Standards

- Leading Association for National and International Consumer-Relevant Quality Standards for Tile, Installation Materials, and Sustainability
- Secretariat of ANSI Accredited Standards Committee A108 and ISO Technical Committee 189
- Editor and Publisher of the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation

Science

- Largest Independent Tile and Installation Materials Testing Laboratory in North America
- Leading Research Partner in the Development of Standards

Education

- Founding Partner in Installer Education and Certification Programs in the U.S. and Mexico
- Publisher of TCNA Tile Initiative and Tile: The Natural Choice
- Publisher of Quarterly Tile Industry Market Reports
- Author of Numerous Safety, Quality, and Standards-related Articles
- Staff Serve as Regular Keynote and Industry Speakers

Advocacy

- Consumer and Industry Interests in Legislative, Regulatory, and Environmental Matters
TCNA Reports
Notable Changes to the 2015 TCNA Handbook ................................. 2
Porcelain Tile Certification and the Porcelain Tile Certification Agency (PTCA) .... 10

TCNA Bulletins
What Is True Porcelain? ................................................................. 14
Coefficient of Friction (COF) Standard for Ceramic Tile ......................... 19
When Quality Is the Bottom Line:
Match ACT-Certified Installers to the Job at Hand .............................. 22
Choosing Your Tile Contractor ...................................................... 24

TCNA Feature
The Beauty of Sustainability:
Green Squared Certified® Product Installations ............................... 28

Ceramic Tile Education Foundation (CTEF)
2015 CTEF Sponsors .................................................................... 36

TCNA Membership
Member Directory ......................................................................... 39

ABOUT THE ADVERTISERS
The advertisements in this issue come from the Signature Level and Platinum Level sponsors of the Ceramic Tile Education Foundation (CTEF). Their generous donations enable the administration and growth of CTEF’s educational and certification programs for tile installers and other tile industry professionals. These programs benefit the construction industry and tile-consuming public by facilitating a higher level of craftsmanship in tile installation and a means of identifying qualified installers in the trade. For more information, visit www.tilecareer.org. All of the funds received go directly to CTEF with the cost of printing donated by the Tile Council of North America (TCNA), publisher of the TCNA Handbook.
The TCNA Handbook for Ceramic, Glass, and Stone Tile Installation is an annual publication that is updated and added to by way of balloting, with a consensus body of industry experts serving as the Handbook Committee, the voting body that determines the changes that are made. Having a balanced, industry-representative Committee, and using the consensus process to make changes to the Handbook, is a checks-and-balances process. With stakeholders from all segments of the tile industry weighing in on change proposals, the process ensures the integrity and the relevancy of the information in the Handbook.

This year, the Handbook Committee approved eight new installation methods and several updates and clarifications to existing guidelines.

“Medium Bed Mortar” Information Replaced by “LHT Mortar” Information

Within the Setting Materials Selection Guide of the Handbook, in which the various options for tile mortars and adhesives are described, the information about medium bed mortar has been replaced with a new section entitled Dry Set Mortar for Large and Heavy Tile (LHT Mortar). This change is especially relevant to tile contractors, who have been battling specifications that call for a “medium bed method” for setting tile, even though no such method exists and calling for it reflects a misunderstanding of proper installation methods.

Judging from the way medium bed mortars have sometimes been called for in specs, building design professionals who mistakenly referenced a medium bed method thought a thick application of cementitious bonding mortar could be used to flatten and fix out-of-tolerance substrates, to form finish floor height transitions, and to form slopes to drains. It’s not difficult to see why. As tiles have grown larger and larger, the working properties of bonding mortars have been adapted to make larger tiles easier to set, primarily by reducing the slump factor so tile edges don’t sink, and generally allowing for a slightly thicker layer of mortar. As a result, the mortars designed for setting larger tiles came to be known as medium bed mortars, a name incorrectly focused on the potentially thicker layer of adhesive rather than on their real purpose: supporting the larger and heavier tiles being produced today.
The new section in the *Handbook* aims to clarify the misconception of a medium bed method by renaming mortars designed for setting large tiles and by more clearly explaining what these mortars are—and aren’t—designed to do.

The new section, “Dry Set Mortar for Large and Heavy Tile (LHT Mortar)” has replaced the “Medium Bed Mortar” section that had been added to the *Handbook* in 2011. The new section for LHT mortar includes a “note to specifier” section that restates the product limitations that the 2011-2014 versions included, that such mortars are “designed as direct bond adhesives and are not intended to be used in truing or leveling underlying substrates or the work of others” and that “medium bed mortar is a product, not an installation method.” The new section explains further, adding that “where substrate variation exceeds allowances, LHT mortar (formerly medium bed mortar) cannot be used to remedy such, because the application would exceed the limitations of the mortar.” It goes on to say that “project plans and specifications that call for or refer to setting tile by a ‘medium bed method’ or ‘large and heavy method’ or that call for the use of bonding mortar to level, flatten, or fill substrates or to create slopes or transitions between finish floor heights do not conform to tile industry standards or norms.”

Like the now-eliminated medium bed mortar definition, the LHT mortar definition relays the usefulness of the mortar type for setting large tiles—still defined as tiles with at least one side greater than 15”—and adds that “when setting such tiles, larger trowels are used and needed to apply enough bonding mortar to achieve mortar coverage requirements. For large tiles, a thicker bond coat is often required to achieve mortar coverage requirements.” The LHT mortar definition additionally defines “heavy” tiles as those weighing over five pounds per square foot, and it states that the bond coat thickness after the tile is embedded is intended to be 3/32” to 1/2” nominally. Previously, the medium bed mortar definition allowed up to a 3/4” thick bond coat, but after further review and industry experience, only the narrower range is now specified.

Together, the name change, improved clarity, and added information more clearly communicate limitations on how manufacturers intend LHT mortars (formerly medium bed mortars) to be used. This *Handbook* change should also provide contractors with support when faced with specifications that conflict with manufacturer recommendations.

Stay tuned for more on this topic. Although the LHT mortar definition notes that “there are no ANSI or ISO standards specific to this type of mortar,” this is expected to change before long. Draft standards for LHT mortars have been circulated within the industry by the Materials and Methods Standards Association (MMSA), which researched and drafted the proposals, with the intent for their eventual adoption as standards by the ANSI A108 Accredited Standards Committee responsible for tile and stone ANSI standards.
New Curbless Shower Methods

Looking at current trends for shower designs it’s clear that demand for curbless, or “zero-entry,” showers is on the rise. For some, their interest is purely aesthetic—a desire for a minimalist, streamlined, ultra-modern look—while for others it’s a functional consideration, the need for easier access into a shower by individuals less able to access a tub shower or navigate a shower curb.

Regardless of the reason, the design challenges are the same: Eliminating the curb eliminates the dam that contains water within the shower area. Since the shower curb allows the floor height just inside the shower curb to be higher than the floor outside the curb, a height difference that results from the typical method of creating slope-to-drain within the shower by building up the floor height of the shower’s perimeter, removing the curb creates many design challenges.
To address these challenges, the new curbless shower methods include several design guidelines and additional optional considerations:

- A depressed slab is required and must extend beyond the shower area to facilitate a finished floor installation that drains away shower water and splash water, which are often difficult to contain within a curbless shower.

- Floor and wall waterproofing must continue outside the immediate shower area one foot beyond the high point of the floor, and additional waterproofing of the floor and/or walls outside the shower area may be needed to protect building materials.

- A secondary drain may be required outside the immediate shower area to facilitate removing shower water and splash water that is not contained in the shower area due to the curbless design. The high point of the floor must be outside the shower area, i.e., beyond the shower door or curtain, to drain water that is not contained in the shower area due to the curbless design. The location of the high point of the floor is especially critical when a secondary drain is not included outside the shower area.

Shower receptor methods B421 and B422 were adapted to create B421C and B422C, the two curbless shower receptor methods that have been added to the Handbook. The chief difference between these new methods is the drain type: B421C is for use with a traditional clamping-style drain, while B422C is for use with an integrated bonding flange-style drain.

It is important to note that, while new methods B421-C and B422-C facilitate construction of a curbless shower without adding floor height at the restroom entryway, these methods do not include requirements for compliance with Americans with Disabilities Act (ADA) Standards for Accessible Design. When accessible design is the goal, building design professionals should use the new Handbook methods in tandem with the ADA guidelines, which have additional requirements such as minimum shower dimensions to facilitate wheelchairs and other accessibility-related requirements.
New Stone Methods

The installation methods in the Handbook have long been used for installing natural stone tile in addition to ceramic tile.

In 2011, several methods were adapted to more specifically address stone-specific installation considerations, and a separate Handbook stone section was created.

This year, six additional ceramic tile methods were adapted for stone, all of which are methods for tiling radiant heated floors.

**RH111 STONE**

1. Natural Stone Tile
2. Cementitious Bond Coat
3. Bonded Membrane*
4. Primer/Sealer
5. Poured Gypsum Underlayment Min. 3/4" Over Tubing
6. Hydronic Tubing
7. Primer
8. Concrete, On-Ground

*Use of a membrane is required. See membrane options.

**RH112A STONE**

1. Natural Stone Tile
2. Cementitious Bond Coat
3. Optional Membrane*
4. Cementitious Self-Leveling Underlayment Min. 1/2" Over Tubing
5. Hydronic Tubing
6. Primer
7. Concrete, Above-Ground

*Use of a membrane is optional. See membrane options.
Four adapted methods are for installing heated stone tile floors in installations utilizing a hydronic heat system where the underlayment is poured gypsum or cementitious self leveler over on-ground and above-ground concrete substrates, and two are for installations utilizing an electric radiant heat system where the underlayment is cementitious self-leveler over on-ground and above-ground concrete substrates.

To achieve stone floors that are flat and lippage free, the substrate flattening that generally results from using pourable underlayments makes these new methods nice options to have available. The existing ceramic tile methods were adapted for stone by adding the standard stone-related information and considerations found in all other stone methods:

- The service rating is dependent on the compressive strength, flexural strength, and resistance to abrasion of the actual stone being used.

- A minimum grout joint width of 1/16” is noted, as is a maximum grout joint width of 1/8” (nominal) when unsanded grout is used, which is required for softer stones that could be scratched if grouted with sanded grout.

- A caution is included in the mortar recommendation, to “use white for light-colored marble, limestone, and other stones where staining or darkening from grey setting materials is possible.”

- A reference is included regarding the possibility that epoxy may be needed for setting the stone, if the stone is water sensitive or if fiberglass mesh reinforcing is used on the stone that cementitious mortars will not bond to reliably.
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- **NO** efflorescence

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Your reputation relies on being precise every time. Trust the new MAPEI Flexcolor CQ!
In 2008 Tile Council of North America (TCNA) partnered with the Ceramic Tile Distributors Association (CTDA) to create the Porcelain Tile Certification Agency (PTCA) to certify porcelain tile. This program was formed at the initiative of distributors and manufacturers who were concerned with the amount of tile being sold in the United States that was marked as porcelain but which was in fact not porcelain.

What Is Porcelain Tile, and Why Does It Matter Whether a Tile Is Porcelain?

As defined by the ANSI A137.1 ceramic tile standard, porcelain tile is a ceramic tile with a very low water absorption (0.5% or less), as tested per ASTM C373. Porcelain tile is denser and has a lower water absorption than other types of ceramic tile. When non-porcelain tiles are unknowingly substituted, freeze thaw and expansion failures can result from unexpected moisture absorption.

Why Was This Porcelain Certification Program Created?

It is well known that some non-porcelain tiles made overseas are knowingly mislabeled as porcelain, with exporters and importers choosing to ignore the U.S. voluntary standards (ANSI A137.1). While the criteria for porcelain tiles have been well-defined for several decades in the United States, this practice of mislabeling tiles began when the term porcelain was undefined in international standards. Today the term is well-defined, but the method used internationally for measuring water absorption is less rigorous than the ASTM C373 method used in North America.
Simply stated, this means that some tiles classified as porcelain overseas don’t meet the stricter and more demanding water absorption criteria used in North America.

In freeze/thaw and wet environments, that can be important. Given that approximately 70% of the tiles sold in the United States are imported, PTCA certification was developed to protect the consumer from tiles either intentionally mislabeled or mislabeled due to differences in testing.

Through the PTCA program the need for porcelain certification has become even more evident, as more than 25% (284 tile series out of 1,135 total tested) failed, as of December 2014.

**Can Only Manufacturers Sign Up for PTCA Certification?**

No. The program is open to both manufacturers and sellers of porcelain tile. Either can be a program participant.

**PTCA Certification: What Does It Mean?**

Recognizing that the extent of this false labeling issue only applies to whether or not tiles meet the water absorption criteria of the ANSI A137.1 standard, PTCA certification was developed only to independently evaluate if the program participant understands North American water absorption criteria and can meet such. Tiles are not checked to see whether or not they meet all the other relevant properties for porcelain tiles in the ANSI A137.1 standard; variance from those properties has not been an issue in general, and the criteria are well understood. For each series being evaluated, five commercially available samples (selected by the participant) are sent once every three years by manufacturing participants and annually by non-manufacturing participants. Passing the initial testing establishes that the participant understands and can meet North American water absorption criteria.

For more details on the PTCA program, the PTCA Program Participation Agreement is publicly available and can be found at this link: [http://www.ptcaonline.org/participant.aspx#app](http://www.ptcaonline.org/participant.aspx#app)
If a Box of Tile Has the PTCA Certification Mark on It, Is PTCA Stating That Tile Meets ANSI A137.1 Water Absorption Criteria?

No. PTCA establishes that the program participant understands North American water absorption criteria and is able to meet such. The quality of the tiles being sold is exclusively controlled by the actual manufacturer.

If a Box of Tile Has the PTCA Certification Mark on It, Is the Program Participant Stating That Tile Meets All ANSI A137.1 Criteria?

While the program participant may independently of the PTCA certification mark claim compliance with all ANSI A137.1 porcelain tile criteria, that is not required by PTCA of program participants.

By participating in the PTCA certification program, the program participant (i.e., the manufacturer and/or seller) is stating that the tiles it produces or sells labeled with the PTCA mark meet the ANSI A137.1 porcelain tile water absorption requirements.

Non-manufacturing participants are further required to obtain a written assurance from the actual manufacturer that it will immediately notify the participant of any changes in the conforming porcelain tile or any manufacturing variances that may affect the certification.

To further ensure the program’s effectiveness, participants have agreed not to use the PTCA mark in any way misleading or confusing to buyers, including displaying the certification mark in a way that would imply non-certified products are certified. Participants also are not allowed to transfer use of the mark to any other person or entity.

As noted above, PTCA certification does not mean the tiles tested met all ANSI A137.1 or ISO 13006 criteria, which would require testing for other physical properties such as dimensions, warpage, breaking strength, etc. That assurance would need to come from the manufacturer or via a third-party lab.

If a Box of Tile Has the PTCA Certification Mark on It, Can Those Tiles Be Used in Freeze/Thaw and Wet Environments Without Concern?

While the tiles may be perfectly appropriate for such use, the PTCA certification mark does not suggest that. The suitability of any tiles for specific applications requires an analysis of the project conditions by a qualified individual and proper installation. The certification mark does not assure fitness for any particular purpose.
Who Polices PTCA-Certified Tile?

The marketplace does. If a question arises about whether a tile sold as PTCA certified truly meets the water absorption criteria for porcelain tiles, PTCA is authorized to acquire further samples and test such for compliance. The Board of PTCA then reviews the available data and relevant actions taken by the program participant to decide whether to withdraw PTCA certification and use of the mark.

Anyone who suspects a non-porcelain tile is being sold as PTCA certified is encouraged to notify PTCA at 630-942-6588 or online at info@ptcaonline.org.

What Are the Benefits of the PTCA Program?

The PTCA program is designed to directly benefit consumers purchasing porcelain tiles and, indirectly, everyone involved in the supply chain.

Participants benefit by being able to independently verify to customers that what they are producing or selling is truly porcelain, and by being able to differentiate their products from falsely labeled porcelain products. Producing porcelain tiles can be a more intensive and costly process than producing non-porcelain tiles, so certification is a good way for manufacturers and sellers to confirm that investment to the market.

For distributors PTCA certification helps reduce liability from selling tiles that are falsely labeled as porcelain.
Porcelain tile has become increasingly popular over the past decade. The American National Standard Specifications for Ceramic Tile (ANSI A137.1) require tile to have a water absorption of 0.5% or less, to be classified as porcelain, when tested per ASTM C373, the most stringent test for measuring water absorption. Manufacturing tile that meets this standard — true porcelain — requires porcelain-grade clays and other unique raw materials, plus precision milling processes and kilns set to extremely high firing temperatures (2100°F to 2500°F). The required raw materials, energy, and manufacturing equipment needed to produce such low porosity, high density tile are why real porcelain is typically more expensive than non-porcelain tile.

The difference between real and false porcelain cannot be detected by eye — the only way to know is to have a laboratory verify the tile’s water absorption is 0.5% or less. Through its lab, Tile Council has identified 284 series (out of 1,135 total tested) of falsely-labeled “porcelain” tiles with a water absorption well over 0.5% — sometimes as high as 3%. Suppliers of falsely-labeled porcelain are defrauding the consumer and benefitting from the popularity and market value of genuine porcelain. This is particularly true for imported tile, and, considering that more than 70 percent of the tile sold in the United States is imported, much of the “porcelain” being sold may be falsely labeled.

### ASTM C373 WATER ABSORPTION TEST

For ceramic tile, water absorption refers to the maximum amount of water that a tile can be made to absorb. In the lab test ASTM C373, water is forced into the deepest pores of the tile. So, measuring water absorption can also be looked at as measuring available tile porosity — the more water that can be absorbed, the more porous (less dense) the tile.

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>STEP 2</th>
<th>STEP 3</th>
<th>STEP 4</th>
<th>STEP 5</th>
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<tbody>
<tr>
<td><img src="image1" alt="Tile sample is dried in an oven to ensure accurate dry weight." /></td>
<td><img src="image2" alt="Dried tile sample is weighed using a digital scale accurate to 0.001 gram." /></td>
<td><img src="image3" alt="Water is forced into the tile sample by boiling and soaking it." /></td>
<td><img src="image4" alt="Saturated tile sample is weighed to determine amount of weight gain due to absorption of water." /></td>
<td><img src="image5" alt="Water absorption is calculated. The change in weight is expressed as the percentage of the tile's dry weight." /></td>
</tr>
</tbody>
</table>
The Certified Porcelain Tile logo means the tile tested met the requirement of 0.5% or less water absorption for porcelain tile of the American National Standards Institute’s A137.1 standard.

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The standard for coefficient of friction (COF) for tile floors has changed. Whether you’re manufacturing, specifying, selling, installing, or maintaining ceramic tile floors, it’s important to know the COF of your floor tile according to the new standard and test method, the DCOF AcuTest. Our lab not only runs this test, we helped develop the protocol. Send us your tiles today, and be sure you’re meeting this new and very important safety standard.

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The ANSI A137.1 standard for ceramic tiles now states, “The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers’ guidelines and recommendations.”

If you’re specifying, selling, manufacturing, installing, or maintaining ceramic tile floors, it’s important to know about recent changes to the coefficient of friction (COF) requirements in the ANSI standard. Project plans and specifications, maintenance programs, etc., referencing a minimum COF of 0.6 per ASTM C1028 (the old COF test method) do not meet the new requirements of the standard, which went into effect late in 2012.

To meet the new DCOF AcuTest criteria, you cannot use old COF values from C1028 measurements. The test methodologies are different, and accordingly, there is no direct correlation between specific C1028 COF values and the values measured by the DCOF AcuTest. Additionally, ASTM C1028 has been withdrawn, effective February 1, 2014.
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“We are constantly developing new technology and products to promote creativity in tile design, such as unique backlit mosaics. That high-performance application wouldn’t be possible without Bostik’s Dimension® Grout.”
Tile setting has become a more and more specialized trade, yet it remains largely unregulated when it comes to requirements for installers, whether for training or for proven adherence to best practices and industry standards. The easy entry into tile setting means a contractor may have seasoned, skilled craftworkers or untrained installers with little experience under their belts. And, without an established skills baseline, the contractors that don’t invest in installer training and education have a competitive edge, if the only consideration for choosing from a pool of tile contractors is which one has submitted the lowest bid, the norm for the vast majority of commercial work today.

This is the system for awarding tile jobs — too often to unqualified companies — that ACT (Advanced Certifications for Tile Installers) seeks to improve by establishing a skills baseline that allows consumers to compare costs and qualifications.

Launched in 2014, ACT is a program of written and hands-on testing for defined skill sets, like large format tile installation. While other training and certification programs are available to tile installers, ACT has garnered wide support from the tile industry because it is standards-based and highly demanding.

ACT tests are not show-up-for-a-demonstration-and-get-your-certificate events. A percentage of installers fail, which differentiates ACT as a meaningful certification, not an educational session. The tests have strictly enforced time limits, and installers’ hands-on work is evaluated and scored in-person, by approved evaluators only. Upon completion of the hands-on component by the installer, the evaluator literally tears it apart. By prying up tiles and probing fresh mortar beds, ACT evaluators judge what’s below the surface, a crucial component of the program, as so much of what is required for a successful tile installation lies below the finished tile work.

ACT tests are administered by the Ceramic Tile Education Foundation (CTEF) and the International Masonry Institute (IMI), which collaborated to develop the program, with support from product manufacturers and industry organizations including the National Tile Contractors Association (NTCA), Tile Contractors Association of America (TCAA), Tile Council of North America (TCNA), and the International Union of Bricklayers and Allied Craftworkers (IUBAC).
ACT Certification: LARGE FORMAT TILE / SUBSTRATE PREP
Specify ACT LARGE FORMAT TILE certification when tile larger than 15” long will be installed by a thin-bed method.
Critical Installation Skills Tested: Flattening a substrate to receive large tile and installing large tile within industry tolerances for coverage, flatness, and lippage

ACT Certification: MEMBRANES
Specify ACT MEMBRANES certification when a sheet or liquid membrane will be used for waterproofing or crack isolation.
Critical Installation Skills Tested: Application of sheet and liquid membranes with emphasis on avoiding installation errors that affect waterproofness

ACT Certification: SHOWERS
Specify ACT SHOWERS certification when designing showers with a mortar bed and tile floor over a shower-pan membrane.
Critical Installation Skills Tested: Creating a watertight (leak-proof) shower base that effectively evacuates water

ACT Certification: MUD WALLS
Specify ACT MUD WALLS certification when a mortar bed has been selected as the substrate for tiling walls.
Critical Installation Skills Tested: Installing wall mud to ANSI standards, with emphasis on proper materials and precision of finished work (flat, plumb, level, square)

ACT Certification: MUD FLOORS
Specify ACT MUD FLOORS certification when a mortar bed has been selected as the substrate for tiling floors.
Critical Installation Skills Tested: Installing floor mud to ANSI standards, with emphasis on proper materials and precision of finished work (flat, level)
CONGRATULATIONS,
ACT-CERTIFIED INSTALLERS!

Tile Council of North America congratulates the tile installers who have demonstrated their exemplary knowledge and skills in the trade, a commitment to quality, and a passion for excellence.

Baker, Shawn R.
Baldacci, Peter H.
Becker, Ronald W.
Cardiff, Brian A.
Collier, Gavin D.

Compton, Darin
Deel, Jason
DeSalvo, Victor
Dumas, William
Duschinsky, Paul A.
Edwards III, Robert
Fernandez, Michael F.
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Edwards III, Robert
Escamilia, Leonardo
Fernandez, Michael F.
Fleming, Randy
Hale, Brad J.

Herron, Scott
Higgins, William J.
Kennedy, Jason M.
Lomeli, Alejandro
Maiuri, Philip A.
Manzaroli, Eric
McAdam, Wayne R.
Meyer, Raymond F.
Miller, Michael J.
Mion, Robert

Nequist, Tyler
Novak, Sandra
Ornellas, Jeffrey S.
Ortiz, Jose G.
Pacetti, Dennis J.
Panek, Robert A.
Pugliano, Joseph
Ramos, Jorge L.
Rush, Jeffery W.

Schaerer, Grant E.
Schoewe, Bryan J.
Sotelo, Peter Pio
Tavshanjian, Keith
Tetreault, Eric
Trame, Terrence K.
Tucker, William G.
Warner, Jerome D.
Welch, Dan
Yeo, John P.

Becker, Ronald W.
Blaschchishchin, Vladimir
Collier, Gavin D.
Compton, Darin
Cortez, Gabriel

Costa, Alan R.
Creek, Clinton T.
Deason, Brian
DeSalvo, Victor
Dumas, William
Duschinsky, Paul A.
Edwards III, Robert
Fleming, Randy
Galliani, Rich
Gardner, Jacob M.
Hale, Brad J.

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Tavshanjian, Keith
Tetreault, Eric
Trame, Terrence K.
Tucker, William G.
Warner, Jerome D.
Welch, Dan
Yeo, John P.
NTCA Five-Star Contractors and TCAA Trowel of Excellence Contractors are uniquely qualified to provide the craftsmanship and service you deserve.

The Tile Council of North America Handbook strongly recommends using installers who have demonstrated their commitment to their craft.

Because tile is a permanent finish, the lowest bid should not be the driving factor, but rather who is the most qualified to perform the scope of the work specified.

TCAA Trowel of Excellence and NTCA Five Star Contractors have a proven track record of success for both residential and commercial installations. These companies have demonstrated their commitment to professionalism by passing rigorous review of their training, management and safety practices and enjoy strong support from peers, customers and suppliers.

Contact the NTCA and TCAA for qualified Five Star and Trowel of Excellence contractors for your upcoming project.

www.tile-assn.com/Member/FiveStar.aspx?mid=84
www.tcaainc.org/trowel-of-excellence.php
TILE: It’s the go-to finish when you’re looking for high fashion and high function. But you might not get either if you leave it to just anyone to install. Unlike plumbing, electrical, and structural masonry trades, tile installers and the tile contractors that employ them are not generally required to meet minimum trade craft criteria to be in business.

The difference between trained, experienced installers and inexperienced installers is noticeably reflected in their work, and the difference between a quality contractor and a deficient one is reflected in their service and business operations.

Together, contractor and installer transform your concept into reality. Whether you’re a design/build professional selecting tile contractors on a regular basis or a homeowner with a single tile project, it’s just not possible to overestimate the importance of finding qualified contractors and installers.

THE REPUTABLE TILE CONTRACTOR

- **Operates a legitimate business**, with responsible business practices and a policy of standing behind their work.
- **Invests in continuing education** necessary to stay up-to-date on current building codes, regulations, standards, and best practices. On-the-job training is the most popular way to learn a construction trade, but formalized training is a must for ensuring correct installation methods are being taught to and used by installers on your project.
- **Carries all required business licenses and insurances**, and doesn’t push liabilities for property damages or worker injuries onto others.
- **Does not misclassify workers** to avoid paying into social security, unemployment, workers’ compensation, and other employee programs.
- **Has a traceable business location** so customers can be sure post-installation questions and issues are addressed and resolved.
- **Has a track record for quality and service**: Good contractors can easily produce references and verifiable documentation of their commitment to quality and service.
ARCHITECTS & SPECIFIERS

Include language in job specifications requiring qualified labor and enforce it with the GC. See the TCNA Handbook for a list of industry recognized prequalification programs for installers and contractors such as the CTEF Certified Tile Installer Program, the ACT (Advanced Certifications for Tile Installers) Program, the NTCA 5-Star Contractor Program, and the TCAA Trowel of Excellence Program.

GENERAL CONTRACTORS

Deliver a quality tile installation by fulfilling contractor qualification requirements in job specifications. When not included, utilize internally developed qualifications. Require proof of qualifications to be included with all project bids. Thoroughly compare estimates from bidding contractors before awarding contracts. Often, higher estimates reflect better materials and additional necessary components and tasks, like substrate preparation and movement joints.

HOMEOWNERS

Don’t hesitate to ask contractors for proof of insurance, their license (where required), and their installation qualifications. Thoroughly interview bidding contractors and check several references. Utilize consumer resources available from your state on the internet and from the Ceramic Tile Education Foundation.

Call CTEF at 864-222-2131 or visit tilecareer.com for assistance finding or specifying a quality contractor.

“Because tile is a permanent finish, the lowest bid should not be the driving factor, but rather who is the most qualified to perform the scope of the work specified.”

— TCNA Handbook
The inherent eco-friendliness of tile and tile installation products is exemplified by Green Squared Certified® products.

Green Squared® is a multi-attribute, industry-wide standard that underscores the North American tile industry’s commitment to sustainable manufacturing. The Green Squared standard provides architects, specifiers, and consumers with a consistent set of criteria for evaluating the sustainability of tile and tile installation products.

Products bearing the Green Squared Certified logo are manufactured according to rigorous sustainability criteria that address a broad range of considerations, from extraction of the raw materials needed, to reuse or disposal at the end of a product’s life. Manufacturers of Green Squared Certified products invest considerable resources to ensure their facilities and manufacturing practices are socially and environmentally responsible, and to obtain third-party certification.

Clearly, Green Squared Certified products are robustly sustainable. They are also beautiful, as the photos on the following pages illustrate.

The tile and installation products pictured here represent only a handful of the Green Squared Certified products that are currently available. Hundreds of products have been certified, and still more are in the certification process.
100 percent of the original structure, a 19th-century horse barn, was recycled for this LEED NC Platinum Certified San Francisco Toyota facility, and 75 percent of the construction waste was recycled, according to the tile manufacturer.
The design team from HKS Architect implemented sustainable strategies to lower the carbon footprint of the project, including materials selection. Semi-Gloss is made of 35% pre-consumer recycled material and is produced at a U.S. manufacturing facility, according to the tile manufacturer.

PROJECT SITE: Arizona Phoenix Children’s Hospital

PROJECT SCOPE: 450,000 square feet

GREEN SQUARED CERTIFIED PRODUCTS:
- Semi-Gloss™ Glazed Ceramic Wall and Counter Tile 6”x6” in Coral Bead, Fire Brick, Galaxy, Key Lime, Mustard, Ocean Blue, Orange Burst, Vermilion, White, and Wood Violet
While this building was not LEED [certified], we wanted to be aware of our environmental impact. These products were chosen because of recycled content as well as performance. Sustainable products have come a long way; these products are performing great in a high traffic space.

— Cally Dalton, Interior Designer
Oz Architecture  Denver, CO
[The] design blends the natural beauty of Mexico with the easy luxury and playfulness of the Hard Rock brand. The JBI team was inspired by the Festival de Avándaro, a Woodstock-like music festival that took place in 1971 on Mexico’s Lake Avándaro.

— Jeffrey Beers International (JBI), Architectural Firm
Website: jeffreybeers.com
This craft brewery is located in the historic downtown area of Grand Rapids, Michigan. Quarry tile was chosen for its durability in heavy commercial settings such as those found in manufacturing, according to the tile manufacturer.

**PROJECT SITE:** Founders Brewery  
Grand Rapids, Michigan

**PROJECT SCOPE:** 9,660 square feet

**GREEN SQUARED CERTIFIED PRODUCTS:**  
- #310 Mayflower Red Quarry Tile 6”x 6”
PROJECT SITE:  Square One Shopping Centre
Mississauga, Ontario

PROJECT SCOPE:  280,000 square feet

GREEN SQUARED CERTIFIED PRODUCTS:
■ Ultralite Mortar

“We have integrated sustainability into the operations of our existing buildings and continue to introduce the latest green building materials and technologies into our new developments.”

— Oxford Properties, Developer
Website: www.oxfordproperties.com
Architect Michael Ruetschle, AIA LEED AP, received a Merit Award from the American Institute of Architects, Dayton Chapter, for this design of his private residence. Sustainable strategies employed include specification of building materials with high recycled content and using materials, sealants, and paints with low to zero VOC emissions.

— Architect’s blog, “The Little Woods House”
http://ruetschle.blogspot.com

PROJECT SITE: “The Little Woods House”
Oakwood, Ohio

PROJECT SCOPE: 3,800 square feet

GREEN SQUARED CERTIFIED PRODUCTS:
■ Eco Tile Natural Hues (2”x2” to 4”x8”)

G2
GREEN SQUARED CERTIFIED®
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usg.com/tileandflooring

BACKERBOARDS | SHOWER SYSTEM
MEMBRANES | FLOOR PREP | ACCESSORIES

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Unique, patent-pending textured pattern reduces tile slippage during installation

◆ Easy to handle, cut, and install
◆ Coating provides a water-resistant surface that eliminates the need for a separate vapor barrier
◆ Lighter weight than traditional cement and glass-mat backer boards
◆ Scores and snaps like regular gypsum board

800-233-8990
www.GlasRoc.com

Concrete re-imagined

American Olean’s new Concrete Chic™ not only refreshes the popular stained cement aesthetic with updated graphics and a contemporary color palette, but it’s also made in the USA with recycled content. With stunning visuals created through Reveal Imaging™, Concrete Chic is sure to capture attention in modern residential settings and commercial spaces alike. For more information visit americanolean.com.
## REGULAR MEMBERS

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<tr>
<th>Company</th>
<th>Phone</th>
<th>Website</th>
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<td>A.C. Products Company</td>
<td>330-698-1105</td>
<td><a href="http://www.acproductsco.com">www.acproductsco.com</a></td>
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<td>Alcobe Ceramicos</td>
<td>52-55-58454502</td>
<td><a href="http://www.alcesa.com">www.alcesa.com</a></td>
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<tr>
<td>American Olean</td>
<td>214-398-1411</td>
<td><a href="http://www.americanolean.com">www.americanolean.com</a></td>
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<td>Ceramic Expressions</td>
<td>800-425-2115</td>
<td><a href="http://www.ceramicexpressions.com">www.ceramicexpressions.com</a></td>
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<td>Cesantoni</td>
<td>52-47-89854200</td>
<td><a href="http://www.cesantoni.com.mx">www.cesantoni.com.mx</a></td>
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<td>Crossville, Inc.</td>
<td>931-484-2110</td>
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<td>Daltile</td>
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<td>Daltile Mexico</td>
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<td><a href="http://www.eprotile.com">www.eprotile.com</a></td>
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<td>52-55-53004576</td>
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<td>Fiandre USA</td>
<td>800-828-9074</td>
<td><a href="http://www.granitifiandre.com">www.granitifiandre.com</a></td>
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<td>Florida Tile, Inc.</td>
<td>800-FLA-TILE</td>
<td><a href="http://www.floridatile.com">www.floridatile.com</a></td>
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<td>Florim, USA</td>
<td>877-FLORIM1</td>
<td><a href="http://www.florimusa.com">www.florimusa.com</a></td>
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<td>Interceramic</td>
<td>214-503-5500</td>
<td><a href="http://www.interceramic.com">www.interceramic.com</a></td>
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<td>Interstyle Ceramic &amp; Glass, Ltd.</td>
<td>604-421-7229</td>
<td><a href="http://www.interstyle.ca">www.interstyle.ca</a></td>
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<tr>
<td>Iris US</td>
<td>800-323-9906</td>
<td><a href="http://www.irisus.com">www.irisus.com</a></td>
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<td>Ironrock</td>
<td>800-325-3945</td>
<td><a href="http://www.ironrock.com">www.ironrock.com</a></td>
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<td>Jeffrey Court, Inc.</td>
<td>951-340-3383</td>
<td><a href="http://www.jeffreycourt.com">www.jeffreycourt.com</a></td>
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<tr>
<td>Company</td>
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<td>Ken Mason Tile (also known as BCIA)</td>
<td>562-432-7574</td>
<td><a href="http://www.kmt-bcia.com">www.kmt-bcia.com</a></td>
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<tr>
<td>Kolorines</td>
<td>52-77-73296440</td>
<td><a href="http://www.kolorines.com.mx">www.kolorines.com.mx</a></td>
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<td>Lamosa</td>
<td>52-81-80474000</td>
<td><a href="http://www.lamosa.com">www.lamosa.com</a></td>
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<td>Marazzi</td>
<td>972-226-0110</td>
<td><a href="http://www.marazzitile.com">www.marazzitile.com</a></td>
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<td>Mediterranea LLC</td>
<td>305-718-5091</td>
<td><a href="http://www.mediterranea-usa.com">www.mediterranea-usa.com</a></td>
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<tr>
<td>Metropolitan Ceramics</td>
<td>800-325-3945</td>
<td><a href="http://www.metroceramics.com">www.metroceramics.com</a></td>
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<td>Mohawk Ceramic</td>
<td>214-398-1411</td>
<td><a href="http://www.mohawkflooring.com">www.mohawkflooring.com</a></td>
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<td>Nitropiso</td>
<td>52-44-48320100</td>
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<td>Oceanside Glasstile Company</td>
<td>866-OGT-TILE</td>
<td><a href="http://www.glasstile.com">www.glasstile.com</a></td>
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<tr>
<td>Porcelanite</td>
<td>52-55-52469912</td>
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<tr>
<td>Pratt &amp; Larson Ceramics</td>
<td>503-231-9464</td>
<td><a href="http://www.prattandlarson.com">www.prattandlarson.com</a></td>
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<td>Quarry Tile Company</td>
<td>509-536-2812</td>
<td><a href="http://www.quarrytile.com">www.quarrytile.com</a></td>
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<tr>
<td>Ragno</td>
<td>888-297-2466</td>
<td><a href="http://www.ragnousa.com">www.ragnousa.com</a></td>
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<td>San Lorenzo</td>
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<td>Seneca Tiles, Inc.</td>
<td>800-426-4335</td>
<td><a href="http://www.senecatiles.com">www.senecatiles.com</a></td>
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<td>Sonoma Tilemakers</td>
<td>707-837-8177</td>
<td><a href="http://www.sonomatilemakers.com">www.sonomatilemakers.com</a></td>
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<td>StonePeak Ceramics, Inc.</td>
<td>312-506-2800</td>
<td><a href="http://www.stonepeakceramics.com">www.stonepeakceramics.com</a></td>
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<td>Summitville Tiles, Inc.</td>
<td>330-223-1511</td>
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<td>Ceramica Venettia, SA de CV</td>
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<td>Verve Ceramics</td>
<td>855-VERVE01</td>
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<td>Vitromex USA</td>
<td>800-848-4146</td>
<td><a href="http://www.vitromex.com">www.vitromex.com</a></td>
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<td>ASSOCIATE MEMBERS</td>
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<td>Ferro Mexicana</td>
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<td>770-594-0660</td>
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<td>704-875-0806</td>
<td>52-81-81545757</td>
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# ASSOCIATE ART/STUDIO MEMBERS

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<th>Name</th>
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<tr>
<td>AD Studios</td>
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<tr>
<td>Allison Eden Studios</td>
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<td>American Bullnose Company</td>
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<td>American Glass Mosaics, LLC</td>
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<td>American Restoration Tile, Inc.</td>
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<td>Appomattox Tile Art Company</td>
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<td>Architerra</td>
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<td>Artfind Tile</td>
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<td>Artistry in Mosaics, Inc.</td>
<td>877-777-1393</td>
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<td>Arya Design, LTD</td>
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<td>B.A. Schmidt Arts &amp; Enterprises, Inc.</td>
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<td>Bella Vista Tile Company</td>
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<td>Bon Ton Designs</td>
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<td>California Art Tile</td>
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<td>Chadwick’s Surfaces International, Inc.</td>
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<td>Clay Decór, LLC</td>
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<td>Diamond Tech Tiles</td>
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<td>Dunis Studios</td>
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<td>Fireclay Tile, Inc.</td>
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<td>Fraser Clay Works, Inc.</td>
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HCP Industries, Inc.  
530-899-5591

Images in Tile USA, Inc. (dba Bison Coating & Supply)  
417-206-0252

JSG Oceana  
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Lenaburg Unlimited, Inc.  
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Lightstreams Glass Tile  
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Lutz Tile  
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858-274-3400

Studiovavoom  
404-333-2385

Syzygy Tileworks  
575-388-5472

T. Davlin Glass, Inc.  
617-864-8854

Tabarka Studio  
480-968-3999

Terra Firma, Ltd.  
803-643-9399

Terra Green Ceramics, Inc.  
765-935-4760

Tile Artisans Digital Imaging LLC  
800-601-4199

Tile Optima  
703-256-5650

Tiles Couture  
610-306-4447

Toto USA, Inc.  
770-282-8686

Trikeenan Tileworks, Inc.  
607-281-1120

Wakei & Company, Ltd.  
805-577-1187

Wiseman Spaulding Designs / Antiquity Tile  
207-862-3513
ASSOCIATE INSTALLATION MEMBERS

AcoustiCORK/
Amorim Cork Composites
800-558-3206

Allied Custom Gypsum
405-366-9500

Aqua Mix
800-366-6877

ARDEX Americas
724-203-5000

AVM Industries, Inc.
818-888-0050

Bexel Internacional
52-81-81300200

Blanke Corporation
800-787-5055

Bostik, Inc.
414-722-2250

C-Cure
800-895-2874

CEMIX
866-GO CEMIX

CertainTeed Gypsum, Inc.
800-233-8990

Compotite Corporation
800-221-1056

Creaprac
52-81-83389399

Crest
52-81-80475000

Custom Building Products
800-272-8786

Dancik International, Inc.
919-379-3800

Dependable, LLC
440-333-1123

Donnelly Distribution
Raimondi USA
800-625-6686

Dural USA, LLC
423-531-7590

DYNA Metro, Inc.
905-761-3309

Fin Pan, Inc.
800-833-6444

Fortifiber Building Systems Group
800-773-4777

Georgia-Pacific
DensShield®
Tile Backer
800-225-6119

GranQuartz L.P.
800-458-6222

James Hardie
Building Products, Inc.
866-4HARDIE

Jamo, Inc.
305-885-3444

KBRS, Inc.
866-912-3211

Lackmond Products, Inc.
770-919-2100

LATICRETE
800-243-4788

LATICRETE, S.A. de C.V.
52-81-83905005

Mapei Americas
888-US-MAPEI

Mark E. Industries, Inc.
866-771-9470

Maxxon Corporation
763-478-9600

Mechanical Lippage Tuning Systems, Co.
319-524-4441

Merkrete/Parex USA
800-851-6303

MP Global Products – SnapStone
888-379-9695

NAC Products, Inc.
800-633-4622

National Gypsum Company
704-365-7319

NIASA
52-55-53545680
ASSOCIATE INSTALLATION MEMBERS (continued)

Noble Company
800-878-5788

NUE Tile, LLC
716-830-9573

Panel Rey
52-81-83450055

Park Industries
320-251-5077

Pearl Abrasive Company
562-927-5561

Perdura
52-55-56464151

Pliteq Inc.
416-449-0049

Proflex
877-577-6353

ProSpec
800-832-9002

Protecto Wrap Company
800-759-9727

QT Sound Insulation
866-326-5712

RB Rubber Products, Inc.
503-472-4691

Rubi Tools USA
305-715-9892

Schluter-Systems
800-472-4588

SGM, Inc.
(Southern Grouts and Mortars)
800-641-9247

SLTK de Grupo Lamosa
52-55-55525012

Sound Seal
413-789-1770

Stetson Development, Inc.
800-532-8215

TEC
800-832-9002

TEXRITE
800-669-0115

TI-PROBOARD
800-833-6444

Tile Redi, Ltd.
800-232-6156

TileWare Products LLC
828-322-9273

UNIBLOCK
52-81-82892100

United States Gypsum Company (USG)
800-USG-4YOU

VanHearron, Inc.
479-255-6101

VIM Products, Inc.
919-277-0267

Wacker Polymers
610-336-2700

wedi corporation
877-933-9334
**AFFILIATED EQUIPMENT MANUFACTURERS**

- Montolit Tool Corporation  
  866-887-2337

- SACMI de Mexico S.A. de C.V.  
  52-81-83355732

- System Norte America  
  S.A. de C.V.  
  1-800-288-1100

**AFFILIATED PRODUCT MANUFACTURERS**

- AlysEdwards  
  Tile and Stone  
  714-917-6720

- Century Tile, Inc.  
  310-257-1300

- Creative Metals  
  800-394-8145

- EpStone, Inc.  
  201-864-7000

- Gemstone Tile, LLC  
  928-753-3147

- Hirsch Glass Corp.  
  732-329-8988

- International Wholesale Tile, LLC  
  772-223-5151

- John H. Best & Sons, Inc.  
  800-344-2378

- Landmark Metalcoat, Inc.  
  951-695-4522

- New Ravenna Mosaics  
  757-442-3379

- Quarry Collection  
  949-567-1880

- Questech Corporation  
  802-773-1228

- Rainbow Inc.  
  931-552-7783

- Soho Studio Corp.  
  718-677-8453

- Terraferma USA Corporation  
  305-994-7892

- Trend USA Ltd.  
  954-435-5538

- Vidrepur Internacional  
  55-55-930447
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