added strength to allow for thinner applications of cement systems.	Ideal to replace vinyl or carpet without depth transition difficulties; also good to use in areas subject to high moisture vapor transmission where non-breathing floors will often not suitably adhere without supplemental topical treatments.	Nominal 3/8" polyacrylate with terrazzo topping. Chip sizes #0, 1 & 2.	4-1/2 lbs. PSF.	Architects should design structural inset expansion plates between areas where major movement is anticipated.	

### BASIC TERRAZZO SYSTEMS INFORMATION AVAILABLE TO FIT VARIABLE JOB CONDITIONS

System	Description	Advantages	Thickness	Weight	Dividers
Sand Cushion	A cement matrix topping over underbed/screed with wire reinforcing, isolation sheet, and sand layer system for interior floor use. This is considered by many as the premier cement based system.	Due to the underbed's depth, wire mesh reinforcing and sand layer, it will accommodate minor substrate defects and resist mirroring to the surface.	2-1/2" to 3" including a 1/2" terrazzo topping.	25-30 lbs. PSF.	The position of vertically embedded divider strips is essential to performance, serving a dual function: a control for anticipated contraction and an aesthetic enhancement in separating colors. Squares of 4'x4' or less on centers are ideal – rectangles of no more than 25 square feet (aspect ratio maximum 1.5:1) are next best. Architects should design structural inset expansion plates between areas where major movement is anticipated.
Rustic	Terrazzo with a non-ground, textured surface, commonly for exterior use. This system is available with Sand Cushion, Bonded, and Monolithic.	Infinitely variable textures, colors, and patterns may be created in a weather-resistant, skid resistant deck surface.	1/2" to 6" including a 1/2" terrazzo topping.	Dependent on system selected	Temporary wood strips are used, and then replaced by a pourable sealant inserted into the joint.
Precast	Prefabricated custom units for flat or coved base work, stair treads & risers, stringers, planters, benches, wall panels.	Virtually unlimited uses.	Custom Contact your supplier/ma	local NTMA	

### Customary Aggregate Sizes for Terrazzo Toppings

Cement	No. 1 and 2	(1/2  inch nominal thickness)
Epoxy	No. 0, 1 and 2	(3/8 inch nominal thickness)
Epoxy	No. 0 and 1	(1/4 inch nominal thickness)
Polyacrylate	No. 1 and 2	(3/8 inch nominal thickness)
Venetian	No. 1, 2, 3, 4 and 5	(5/8 inch nominal thickness)

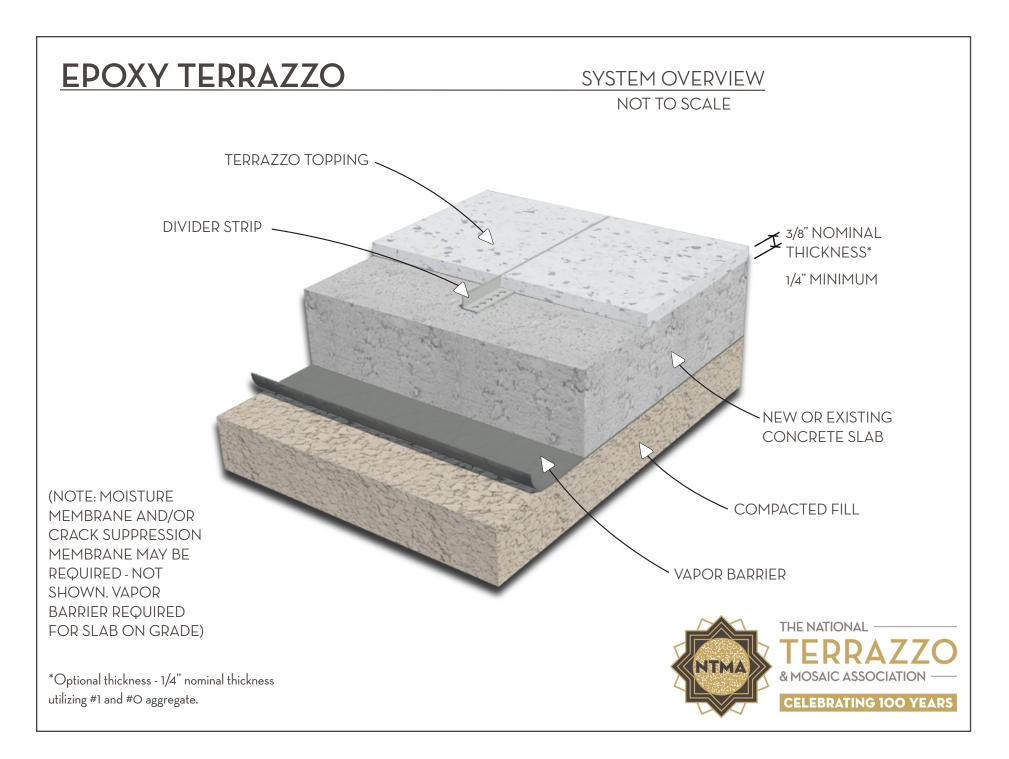
Price factors include: complexity, number of different colors, local labor rates, divider strip quantity and type, size and source of aggregate, size of areas and total project, number of phases and logistics, new constructions or renovations.

Consult your local NTMA contractor for budget pricing.

### **NTMA Aggregate Gradation Standards**

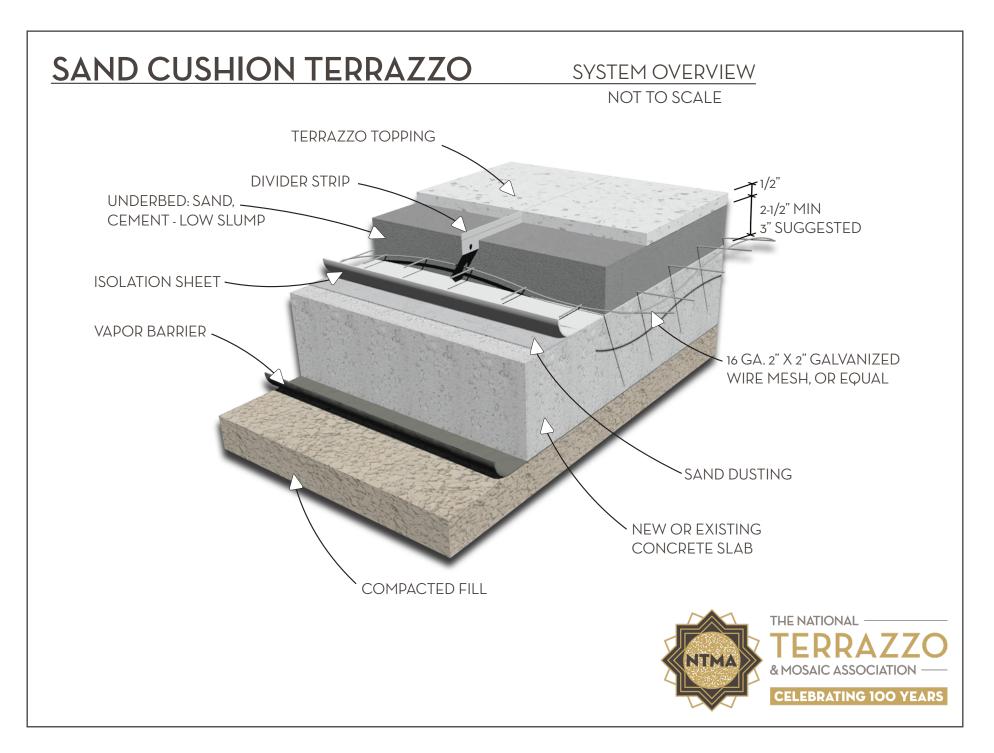
Aggregates are graded by number according to size in accordance with standards adopted by producers.

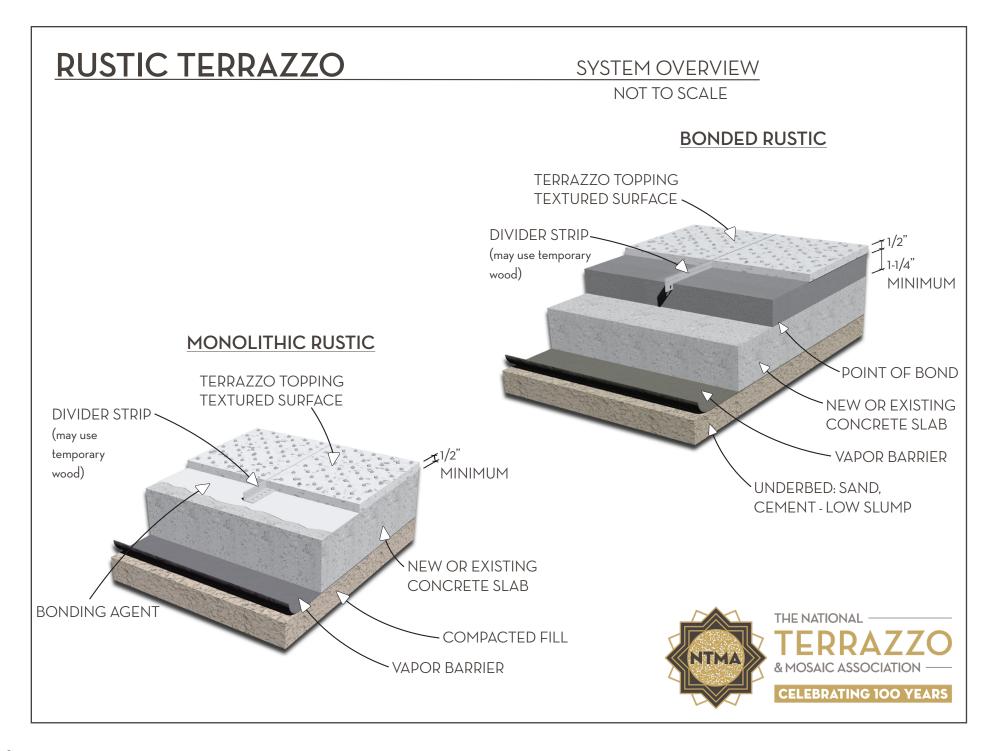
Number	Passes Screen (in inches)	Retained on Screen (in inches)
0	1/8	1/16
1	1/4	1/8
2	3/8	1/4
3	1/2	3/8
4	5/8	1/2
5	3/4	5/8

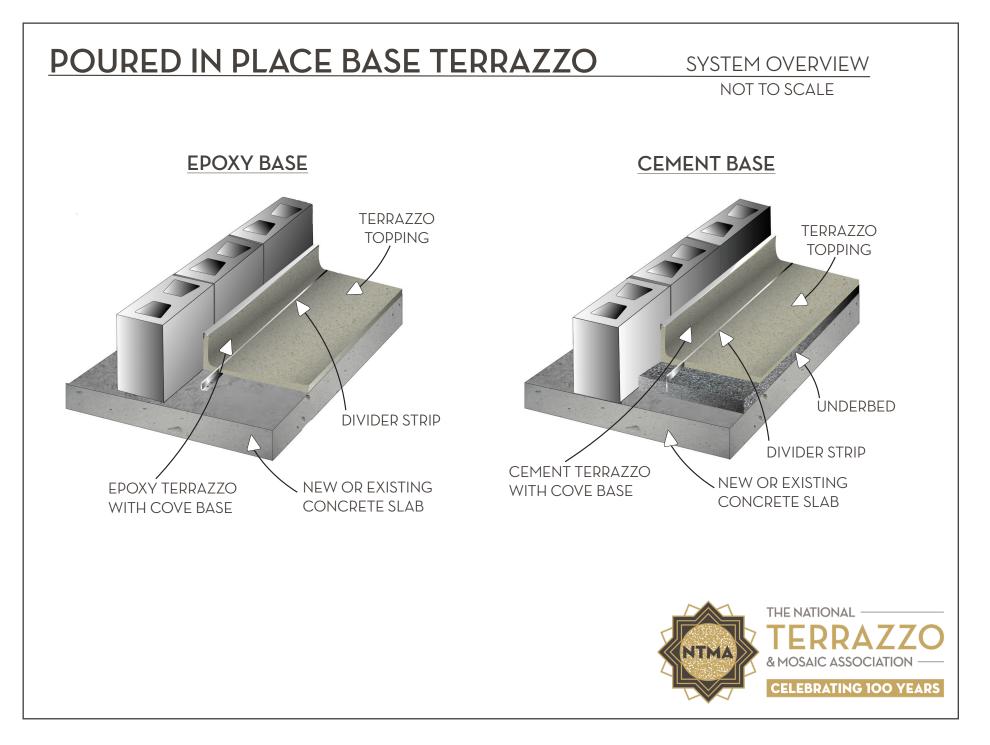


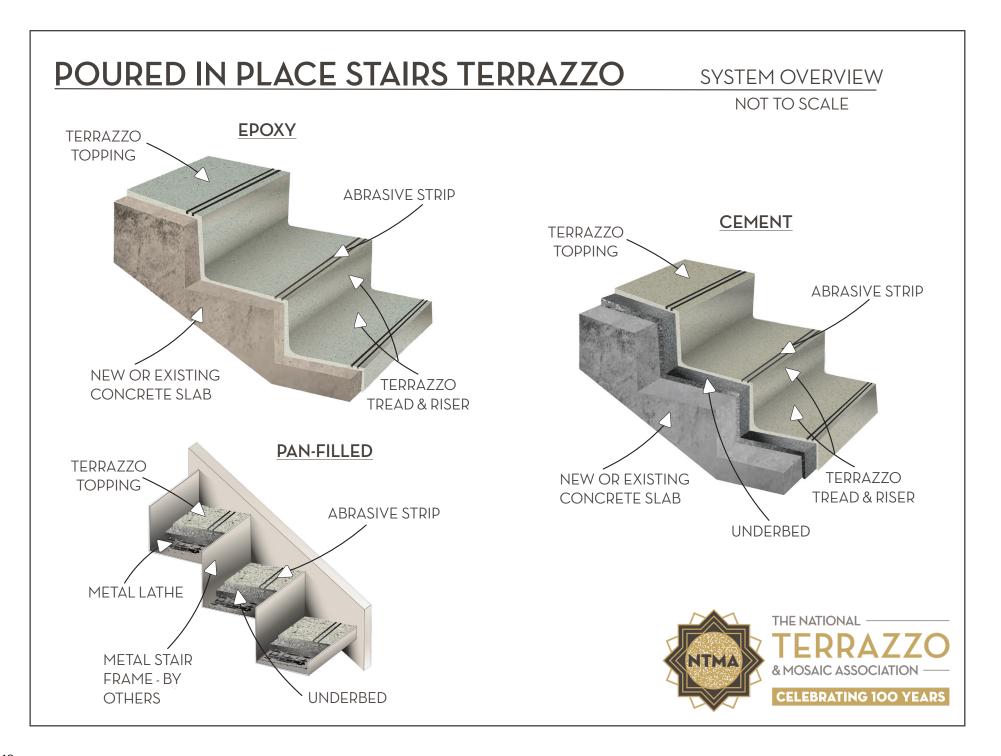






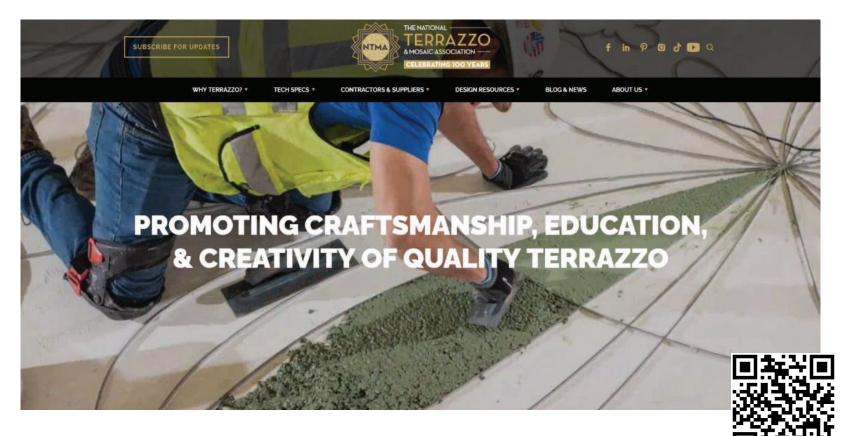






## Terrazzo Specifications & Design Guide

Below is the screenshot on our website to the updated product specifications. Word, PDF (with or without LEED) and DWG-CAD ready.



### You can find us on:











# TERRAZZO.... A BRIEF HISTORY

errazzo descended directly from simplified forms of centuries-old styles of marble mosaics that were used in Venice by the mid-16th century. Today's highly evolved terrazzo is an environmentally friendly material that combines extraordinary design potential, optimum durability and low maintenance. Terrazzo is the lowest cost flooring material available based on its life cycle.

#### Green from the Beginning

Terrazzo was created when resourceful Venetian mosaic workers discovered a way to reuse marble remnants. With off-size chips, they began to build terraces around their living quarters.



Terrazzo Grinders & Finishers...up to 1920

Techniques for leveling these surfaces progressed from rubbing with a stone by hand, to the development of a long-handled, weighted grinding stone, called a galera.

The first sealer for terrazzo was discovered when workers noticed that a coating of goat milk brought out the rich colors and sheen of the marble.

#### The Immigration of an Industry

The terrazzo and mosaic industry in 16th century Italy was predominantly made up of craftsmen from the Friuli region. This industry has remained remarkably intact, held by the families from this area through many generations and through the shifting of the entire industry to North America. The first terrazzo in the US was laid by Italian craftsmen in 1890 in the Vanderbilt residence on Fifth Avenue in New York. At that time, mosaics had also been recently introduced in the US, and were generally preferred over terrazzo.

Then, between 1900 and 1915, three million Italians immigrated to the U.S. Terrazzo and mosaic workers, because their work was so highly skilled and valued, were regarded as the aristocracy of the immigrant labor force. The terrazzieri, as these workers were called, were regarded as true artists: they jealously guarded the secrets of their craft, handing them down from father to son. These family businesses built a powerful network of firms that expanded the terrazzo trade and dominated the market across the US.

#### Terrazzo in the 1920s: Ready for Prime Time

In the post-World War I era, terrazzo became a flooring of choice in the US, suddenly overtaking and replacing the use of marble mosaics, for several reasons.

Architects in the '20s were the first to recognize the vast design potential of terrazzo. For the smooth curvilinear Art Deco/Modern styles of the period, terrazzo happened to be the ideal medium.

Furthermore, the invention of the electric grinder in 1924 brought about a finer finish, greater speed and accuracy and lowered costs, all contributing to the spread of terrazzo all over the US.

Many of the country's most noteworthy buildings of the day, stunning examples of classic design, craftsmanship and durability, were built with terrazzo. These include the Empire State Building, Radio City Music Hall and Frank Lloyd Wright-designed Solomon R. Guggenheim Museum.

Also in 1924, terrazzo and mosaic contractors from all over the US created the National Terrazzo and Mosaic Contractors Association, today know as the National Terrazzo and Mosaic Association, Inc.

#### Divide and Conquer: Functional Beauty

Yet another mid-20s advance in terrazzo came with the availability of brass divider strips, which made possible the creation of highly artistic and intricate patterns and designs in terrazzo floors. The early forms of terrazzo divider strips, beginning with wood and evolving to marble, zinc, metal and even plastic, have allowed for expansion and contraction of the surface to prevent cracking.

#### Limitless Colors, Ultimate in Design & Performance

In more recent years, new developments with epoxies, polyesters, latex and acrylics have continued to make terrazzo ever more cost-effective, high functioning and versatile. The spectrum of colors is now unlimited. The newer thin-set and epoxy-based terrazzo options are less labor intensive with greater design flexibility. Rustic terrazzo is a uniformly textured surface designed for exterior use in which the matrix is depressed to expose the chips.



Terrazzo Grinders after 1920

For More Information Please Call: The National Terrazzo & Mosaic Association 800.323.9736 Fax: 888.362.2770 www.ntma.com info@ntma.com



Spokane's Federal Building and U.S. Post Office - 1909

Tacoma Union Station - 1911

Pioneer Courthouse - 1905

## **HISTORY LESSONS:**

Life Cycle for a Lifetime Orio





teaches us is the value of using materials that last.



Widely considered the most historically significant building in the Pacific Northwest, Pioneer <u>Court-</u>

#### NTMA TERRAZZO SYSTEMS REFERENCE GUIDE SPONSORS - TERRAZZO CONTRACTORS

#### **ALABAMA**

ADAMS TILE & TERRAZZO 1101 Old Creek Road Ste. B1 Athens, GA 30607 v.706.548.6720 f.706.354.8460 email: reuben.adams@adamstileterrazzo.com

DAVID ALLEN COMPANY 5541 Powder Plant Lane Bessemer, AL 35022 v.205.322.9930 f.205.322.9936 email: haroldwaid@davidallen.com website: www.davidallen.com

#### **ALASKA**

NORTH AMERICAN TERRAZZO, INC. 501 South Lucile Ste. 100 Seattle, WA 98108 v.206.762.2803 f.206.762.2409 email: paul@naterrazzo.com website: www.naterrazzo.com

#### **ARKANSAS**

AMERICAN TERRAZZO COMPANY LTD. 309 Gold Street Garland, TX 75042 v,972.272.8084 f.972.276.4736 email: brent@americanterrazzo.com website: www.americanterrazzo.com

#### **CALIFORNIA**

AMERICAN TERRAZZO COMPANY 36 Wood Street San Francisco, CA 94118 v.415.921.0724 email: dave@americanterrazzo.com website: www.americanterrazzo.net

#### ASSOCIATED TERRAZZO CO. - AEC\*

1991 Oakdale Avenue San Francisco, CA 94124 v.415.641.1995 f.415.641.1996 email: epl@associatedterrazzo.com website: www.associatedterrazzo.com

CORRADINI CORP. - AEC\* 2970 Airway Avenue Costa Mesa, CA 92626 v.323.221.3191 f.323.221.0188 email: chrisc@corradinicorp.com website: www.corradinicorp.com HERMOSA TERRAZZO 3742 West Century Blvd. Ste. 7 Inglewood, CA 90303 v.424.394.4503 email: adam@hermosaterrazzo.com website: www.hermosaterrazzo.com

T.B. PENICK & SONS - AEC\* 15435 Innovation Drive San Diego, CA 92128 v.800.239.3046 f.858.558.1881 email: jasona@tbpenick.com website: www.tbpenickics.com

TOP END TERRAZZO 10755 Sherman Way Unit 7 Sun Valley, CA 91352 v.800.557.0833 f.818.503.1283 email: ro84@topendterrazzo.com website: www.topendterrazzo.com

#### COLORADO

COLORADO DESIGN, INC. TILE AND TERRAZZO 7230 Gilpin Way, Ste. 220 Denver, CO 80229 v.303.288.9688 f.303.286.1126 email: dan@cdtat.com website: www.coloradotileandterrazzo.com

#### CONNECTICUT

DePAOLI MOSAIC COMPANY 11 Springdale Avenue Canton, MA 02021 v.781.562.1596 f.781.562.1594 email: Icarrio@depaolimosaic.com website: www.depaolimosaic.com

ZONCA TERRAZZO AND MOSAIC 100 Business Park Drive Armonk, NY 10504 v.718.655.4040 email: bill@zoncaterrazzo.com website: www.zoncaterrazzo.com

#### FLORIDA

ADAMS TILE & TERRAZZO 1101 Old Creek Road Ste. B1 Athens, GA 30607 v.706.548.6720 f.706.354.8460 email: reuben.adams@adamstileterrazzo.com DAVID ALLEN COMPANY 2881 E. Oakland Park Blvd. Ste. 318 Ft. Lauderdale, FL 33306 v.954.315.1749 c.754.224.8377 email: edrappold@davidallen.com website: www.davidallen.com

STEWARD-MELLON COMPANY 5101 E. Hillsborough Avenue Tampa, FL 33610 v.813.621.3577 f.813.620.1119 email: markn@stewardmellon.com website: www.stewardmellon.com

#### GEORGIA

ADAMS TILE & TERRAZZO 1101 Old Creek Road Ste. B1 Athens, GA 30607 v.706.548.6720 f.706.354.8460 email: reuben.adams@adamstileterrazzo.com

#### BONITZ, INC.

3719 Benchmark Drive Augusta, GA 30909 v.706-941-2499 email: amandarodgers@bonitz.com website: www.bonitz.com

UNITED ENTERPRISES 3131 Verona Ave. Buford, GA 30518 v.770.904.6984 f.770.904.6988 email: derek@unitedei.com website: www.unitedei.com

WILLIAMS TILE & MARBLE CO. 1870 South Cobb Industrial Blvd. Smyrna, GA 30082 v.770.436.7466 email: gsweetin@williamstileandmarble.com website: www.williamstileandmarble.com

#### <u>HAWAII</u>

FLOOR SOLUTIONS P.O. Box 1586 Woodinville, WA 98072 v.360.805.9911 f.360.805.9922 email: kyle@floorsolutions.com website: www.floorsolutions.com

NORTH AMERICAN TERRAZZO, INC. 501 South Lucile Ste. 100 Seattle, WA 98108 v.206.762.2803 f.206.762.2409 email: paul@naterrazzo.com website: www.naterrazzo.com IDAHO

FW SPECIALTIES 6915 South 700 West Midvale, UT 84047 v.801.566.1008 f.801.566.1064 email: adam@finn-wall.com website: www.fwspecialties.com

NORTH AMERICAN TERRAZZO, INC. 501 South Lucile Ste. 100 Seattle, WA 98108 v.206.762.2803 f.206.762.2409 email: paul@naterrazzo.com website: www.naterrazzo.com

#### ILLINOIS

AMICI TERRAZZO 1522 Jarvis Avenue Elk Grove Village, IL 60007 v.847.290.9988 f.847.290.9980 email: amici@amiciterrazzo.com website: www.amiciterrazzo.com

JOHN CARETTI & CO.

7831 North Nagle Avenue Morton Grove, IL 60053 v.847.581.0017 f.847.965.7841 email: crakow@krezgroup.com website: www.krezgroup.com

MENCONI TERRAZZO LLC 235 James Street Bensenville, IL 60106 v.630.238.8275 f.630.238.8263 email: info@menconiterrazzo.com website: www.menconiterrazzo.com

MIDWEST TERRAZZO, INC. 4010 E. Eichel Ave. Evansville, IN 47715 v.812.476.6848 f.812.477.9811 email: graham@mwterrazzo.com website: www.mwterrazzo.com

#### **ILLINOIS**

MISSOURI TERRAZZO COMPANY 5211 Northrup Avenue St. Louis, MO 63110 v.314.361.8090 f.314.361.3832 email: paul@missouriterrazzo.com website: www.missouriterrazzo.com

#### NORTHERN ILLINOIS TERRAZZO &

TILE COMPANY 1125 North Second Street Rockford, IL 61107 v.815.964.8541 f.815.965.5515 email: john@niterrazzo.com

Full NTMA Membership Roster at www.ntma.com (AEC\* - Accredited Education Contractors)

#### NTMA TERRAZZO SYSTEMS REFERENCE GUIDE SPONSORS - TERRAZZO CONTRACTORS

#### INDIANA

**BLAKLEY CORPORATION** 8060 East 88th Street Indianapolis, IN 46256 v.317.576.8314 f.317.576.8373 email: johnblakley@blakleys.com website: www.blakleys.com

MIDWEST TERRAZZO, INC. 4010 E. Eichel Ave. Evansville, IN 47715 v.812.476.6848 f.812.477.9811 email: graham@mwterrazzo.com website: www.mwterrazzo.com

#### VICTORY SURFACES

11201 USA Parkway Ste. 300 Indianapolis, IN 46037 v.317.914.7740 email: tketchum@victorysurfaces.com website: www.victorvsurfaces.com

#### IOWA

DeMARCO BROTHERS COMPANY 1324 Leavenworth Street Omaha, NE 68102 v.402.341.7349 f.402.341.0102 email: demarcobros@gmail.com

WISCONSIN TERRAZZO & TILE, INC. 555 Braund Street Onalaska, WI 54650 v.608.779.5010 f.608.779.9444 email: jason@wisconsinterrazzo.com website: www.wisconsinterrazzo.com

#### ΚΔΝSΔS

DESCO COATINGS, INC. 19890 W. 156th Street Olathe, KS 66062 v.913.782.3330 f.913.782.0066 email: info@descocoatings.com website: www.descocoatings.com

#### **KENTUCKY**

MARTINA BROS. CO., INC. 300 Scott Street Lexington, KY 40508 v.859.255.3602 f.859.255.2075 email: mario@martinabros.com website: www.martinabros.com

MIDWEST TERRAZZO, INC. 4010 E. Eichel Ave. Evansville, IN 47715 v.812.476.6848 f.812.477.9811 email: graham@mwterrazzo.com website: www.mwterrazzo.com

ROSA MOSAIC & TILE CO. 4006 South Brook Street Louisville, KY 40214 v.502.368.5893 f.502.368.5894 email: info@rosamosaic.com website: www.rosamosaic.com

#### LOUISIANA

TERRAZZO MASTERS AN AMERICAN TILE & TERRAZZO CO. BRAND - AEC\* 124 N. Meadow Street Metairie, LA 70003 v.504.305.2935 f.504.305.3371 email: info@terrazzomasters.com website: www.terrazzomasters.com

#### MARYLAND

BOATMAN AND MAGNANI, INC. 600 Ritchie Road Capitol Heights, MD 20743 v.301.336.7700 email: rredden@boatmanandmagnani.com

MASSACHUSETTS DePAOLI MOSAIC COMPANY 11 Springdale Avenue Canton, MA 02021 v.781.562.1596 f.781.562.1594 email: lcarrio@depaolimosaic.com website: www.depaolimosaic.com

ZONCA TERRAZZO AND MOSAIC 100 Business Park Drive Armonk, NY 10504 v.718.655.4040 email: bill@zoncaterrazzo.com website: www.zoncaterrazzo.com

#### MICHIGAN

ARTISAN TILE, INC. 9864 E. Grand River Brighton, MI 48116 v.810.220.2370 f.810.220.3762 email: jenp@artisantileinc.com website: www.artisantileinc.com

#### CENTRAL TILE & TERRAZZO CO., INC.

5180 South 9th Street Kalamazoo, MI 49009 v.269.375.1660 f.269.375.4522 email: info@centraltile.net website: www.centraltile.net

MICHIELUTTI BROS., INC. 15033 E. Nine Mile Road Eastpointe, MI 48021 v.586.776.4990 f.586.776.0950 email: bobjr@michbros.com website: www.michbros.com

#### **MINNESOTA**

ADVANCE TERRAZZO & TILE CO. 425 Coon Rapids Blvd. Coon Rapids, MN 55433 v.763.780.5590 f.763.780.9869 email: andy@advtrz.com website: www.advterrazzo.com

#### **GRAZZINI BROTHERS AND CO. - AEC\***

1175 Eagan Industrial Road St. Paul, MN 55121 v.651.452.2700 f.651.452.2701 email: ggrazzini@grazzini.com website: www.grazzini.com

WTG TERRAZZO & TILE, INC. 12101 Nicollet Avenue South Burnsville, MN 55337 v.952.746.9060 f.952.746.9059 email: tony@wtgtt.com website: www.wtgtt.com

#### MISSOURI

DESCO COATINGS, INC. 19890 W. 156th Street Olathe, KS 66062 v.913.782.3330 f.913.782.0066 email: info@descocoatings.com website: www.descocoatings.com

MISSOURI TERRAZZO COMPANY 5211 Northrup Avenue St. Louis, MO 63110 v.314.361.8090 f.314.361.3832 email: paul@missouriterrazzo.com website: www.missouriterrazzo.com

#### NEBRASKA

**DeMARCO BROTHERS COMPANY** 1324 Leavenworth Street Omaha, NE 68102 v.402.341.7349 f.402.341.0102 email: demarcobros@gmail.com

#### **NEVADA**

T.B. PENICK & SONS - AEC\* 15435 Innovation Drive San Diego, CA 92128 v.800.239.3046 f.858.558.1881 email: jasona@tbpenick.com website: www.tbpenickics.com

#### TOP END TERRAZZO

10755 Sherman Way Unit 7 Sun Valley, CA 91352 v.800.557.0833 f.818.503.1283 email: ro84@topendterrazzo.com website: www.topendterrazzo.com

#### **NEW JERSEY**

ZONCA TERRAZZO AND MOSAIC 100 Business Park Drive Armonk, NY 10504 v.718.655.4040 email: bill@zoncaterrazzo.com website: www.zoncaterrazzo.com

NEW MEXICO GALLERY PAINTING, INC. 8316 Washington Street NE Albuquerque, NM 87113 v.505.839.1700 email: jim@gallerypaintinginc.com website: www.gallerypaintinginc.com

#### **NEW YORK**

ZONCA TERRAZZO AND MOSAIC 100 Business Park Drive Armonk, NY 10504 v.718.655.4040 email: bill@zoncaterrazzo.com website: www.zoncaterrazzo.com

#### NORTH CAROLINA

ADAMS TILE & TERRAZZO 1101 Old Creek Road Ste. B1 Athens, GA 30607 v.706.548.6720 f.706.354.8460 email: reuben.adams@adamstileterrazzo.com

#### NTMA TERRAZZO SYSTEMS REFERENCE GUIDE SPONSORS - TERRAZZO CONTRACTORS

#### NORTH CAROLINA

BONITZ, INC. 4539 Enterprise Drive NW concord. NC 28027 v.704-519-9650 email: joshuaboncosky@bonitz.com website: www.bonitz.com

DAVID ALLEN COMPANY 150 Rush Street Raleigh, NC 27603 v.919.971.5601 f.919.821.7137 email: mikenorton@davidallen.com website: www.davidallen.com

#### DAVID ALLEN COMPANY

610-A Minuet Lane Charlotte, NC 28217 v.980.259.1306 email: chrisbagale@davidallen.com website: www.davidallen.com

#### **NORTH DAKOTA**

WTG TERRAZZO & TILE, INC. 12101 Nicollet Avenue South Burnsville, MN 55337 v.952.746.9060 f.952.746.9059 email: tony@wtgtt.com website: www.wtgtt.com

#### OHIO

O.A. BERTIN COMPANY, INC. 1305 Brookpark Road Cleveland, OH 44109 v.216.661.5650 f.216.661.5651 email: office@oabertin.com website: www.oabertin.com

YOUNGSTOWN TILE & TERRAZZO CO., INC. 7320 West Akron-Canfield Rd. Canfield. OH 44406 v.330.533.4125 email: josh@youngstowntile.com website: www.youngstowntile.com

#### OREGON

NORTH AMERICAN TERRAZZO, INC. 501 South Lucile Ste. 100 Šeattle, WA 98108 v.206.762.2803 f.206.762.2409 email: paul@naterrazzo.com website: www.naterrazzo.com

TOP END TERRAZZO 10755 Sherman Way Unit 7 Sun Valley, CA 91352 v.800.557.0833 f.818.503.1283 email: ro84@topendterrazzo.com website: www.topendterrazzo.com

#### PENNSYLVANIA

ALLEGHENY INSTALLATIONS CO. 1039 North Canal Street Pittsburgh, PA 15215 v.412.781.7570 f.412.781.8950 email: mt@alleghenyinstallations.com website: www.alleghenyinstallations.com

SOUTH CAROLINA ADAMS TILE & TERRAZZO 1101 Old Creek Road Ste. B1 Athens, GA 30607 v.706.548.6720 f.706.354.8460 email: reuben.adams@adamstileterrazzo.com

BONITZ. INC. 1993 Technology Drive Charleston, SC 29492 v.843.375.3550 email: joshuaboncosky@bonitz.com website: www.bonitz.com

DAVID ALLEN COMPANY 108-A White Oak Lane Lexington, SC 29073 v.803.926.1040 email: wilmundy@davidallen.com website: www.davidallen.com

#### SOUTH DAKOTA

DeMARCO BROTHERS COMPANY 1324 Leavenworth Street Omaha, NE 68102 v.402.341.7349 f.402.341.0102 email: demarcobros@gmail.com

#### **TENNESSEE**

BONITZ, INC. 1922 Old Murfreesboro Pike, Ste. 530 Nashville, TN 37217 v.706-941-2499 email: amandarodgers@bonitz.com website: www.bonitz.com

MIDWEST TERRAZZO, INC. 4010 E. Eichel Ave. Evansville, IN 47715 v.812.476.6848 f 812 /77 9811 email: graham@mwterrazzo.com website: www.mwterrazzo.com

WILLIAMS TILE & MARBLE CO. 1870 South Cobb Industrial Blvd. Smyrna, GA 30082 v.770.432.2201 f.770.436.7466 email: gsweetin@williamstileandmarble.com website: www.williamstileandmarble.com

#### TEXAS

AMERICAN TERRAZZO COMPANY LTD. 309 Gold Street Garland, TX 75042 v.972.272.8084 f.972.276.4736 email: brent@americanterrazzo.com website: www.americanterrazzo.com

#### NATIONAL TERRAZZO TILE & MARBLE

5728 Hood Street Houston, TX 77023 v.713.923.8600 email: victorl@nationalterrazzo.com website: www.nationalterrazzo.com

SIGMA TERRAZZO, INC. 8310 Chancellor Row

Dallas, TX 75247 v.214.637.5200 f.214.637.5210 email: aiorio@sigmamarble.com website: www.sigmamarble.com

SOUTHERN TILE & TERRAZZO - AEC\* 6829 Lindbergh Houston, TX 77087 v.713.649.2434 f.713.649.6141 email: mmaraldo@southerntileterrazzo.com website: www.southerntileterrazzo.com

VENICE ART TERRAZZO COMPANY 200 Caldwell Street San Antonio, TX 78223 v.210.533.7231 f.210.533.7269 email: vatco@theveniceart.com website: www.veniceartterrazzo.com

#### ZANCHETTIN BROTHERS TERRAZZO

& TILE CO. 901 S. Houston Street Amarillo, TX 79102 v.806.373.4174 f.806.372.2144 email: zanchettin.brothers@gmail.com

#### UTAH

FW SPECIALTIES 6915 South 700 West Midvale, UT 84047 v.801.631.4589 email: adam@finn-wall.com website: www.fwspecialties.com

#### VIRGINIA

ADAMS TILE & TERRAZZO 1101 Old Creek Road Ste. B1 Athens, GA 30607 v.706.548.6720 f.706.354.8460 email: reuben.adams@adamstileterrazzo.com

BOATMAN AND MAGNANI. INC. 600 Ritchie Road Capitol Heights, MD 20743 v.301.336.7700 email: rredden@boatmanandmagnani.com

DAVID ALLEN COMPANY 6775 Kennedy Road Ste. 18 Warrenton, VA 20187 v.703.690.4422 f.703.368.1576 email: chriswalker@davidallen.com website: www.davidallen.com

POMPEI. INC. 733 Blue Crab Road Newport News, VA 23606 v.757.873.0819 f.757.873.8851 email: dforrest@pompeiinc.com website: www.pompeiinc.com

#### WASHINGTON

FLOOR SOLUTIONS P.O. Box 1586 Woodinville, WA 98072 v.360.805.9911 f.360.805.9922 email: kyle@floorsolutions.com website: www.floorsolutions.com

NORTH AMERICAN TERRAZZO, INC. 501 South Lucile Ste. 100 Seattle, WA 98108 v.206.762.2803 f.206.762.2409 email: paul@naterrazzo.com website: www.naterrazzo.com

WASHINGTON, D.C. BOATMAN AND MAGNANI, INC. 600 Ritchie Road Capitol Heights, MD 20743 v.301.336.7700 email: rredden@boatmanandmagnani.com

WEST VIRGINIA ALLEGHENY INSTALLATIONS CO. 1039 North Canal Street Pittsburgh, PA 15215 v.412.781.7570 f.412.781.8950 email: mt@alleghenyinstallations.com website: www.alleghenyinstallations.com

WISCONSIN TERRAZZO & TILE, INC. 555 Braund Street Onalaska, WI 54650 v.608.779.5010 f.608.779.9444 email: jason@wisconsinterrazzo.com website: www.wisconsinterrazzo.com

Full NTMA Membership Roster at www.ntma.com (AEC\* - Accredited Education Contractors)

#### NTMA TERRAZZO SYSTEMS REFERENCE GUIDE SPONSORS - SUPPLIER MEMBERS

#### AGGREGATES

AMERICAN SPECIALTY GLASS 829 North 400 West North Salt Lake, UT 84054 v.801.294.4222 email: dthornley@asgglass.comcom website: www.asgglass.com

ARIM-INC. 154 West Edsall Blvd. Palisades Park, NJ 07650 v.201.645.1814 email: anil.bandari@ariminc.com website: www.ariminc.com

CACTUS CANYON QUARRIES 7232 CR 120 Marble Falls, TX 78654 v.830.693.4331 f.830.693.2916 email: ccqmarblefalls@aol.com

CONTINENTAL TERRAZZO SUPPLY 5710 Clarewood Drive Houston, TX 77081 v.214.543.8980 email: michaelscanlin@att.net website: www.ContinentalTerrazzoSupply.com

FRIBEL 630 Panoramic Way Berkeley, CA 94704 v.510.548.3939 f.510.548.3956 email: elsie@fribel.com website: www.fribel.com

KLEIN AND COMPANY 167 Hickory Springs Industrial Drive Canton, GA 30115 v.800.241.0681 f.770.345.6282 email: rkent@kleincoinc.com website: www.kleincoinc.com

SOUTHERN AGGREGATES 301 Habersham St. Savannah, GA 31401 v.855.720.2388 f.912.712.0204 email: sales@justiceproducts.com website: www.justiceproducts.com

#### DISTRIBUTORS

KLEIN AND COMPANY 167 Hickory Springs Industrial Drive Canton, GA 30115 v.800.241.0681 f.770.345.6282 email: r.kent@kleincoinc.com website: www.kleincoinc.com

TERRAZZO & MARBLE SUPPLY CO. 464 Northgate Pkwy. Wheeling, IL 60090 v.800.762.7253 f.847.541.7949 email: terrazzoinfo@tmsupply.com website: www.tmsupply.com

TERRAZZO & MARBLE SUPPLY CO. 12632 Monarch Street Unit B Garden Grove, CA 92841 v.714.901.1400 f.714.901.1490 email: terrazzoinfo@tmsupply.com website: www.tmsupply.com

TERRAZZO & MARBLE SUPPLY CO. 6100 Seaforth Street Baltimore, MD 21224 v.410.633.6200 f.410.633.6201 email: terrazzoinfo@tmsupply.com website: www.tmsupply.com

#### **DIVIDER STRIPS/ARTISTIC DESIGNS**

CREATIVE EDGE 601 South 23rd Street Fairfield, IA 52556 v.641.472.8145 f.641.472.2848 email: kevin@cec-waterjet.com website: www.creativeedgeia.com

MANHATTAN AMERICAN TERRAZZO STRIP COMPANY P.O. Box 7 Staley, NC 27355 v.888.462.2813 f.336.622.4160 email: info@manhattanamerican.com website: www.manhattanamerican.com

NATIONAL METAL SHAPES, INC. 425 South Sandusky Street Delaware, OH 43015 v.740.363.9559 f.740.363.3000 email: info@nationalmetalshapes.com website: www.pinterest.com/nationalmetal

#### MACHINE/TOOLING GRINDING SUPPLIES

HUSQVARNA CONSTRUCTION PRODUCTS 17400 West 119th St. Olathe, KS 66061 v.800.288.5040 email: hcpcustomer@husqvarna.com website: www.husqvarnacp.com

KLEIN AND COMPANY 167 Hickory Springs Industrial Drive Canton, GA 30115 v.800.241.0681 f.770.345.6282 email: rkent@kleincoinc.com website: www.kleincoinc.com

RUNYON SURFACE PREP 1402 Chase Ct. Camel, IN 46032 v.815.719.2278 email: kristen@runyonsurfaceprep.com website: www.runyonsurfaceprep.com

#### **PRECAST PRODUCTS/ARTISTIC DESIGNS**

ANGELOZZI PRECAST TERRAZZO PRODUCTS 345 Chewstnut Ave. West Berlin, NJ 08091 v.856.753.3200 f.856.753.3202 email: tina@angelozziterrazzo.com website: www.angelozziterrazzo.com

#### CREATIVE EDGE

601 South 23rd Street Fairfield, IA 52556 v.641.472.8145 f.641.472.2848 email: kevin@ccc-waterjet.com website: www.creativeedgeia.com

#### PRECAST TERRAZZO ENTERPRISES

1107 N. New Hope Road Raleigh, NC 27610 v,919.231.6200 or 800.849.8849 f.919.231.6201 email: keith@ptecorp.com website: www.precastterrazzo.com

#### WAUSAU TILE

9001 Business Hwy 51 Rothschild, WI 54474 v.800.388.8728 f.715.359.7456 email: wtile@wausautile.com website: www.wausau.com

#### THIN SET TERRAZZO SYSTEMS

EPOXY-POLYACRYLATE DEX-O-TEX BY CROSSFIELD PRODUCTS CORP. 3000 E. Harcourt Street Rancho Dominguez, CA 90221 v.310.886.9100 f.310.886.9119 email: dexotex@cpcmail.net website: www.dexotex.com

#### KEY RESIN COMPANY

4050 Clough Woods Drive Batavia, OH 45103 v.888.943.4532 email: sales@keyresin.com website: www.keyresin.com

SHERWIN-WILLIAMS COMPANY 101 W. Prospect Avenue Cleveland, OH 44115 v.800.543.7694 email: gp-tech@generalpolymers.com website: www.generalpolymers.com

TERROXY RESIN SYSTEMS (A DIVISION OF TERRAZZO & MARBLE SUPPLY CO.) 3555 W. 123rd Street Alsip, IL 60803 v.708.385.6633 f.708.388.4491 email: terrazzoinfo@tmsupply.com website: www.tmsupply.com



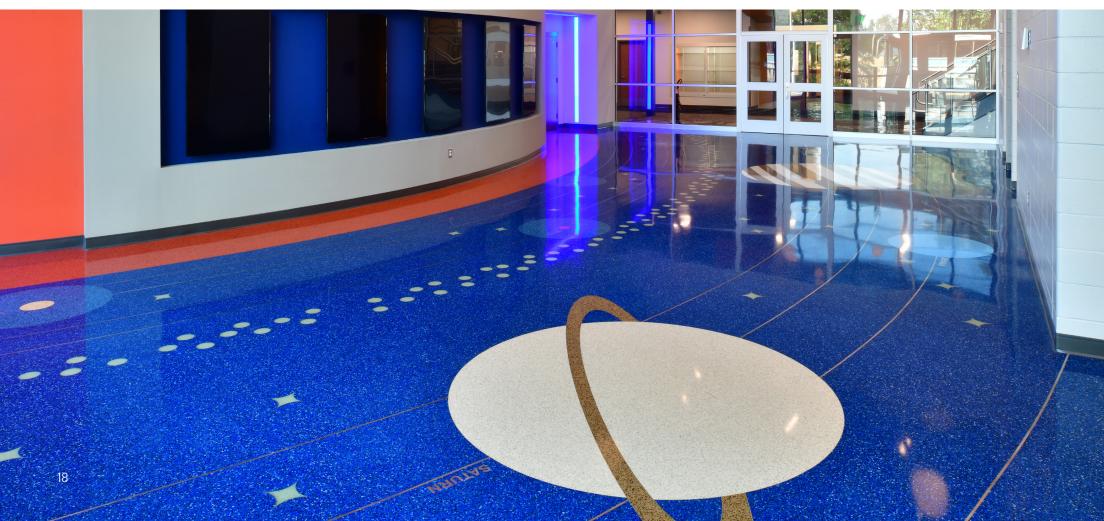
100 YEARS

Full NTMA Membership Roster at www.ntma.com



### Terrazzo Design Ideas for Schools

Terrazzo floors last a lifetime! The school seal that your grandmother saw when she started will still be beautiful when your granddaughter comes along. Non-porous terrazzo does not support microbial growth, nor does it allow moisture to accumulate, contributing to a mold-free, healthy environment. This is a floor material that keeps it's school spirit and fights high maintenance costs for generations.





### Terrazzo Design Ideas for Airports

Airports are the gateway to the city. Terrazzo can be used to create lasting first impressions while providing a long lasting durable and economical flooring surface. A terrazzo floor will not have grout joints, which allows for smooth, quiet handling of rolling carts and luggage. Terrazzo is arguably the most durable and lowest life cycle cost flooring available today - perfect for high traffic public access buildings such as airports.





## Terrazzo Design Ideas for Hospitality

An unlimited color palette, and state of the art water-jet cutting techniques create a visually stunning hospitality environment. Color transitions and design can immediately impact guests by reinforcing a variety of themes and offering navigational clues throughout the building. Terrazzo is anti-microbial, non-porous and easily cleanable with a damp mop and neutral cleaners leaving no harsh odors to irritate guests.





## Terrazzo - Healthy Flooring for Medical Facilities

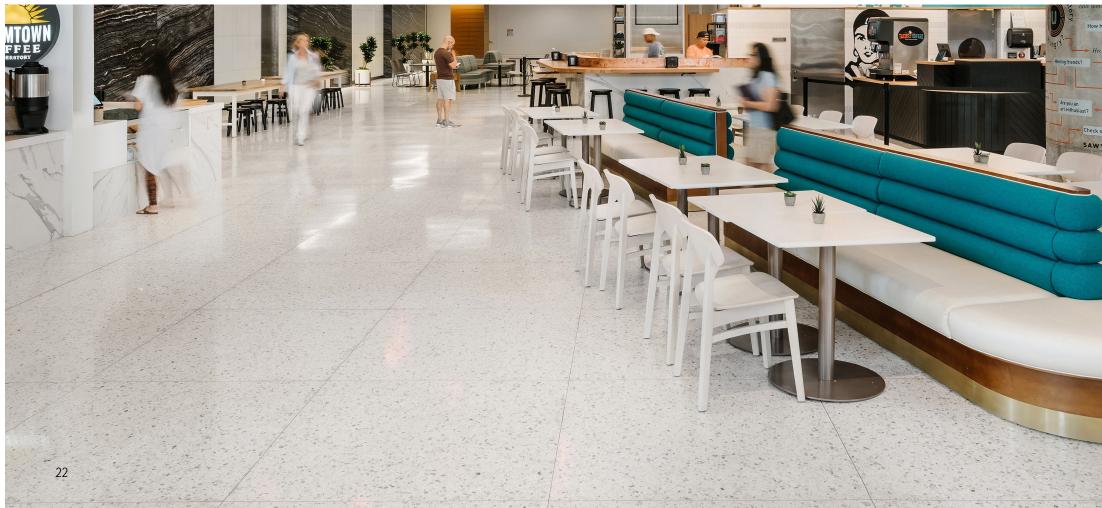
Terrazzo is the ideal solution for maintaining a healthy building. It does not support microbial growth - nor allow moisture to accumulate - which greatly contributes to a mold-free environment. Additionally, terrazzo is comprised of zero VOC material, and exhibits little to no off-gassing over the life of the cured floor. This floor needs only to be cleaned with an environmentally friendly, neutral pH cleanser, which will not irritate sensitive eyes or noses.





### Terrazzo Design Ideas for Classic Terrazzo

Over the lifetime of a building, the total cost of maintaining or replacing flooring can multiply as much as 35 times its initial cost. Alternatives like carpet, ceramic tile, vinyl or wood might be less expensive to install, but a classic terrazzo matrix and a practical design can be suprisingly competitive with the added benefit of sustainability and durability. Terrazzo resists microbes and moisture accumulation - essential for a mold-free, healthy environment.





## Terrazzo Design Ideas for Stadiums

Terrazzo is the ideal flooring for stadium entrances and corridors. It is extremely durable - a necessity in a building that accomodates millions of fans each season. Terrazzo also has the design capabilities to reflect the team colors, mascots, logo and city. Depending upon the exterior exposure, rustic terrazzo or ground terrazzo can be selected.





# Terrazzo Design Ideas for Museums, Libraries, and Cultural Buildings

Terrazzo's design opportunities are well suited to public libraries, museums, and other cultural spaces. The unlimited color palette and ability to create free form shapes and patterns can help define sections and provide directional clues to visitors. The long life of the terrazzo floor helps minimize costs associated with renovations to public facilities.





## Terrazzo Design Ideas for Logos

Terrazzo's exceptional design flexibility lends itself to the most complex logo designs in multiple colors. Intricate custom graphics concentrated in one area make high visual impact affordable within simple floor designs and color palettes. Your logo, mascot or artistic medallion creates an eye-catching entrance for every visitor, while dramatically accenting large spaces and durably reinforcing brand identity or school spririt.



# The Care of Terrazzo



Terrazzo floors have **ease of maintenance**, but this does not mean that NO CARE IS REQUIRED. Once you understand the care requirements in the early stages of a new terrazzo floor, you lessen possible problems, and recognize the economy of care and the aesthetics of this product. **NTMA terrazzo flooring specifications highly recommend a sealer applied to this surface immediately following the final polishing.** 

Sealers help protect the surface and inhibit the penetration of spilled materials upon initial contact with the terrazzo floor. Spills must be cleaned immediately in order to prevent stains caused by repeated or long term exposure. Even standing water can eventually damage some sealers.

As most sealers are low solids liquid material, they do not normally produce a high gloss sheen appearance to the floor surface. When a building is eventually occupied, the terrazzo sealer can be stripped or used as a base and the surface may be retreated as implemented by ownership. The eventual degree of gloss is determined by the particular products selected and the recommended application process. This includes proprietary options.

### TAKE THE NECESSARY TIME TO LEARN WHICH TERRAZZO SYSTEM YOU ARE MAINTAINING

There are three types of binders used to anchor marble chips or other aggregate in your terrazzo floor. Originally, and still used, is a Portland cement product; next a polyacrylate modified cement. The most common matrix today is epoxy resin.

**All Terrazzo Systems:** Contain marble or other types of aggregate materials that have surface exposure. Marble aggregates have a low porosity. Other aggregate types may have little or no porosity.

**Portland Cement Systems:** The portion of this floor system that most benefits from primary protection is the Portland cement binder. Sealers will also assist protecting the marble chips or other aggregate.

**Epoxy Resin Systems:** The binder for this terrazzo system is fundamentally nonporous. Sealers assist protecting the aggregate and normally enhance aesthetics of the surface only.

Although each system has the role of anchoring the aggregate into the topping, maintenance procedures are essentially common to all terrazzo installations.

### OWNER'S GUIDE FOR THE MAINTENANCE OF TERRAZZO FOR STANDARD FINISHES

**MAINTENANCE PRECAUTIONS:** Harsh cleaners and sealers can damage terrazzo. Only materials that are neutral pH should be used when scrubbing or mopping floors. Sealers should achieve a slip resistance coefficient of friction rating applicable to code. Water based sealers are most commonly recommended and utilized today. Apply, in one or more coats, in accordance with the instructions of the sealer manufacturer. This can also be followed by a water based finish (dressing) for daily or weekly buffing if a high sheen is desired.

**CLEANING PROCEDURES:** Neutral cleaners are designed to react only in solution with clean water, mixed in accordance to the manufacturer instructions, and allowed to remain on the floor surface for several minutes. This provides the necessary time for the grime-dissolving action to take place. Then rinse the dirt-laden solution from the surface by squeegee, vacuum or mopping. Rinse with ample clean water. It is important to keep the floor wet during this entire cleaning process so the dirt and cleaning residue does not dry on the surface. Auto-scrubbers are recommended for larger areas.

**FAQ** "How often must we sweep or scrub this floor?" is answered by the amount of traffic that moves across the floor daily. Daily dust mopping is a requirement in most public buildings. Daily dust mopping removes both the dust and the grit tracked into the building.

# The Care of Terrazzo



### CUSTODIAN'S GUIDE TO THE PROPER MAINTENANCE OF TERRAZZO

FOLLOW THESE MINIMUM MAINTENANCE SUGGESTIONS TO KEEP YOUR TERRAZZO FLOOR CLEAN AND LONG-LASTING:

- **DAILY:** DUST MOP Hand work stubborn stains and scuff marks with neutral cleaner diluted in warm water.
- WEEKLY: DAMP MOP LIGHTLY SOILED FLOORS WITH NEUTRAL CLEANER - Heavily soiled floors should be scrubbed with a mechanical buffing machine and neutral cleaner. Mop up residue with clean water before it dries. Allow to dry and buff with a soft dry brush. Auto-scrubbers are recommended for larger areas.

NOTE: ALLOW YOUR NEUTRAL CLEANER, ONCE APPLIED TO THE TERRAZZO SURFACE, TIME TO REACT. IT IS DESIGNED TO LOOSEN FOREIGN MATTER. SEVERAL MINUTES SHOULD BE ADEQUATE, BUT DO NOT ALLOW SOLUTION TO DRY ON THE SURFACE.

AS REQUIRED: Strip all old sealer and any finish coats. Re-seal clean floor.

**CAUTION:** Before deviation from the instructions, contact your local NTMA Terrazzo Contractor for advice. ALWAYS KEEP RINSE WATER, MOPS & PAILS CLEAN!

### DO'S AND DON'T' S FOR MAINTENANCE OF TERRAZZO FLOORING

**DO** dust mop your floors daily; this not only picks up the dust, but also the grit tracked into your building. The grit acts as an abrasive on your hard surface floor.

DO use maintenance products designed specifically for terrazzo.

**DO** scrub new terrazzo floors approximately once or twice a week for the initial two to three months, as the new construction dust will still be in the air and will eventually be deposited on your floor.

**DO** after the initial period, once per week, depending on the amount of foot traffic, keep your floor clean in appearance. Always rinse your floors well to prevent a build-up of cleaner residue. Use a dry cotton or microfiber cloth to dry the terrazzo floor surface.

**DO** allow your neutral cleaner, once applied to the terrazzo surface, time to react as designed to loosen foreign matter. Several minutes should be adequate, but DON'T allow the cleaning solution to dry on the surface.

**DO** seal your floors with a water-based sealer in accordance to the sealer manufacturer's instructions.

DON'T use degreasers, bleach, vinegar, ammonia or other household chemicals.

**DON'T** use purely surface waxes, or all purpose sealers. Employment of such can result in slippery surfaces.

**DON'T** use all purpose cleaners containing water soluble inorganic or crystallizing salts, harmful alkali or acids. Use of such products could prove harmful to your terrazzo floor.

(Take care if using abrasive disc/pads with proprietary systems so grout is not removed and pinholes exposed.)

2019

# Setting in Stone the Spirit of Public Art

Bringing together terrazzo with public art gives the artist the capacity to create spaces distinctive from "anytown-anywhere," artist Teresa Cox said, colored by local character and highly accessible to the public.

### Phoenix Sky Harbor International Airport

This 24,000-square-foot commissioned public art project illustrates the design flexibility of terrazzo with designs inspired by traditional Navajo pottery and weaving patterns. The dynamic floor's intense colors, 3D effects and graceful interplay of shapes over patterns are among the project's many assets.

### Detroit's Harmonie Park Paradise Valley

#### ART. RUSTIC. MURALS

An outdoor installation of rustic terrazzo, featuring historic buildings and public figures, designed by noted muralist Hubert Massey.





This gorgeous art-in-the-public places mural, "Terra Firma," is a 25-foot diameter circular map of Idaho and its contiguous states. All divider strips, other than the



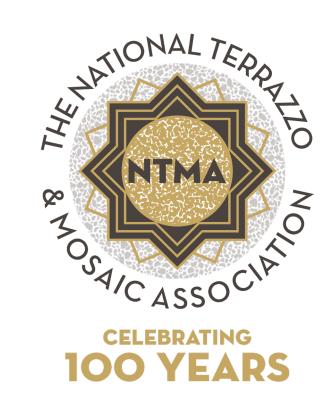












National Terrazzo & Mosaic Association PO Box 2605 Fredericksburg, TX 78624 (800) 323-9736 Fax (888) 362-2770 www.ntma.com info@ntma.com



SYSTEMS REFERENCE GUIDE 2023