



Specifying Tile, With Confidence!

NKBA Meeting
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Presented by Rubble Tile

Specifying Tile, with Confidence!



You are a designer! You know how to put pieces together to create a beautiful and functional room for your clients!

Beyond the beauty, a space also has to function.

With Tile, there are many technical factors to be considered, to make a space work.

For designers, a working knowledge of these factors can save you time, and your client money, on your projects.

Tile Showroom and Sales personnel are your experts for reference!

- We can help you assess the appropriate material for your projects.
- We are here to help educate you, so you can educate your clients, to achieve the desired outcome!

Presentation Objectives:

- Learn about different types of tile.
- Learn what kinds of questions to ask about tile as you design and specify.
- Learn how to find the answers to those questions
 - Technical Ratings
 - Simple ways to assess certain factors
- Learn to educate your client
- Learn what information to include as you specify – to ensure you receive the product(s) you want.

Where to Start: Logical vs. Technical

- Logical

- Knowing your Client
- What products work for their lifestyle

- Technical

- Knowing the products available
- Understanding how the products will perform
- Installation considerations

How well do you know your Client?

- Style Preferences?

- Character of Residence
- Variation – a lot or none
- Size – large format vs. mosaics
- Traditional – Transitional - Contemporary



- What is their lifestyle?

- Children and pets
- Aging in place
- Low Maintenance vs. Special Care Requirements



Shopping for Tile: Frequently Asked Questions

- Is this a strong tile?
- Can I use this outside?
- Will it scratch?
- Can it go on a floor?
- Will this tile stain?
- How do I clean the tile?
- Do I need to seal it?
- Is it OK to use this in the kitchen? In a wet area? In a hot area, like a fireplace?
- Can tile smell?
- How much does this tile cost?
- What is the availability?

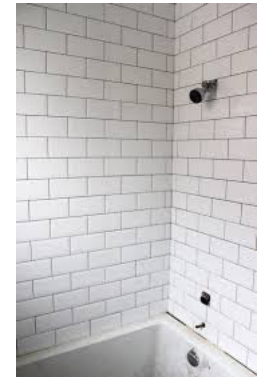
Tile Categories

- Man-Made

Ceramic, Porcelain,
Glass, Metal

- Natural Stone

Marble, Travertine, Limestone, Slate,
Quartzite, Onyx, Granite



Man-made Tiles

Ceramic vs. Porcelain

Both are made of clay and fired at high temperatures.

The U.S. tile industry tends to treat ceramic and porcelain as two different categories, but porcelain is technically a type of ceramic.

Man-made Tiles

Ceramic vs. Porcelain

Ceramic:

- More porous than porcelain
- Commonly used for wall tiles
- Easily cut with a “Score and Snap” method

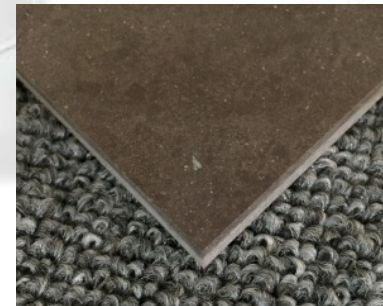


Porcelain:

- Made from a finer, white, clay, compressed and fired at high temperatures so it vitrifies (pretty much melting) and becomes so dense it is considered non-porous.
- **Tile needs to have less than .5% porosity to be called Porcelain.**
- This density and strength make porcelain the most durable flooring available.
- Most porcelains are harder than granite.
- Because it is non-porous, it is considered Frost-proof.
- Some can be cut with a “Score and Snap” but because of the density, a wet saw is typically used for cutting.

Tile Options

- Unglazed – some Porcelains, Saltillos, Pavers
- Glazed – most Ceramics, some Porcelains
- Porcelain-specific Categories:
 - Color-body
 - Double-loaded
 - Through-body
 - Rectified



Maintaining Porcelain and Ceramic Tiles

- Generally, man-made tiles are very low maintenance and have no special care requirements.
 - Crackle Glaze ceramics do need to be sealed.
 - Some glazes from handmade companies may have specific care requirements as well.
- Common household cleaners (Bleach, Vinegar, Lysol, 409, etc.) are safe to use on most man-made tile. That being said, most manufacturers state that water with a mild soap added is all you need for regular cleaning.
- Grout is most susceptible to dirt and stains. It is recommended to seal grout or use a pre-sealed grout to alleviate this.

What is Encaustic Tile?

- Encaustic tiles are tiles in which the pattern on the surface is not a product of the glaze.
- The pattern is created with different colors of clay inlaid into recesses in the body of the tile.
- Inlays are typically 1/8"-1/4" thick. Because of this depth, the pattern will hold up well.



Glass Tile



There are many types of glass tile available.

- Some glass is floor rated
- Some will have sharp edges that can be dangerous.
- Some get their color from “paint” on the back
- Available in many different sizes and shapes, from mosaic to large format.

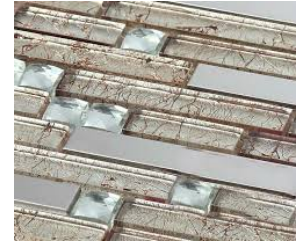
All glass should be installed following the manufacturer's directions.



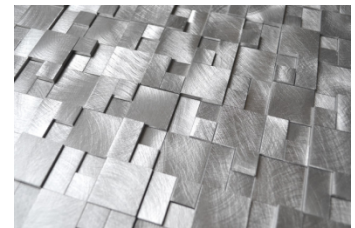
Metal and Metallic Tile

Metal tiles can come in various forms:

- Metal wrapped around a ceramic tile
- Metal/Resin compound
- Metallic Glazed
- Foil in glass
- Solid Metal



Metal can have problems in very hot and/or wet applications. Always verify the suitability, based on each project.



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- This collage displays a variety of stone and tile options. The top section features a grid of small, square samples in various colors and patterns, including dark blues, reds, greens, and speckled designs. Below this grid is a large, rectangular slab of light-colored, textured stone. The bottom section shows a bathroom floor installation using large, rectangular, light-colored tiles. To the left of the floor, there is a dark-colored cabinet or vanity. In the background, a white toilet and a bathtub are visible, along with a wall made of light-colored, rectangular tiles.





Maintaining Natural Stone

Because stone is porous, it is very important to seal natural stone – no matter the type or finish. Limestone, Travertine, and Marble are very porous and most vulnerable to acids.

- **Penetrating Sealers** fill the microscopic pores in the stone, preventing stains from soaking deep into the body of the tile. It will not change the appearance of the stone.
- **Color-Enhancing Sealers** bring out the depth of color in the stone. It will give stone a “wet-look” without a high shine. (Spraying a piece of stone with water will represent what an enhancing sealer will do.)

Sealers are not designed to leave a protective coating on the surface of the stone. Spills, such as oils and acids (wines, lemon juice, tomato sauce, vinegar) can still damage stone, even after sealing. It is important to wipe spills as soon as possible.

Maintaining Natural Stone

- When cleaning natural stone, it is necessary to use pH neutral products that indicate they are safe for use on natural stone.
- Avoid using bleach, vinegar, and typical household cleaning products (Lysol, Windex, etc.). Over time, these will change the appearance of the stone.

Tile Ratings: Slip Resistance



Coefficient of Friction (**COF**) vs.
Dynamic Coefficient of Friction (**DCOF** - new method as of 2014)

Both methods measure a tile's slip resistance.

The DCOF accounts for both static and resistance when in motion, of the slip resistance – a more accurate test for how a tile will perform.

DCOF testing is recognized world wide. The testing device is portable and is also more accurate on smoother tile surfaces.

Commercial Ratings:

COF: $\geq .6$ wet

DCOF: $\geq .42$ wet

Tile Ratings: Wear Resistance



The Porcelain Enamel Institute offers the PEI wear test on glazed floor tiles, assessing how quickly the surface of the tile will show wear. The higher the rating, the more wear-resistant the tile.

Class 0: Suitable for walls only

Class I: Recommended for walls only

Class II: Suitable for floor use in residential areas where abrasive traffic is minimal, such as in a bathroom

Class III: Great for all residential interiors that undergo normal use and foot traffic.

Class IV: Great for all residential interiors and light to medium commercial applications.

Class V: Great for all residential and most commercial applications. This is the highest rating that can be given to any glazed tile.

Tile Ratings: Water Absorption

Most tile can be used in any area where there are no wet and/or freezing conditions.

For wet and freezing conditions, tile must have a low porosity. This prevents tile from breaking due to expansion and contraction during freeze/thaw cycles.

- ASTM-C373 is a test used for both glazed and unglazed tiles. With unglazed tiles, it can indicate stain and frost resistance.
- The tile is weighed dry, boiled in water for 5 hours, left to soak for 24 hours, then weighed again.
 - --<.5%: **Impervious** – the most frost and stain resistant. Again, a tile must have less than .5% porosity to be considered Porcelain.
 - --≥.5% - <3%: **Vitreous** – considered frost-resistant enough to be used indoors and out.
 - --3% - <7%: **Semi-Vitreous** – indoor use only, like a Mexican Saltillo Tile
 - -- ≥7% : **Non-Vitreous** – indoor use only

Tile Ratings: Breaking Strength

The strength of a tile is measured as Breaking Strength (ATSM-C648)

For the test, tile is placed on three steel prongs to elevate it from a flat surface. Pounds of pressure are applied to the center of the tile by a hydraulic press, until the tile breaks. Ten tiles are tested per series. The average pounds of pressure needed to break the tile gives the test result.

The minimum value for any floor tile is 250 pounds of force.

Some wall tiles will have this strength, in which case you could use them on the floor, provided the glaze has the proper wear resistance.

Proper installation is a key factor in breakage. An extremely strong tile installed with pockets of air beneath it is vulnerable to breaking.

Tile Ratings: Chemical Resistance

This is a pass/fail test.

A tile is placed in continuous contact with a variety of chemicals for 24 hours. If there is any visual or texture change – the tile fails.

Common Acids in Kitchens:

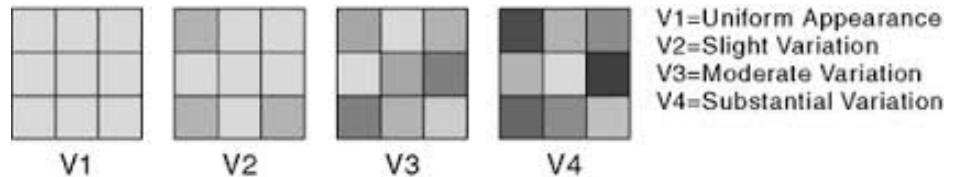
Vinegar, Citrus, Wine, Coffee,
Tomato-based foods and sauces

Common Bathroom Acids:

Nail Polish Remover, Toothpaste



Tile Ratings: Variation



The **V-Scale** is the tile industry's way to note how much or little variation a tile will have from piece to piece.

V1: Uniform Appearance: Tiles will have a nearly uniform appearance from piece to piece.

V2: Slight Variation: The texture, color, and shade may “move around” a little from tile to tile, but the general appearance of each tile is similar.

V3: Moderate Variation: Texture, color, and shade may change considerably from tile to tile, so each tile may not appear similar. However, all the colors present on a single tile will be present to some degree in all of the tiles.

V4: Random Variation: The most amount of variation. The colors are more random from tile to tile – one tile may have totally different colors from other tiles. These tiles should not be selected from looking at one or two pieces.

With all tiles, especially V3 & V4, please ask to see and take with you several samples to fully understand the variation. Manufacturer websites will often have installation photos, but nothing is as good as seeing actual pieces.

Tile Ratings: Hardness

MOH's Scale of Hardness of Minerals

This scale is used to measure the hardness of the body of an unglazed tile or the glaze of a glazed tile.. The tiles are scratched with various minerals to determine the hardness.

- | | | |
|-----|-----------|----------------------------|
| 1. | Talc | (Ex: Talc) – the softest |
| 2. | Gypsum | (Ex: Fingernail) |
| 3. | Calcite | (Ex: Penny) |
| 4. | Flourite | (Ex: Some Marbles) |
| 5. | Apatite | (Ex: Knife Blade) |
| 6. | Microline | (Ex: Glass or Glazed Tile) |
| 7. | Quartz | (Ex: Unglazed Porcelain) |
| 8. | Topaz | (Ex: Granite*) |
| 9. | Corundum | (Ex: Ruby) |
| 10. | Diamond | (Ex: Diamond) |

*The hardness of granite can vary by each granite, depending on what minerals (and therefore the color) of what is in it.

Most porcelains are harder than most granites!

Sample Product Spec

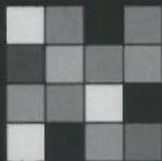
TECHNICAL SPECIFICATIONS

| DESCRIPTION | ANSI STANDARD | RESULT | ASTM TEST METHOD |
|---------------------------|-------------------------------|-------------------------------|------------------|
| Water Absorption | $\leq 0.50\%$ | $\leq 0.50\%$ | C373 |
| Frost Resistance | As Reported | Resistant | C1026 |
| Scratch Resistance | MOHS 1-10 | 8 | MOHS SCALE |
| Breaking Strength 20"x20" | ≥ 250 lbf. | ≥ 605 lbf. | C648 |
| 12"x24" | ≥ 250 lbf. | ≥ 735 lbf. | C648 |
| 13"x13" | ≥ 250 lbf. | ≥ 407 lbf. | C648 |
| Facial Dimension | -3.0 % < Nominal < 3.0% | Within Standard | C499 |
| Thickness | ≤ 0.04 in (1.02 mm max) | Within Standard | C499 |
| Wedging (Squareness) | ± 0.50 % or ± 2.0 mm* | Within Standard | C502 |
| Warpage Edge (Flatness) | ± 0.75 % or ± 2.3 mm* | Within Standard | C485 |
| Abrasion Resistance | Class 0 - Class V | Class IV | C1027 |
| C.O.F. (Wet) | As Reported | $0.70 \leq \text{COF} < 0.80$ | C1028 |
| C.O.F. (Dry) | As Reported | $0.80 \leq \text{COF} < 0.90$ | C1028 |
| Chemical Resistance | Class A - Class E | Class A | C650 |
| Stain Resistance | Class A - Class E | Class A | C1378 |



SHADE VARIATION AND APPLICATIONS

V4



SUBSTANTIAL
VARIATION

| | Residential | Commercial | Industrial |
|------------|-------------|------------|------------|
| Floor | • | • | |
| Wall | • | • | • |
| Countertop | • | • | • |
| Pool | • | • | |

Sample Product Spec



Floor Tile - Tile meets all criteria for use on floors; however, it may also be used on vertical applications such as walls, countertops and fireplace surrounds. See Abrasion Resistance, Coefficient of Friction and Frost Resistance for installation-specific details.



Wall Tile - Tile meets all criteria for use on vertical applications such as walls, backsplashes and fireplace surrounds. See Abrasion Resistance and Frost Resistance for installation-specific details.



V4 Substantial Variation - Random color and/or texture differences from tile to tile, so that one tile may have totally different colors and/or textures from that on other tiles. Thus, the final installation will be unique. It is recommended that the entire range be viewed before selection.



21% Recycled Content - Minimum Pre-Consumer Recycled Content



No VOC - Volatile organic compounds (VOCs) are emitted as gases from certain solids or liquids; they include a variety of chemicals, some of which may have short- and long-term adverse health effects. This series is free of VOC emissions.



DCOF Wet Areas (Minimum 0.42) - Water, oil, grease or other fluids create slippery conditions. When installing floors in areas with exposure to these conditions, a minimum D.C.O.F. value of 0.42 is required. Additionally, extra caution is required with regards to product selection and proper maintenance. Visit www.tcnatile.com for complete information regarding the DCOF Acutest test method and values.



3D Printing Technique - Our state-of-the-art 3d printing technique uses the latest in digital print technology, allowing for infinite design capabilities at maximum resolution.



Decorative Accent - Specialty tiles designed to enhance floor and wall tile when used as inserts, borders and special accents.



Frost Resistant - Industry criteria dictate that tile shall not exceed 5% water absorption to be recognized as frost resistant. To be recognized as Porcelain tile, the water absorption rate cannot exceed 0.50% (impervious). Wall tile must not exceed 20% water absorption and is not frost resistant.



Abrasion Resistance 4 - Class IV - Tile in this class may withstand heavier amounts of traffic with greater amounts of dirt and/or other abrasives present including commercial kitchens and areas with regular traffic from the outside. See Coefficient of Friction and Frost Resistance for installation-specific details.



Modular Tile - Smaller sized tiles feature standardized units or dimensions and can be installed individually or in conjunction Tile with Field Tile or Wall Tile to create more elaborate, custom patterns.



Suitable for Outdoors - The combination of Frost Resistance and Coefficient of Friction results for this series makes it appropriate for exterior horizontal (flat) surfaces. See ADA criteria for ramps.



Trim Available - Various complementary pieces designed to finish edges of field tile.



Contributes to LEED Credits

Simple Assessments

How can you quickly assess a tile to see if it might work for you?

- Feel the surface – does it feel slick or slip resistant? Set it on the floor and walk on it – how does it feel under foot?
- Look at the side of the tile – this gives a sense of what will show if chipped.
- Ping it! Flick the tile with your finger and listen – if the pitch is relatively high, the tile is likely to be more dense and strong. If low, it is probably more porous and best for a wall.
- Pull out your keys and scratch it. If it is shiny, you want to ensure it will work in well in a floor application with traffic.
- If combining two different tiles – set side by side on a table and assess the thicknesses. If the thicknesses are different, consider installation requirements to make it work – may work best on walls vs. floor installations.
- Take samples to your jobsite – it is always best to assess color in the light of the installation area.

Keep in mind – these are not good final assessments, but can help quickly rule out products that may not work as you are designing!

Installation Considerations

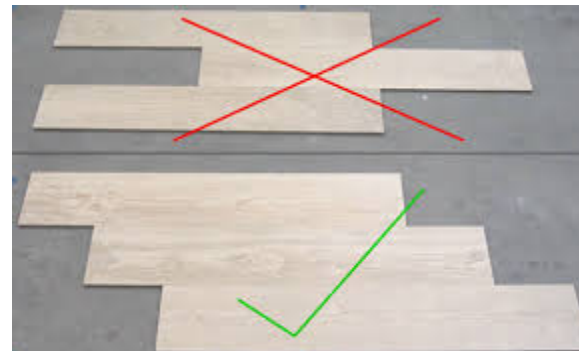
- Tile Thickness

- Accent tile within a field – how to pair thin with thick.
- Thresholds – when different flooring materials meet up.



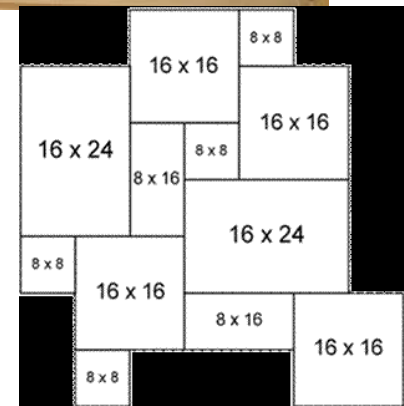
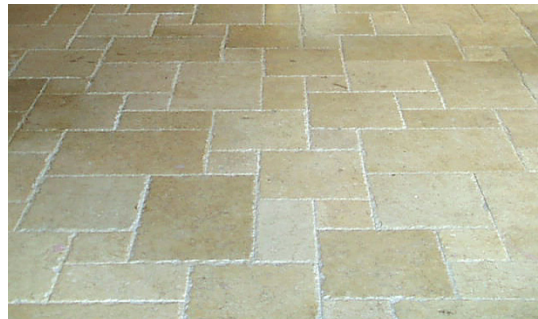
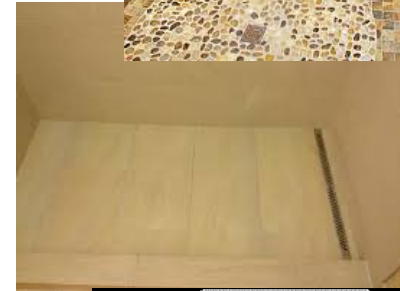
- Installing Patterns

- 1/3 off-set vs. 1/2
- What is Lippage?



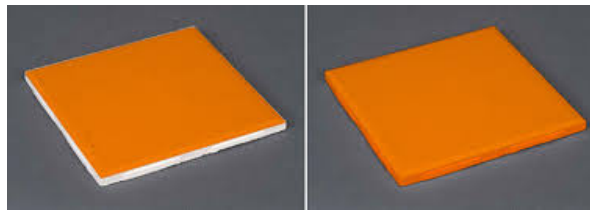
Installation Considerations

- Shower Floors:
 - Center Drain vs. Linear Drain
 - Mosaics vs. Larger format
- Patterns with Different Shapes and Sizes
 - What is a Versailles Pattern?
 - What is Calibration?



How to Finish a Design: Trim and Edging Pieces

- Bullnose
- Chair Rail
- Pencil
- Listello
- Over-glazed edges
- Metal Edging - Genotek or Schluter
- Cove Base
- Molded Base



Grout: Our “Frienemy”



Grout is the final piece of the puzzle. It often gets a bad rap – but it can also be the final enhancement and/or the background that ties everything together.



- Contrasting Grout can highlight a pattern.
- Dark Grout on floors will wear more evenly.
- Larger format tiles = less grout needed!
- New formulations are available for Pre-Sealed Grouts – water-based vs. Epoxy.

How can we help?

- ◉ Ask your Showroom Consultants – we are here for your reference!
- ◉ Have a selection written in the showroom – it documents all the parts and pieces needed and keeps the information on file.
- ◉ Important information to be included on Specs:
 - ◉ Manufacturer
 - ◉ Series
 - ◉ Color
 - ◉ Size
 - ◉ Type of Material
 - ◉ Layout notes
 - ◉ Grout Color
 - ◉ Lead Time

The Final Steps:

Always, always, *always* look over the product with your client before installation!

There are more options for handling product issues before installation, rather than after.

Installation of material constitutes acceptance!

The final key to a successful installation is with the physical installation. An experienced tile setter is a major factor in your success!

Properly installed tile, no matter the type, will last longer than most of the houses installed in!