BENEATH the surface

words: Jo Ann Mork

Current breakthroughs and cutting edge technology have taken the age-old craft of tile and stone surfacing to great heights and broad lengths. Walls, floors and countertops have never had it so good.

This is tile. Really.

WHEN you hear hype about the latest tech advances, it's usually regarding a must have new phone or an ultra light computer. But technology these days can take even the most ordinary thing, and make us think twice about it. That's what happened when we peeked into the world of surfacing. As soon as we heard that lasers, tablets and inkjet printers are now common tools of the trade in the tile and surface industry, we immediately put the 4 x 4 inch tile back on the shelf and reached for the 5 x 10 (just to clarify, that's five feet by ten feet). Advancements in fabrication and installation have given us more options than ever before. It would take much more than a few pages to cover all of surface options available to you, so with that in mind, we've paired things down to the latest in porcelain, the greatest in quartz and the best in installation technology that brings it all seamlessly together.

SHOOT, SCAN & PRINT - ON PORCELAIN

DIGITAL INKJET PRINTING - SOME HISTORY

Up until the year 2000, the tile industry utilized much the same printing process as the paper and textile industries. They used flat or rotary screen printing, where an image is applied through contact with the surface. The set-up cost was high and screen making inefficient. This made small batch printing fairly expensive. The quality of the reproduced image was hard to control and the capability to make changes during the process was limited. The resulting product would typically look similar from tile to tile, giving a natural material like stone an unrealistic lack of variation. The delicate nature of tile would lead to breakage about 10% of the time and more often than not, the finished product yield was less than expected. As digital inkjet printing began to change how paper and textile products were made, the tile industry began to look for a way to integrate this new technology into their printing process. The initial results were promising. And so the revolution began.

OPPOSITE
REX TAIGA in "Var" is a perfect fit for any modern interior or exterior. The "Var" line features a subtle fall season color palette. Installation can be done in a traditional staggered wood plank style or blocked out in uniform rows for a contemporary take on wood flooring that just hints at its porcelain tile compostition. Available through Decorative Materials.

+ decorativematerials.com

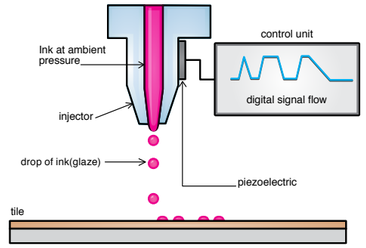
Digital Inkjet Printing: Digitally printed tile is produced on a sizeable machine with a lot more bells and whistles than your average home office printer. Nozzles drop CMYK ink (glaze) in an overlapping combination for depth of color and the look of texture is created by overlapping and rotating the selected image. The end result is a near exact replica of the image on a porcelain surface.

DIGITAL INKJET PRINTING - THE NITTY GRITTY

Most of us have a personal printer and a general understanding that through the overlapping of cyan, magenta, yellow and black, we can print a broad range of colors on a piece of paper. However, before you plan a craft day with a handful of porcelain and that expensive printer, you should know that the process is a bit different for tile. For example, the printer distributes a glaze rather than a water based-based ink, that once fired becomes a permanent layer of the tile.

First, an image is selected. For example, wood, stone, or concrete are the most popular options for duplication in porcelain tile. A digital format of this image can be fine-tuned or manipulated on a computer and transferred over to a industrial inkjet printer. This is not your average printing machine. Part of the working components involve a conveyance system and multiple printhead nozzles for "ink" (glaze) disbursement. Yet, with the simple push of a button, the image reproduction process begins.

Currently, there are a few basic printing methods within the digital inkjet printer market, but the most common is called drop-on-demand (DOD). It utilizes a piezoelectric printhead to continuously drop color over the surface material. In basic terms, a voltage vibration is applied to the printhead nozzle and forces out drops of ink. These drops of "ink" are uniform in size and have a calculated dispersion rate. The resolution of the image can be anywhere from 300 to 1,000 dots per inch (dpi). It can be rotated and layered multiple times to create depth of color and complex surface composition. This means a more realistic representation of a material like wood or stone on each tile sent through. If any adjustments need to be made during the process, it can be done with little interruption. This works in conjunction with the tile transport system, which moves the material smoothly and at a consistent speed under the printheads. Because the machine has no direct contact with the tile, breakage incidents are greatly reduced. It also means that relief tiles, with ridges and texture, can easily be printed on. Once the printing process is complete, it is ready to be fired.



DIGITAL INK-JET PRINTING - A FANCY FEAT

More and more tile companies are using digital ink-jet technology. The fact is, tile has become more than a solid color option industry. The production of realistic looking, high-end materials in a porcelain tile takes less time and produces less waste than previous methods. The edge-to-edge printing can help mask seams and the end result is a lighter and more affordable product than its real counterpart.

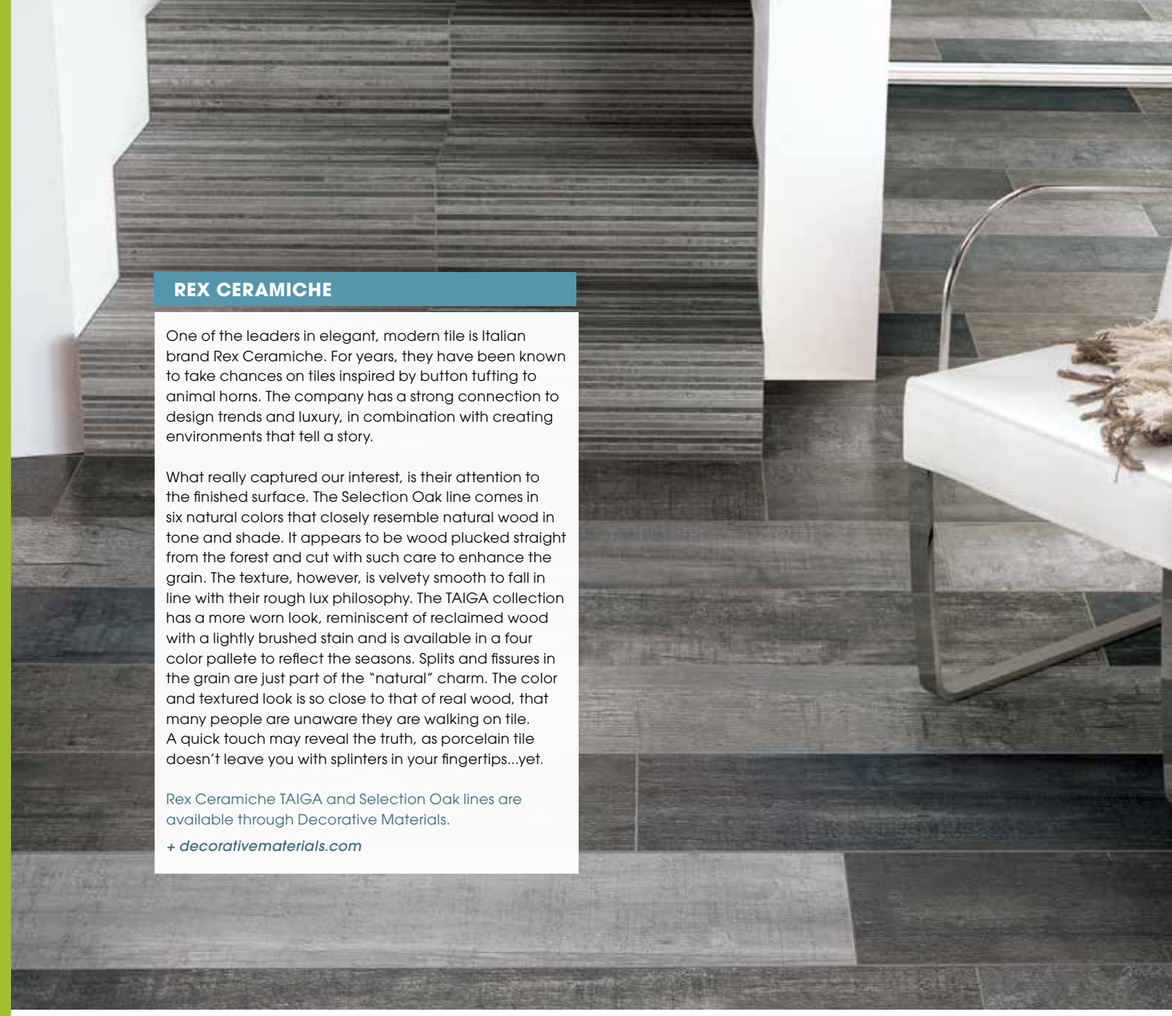
But why should you consider a faux product over the real thing? Open your wallet for a quick answer. Today we can buy porcelain that looks exactly like wood or limestone at a fraction of the cost. Porcelain versions of natural wood, stone or rock are more durable and allow for a broader range of applications. Want a shower encased in "oak" planks? No problem. How about a marble kitchen countertop that gets daily use? Porcelain tiles are now available in longer and wider formats, which reduces the visible seams. The ability to print on a textured surface also helps achieve the realistic look of a natural product. And the added resistance to acids, moisture and scratches is a very appealing factor for today's active household. Children, pets and weather can do all the damage they want. Your porcelain clad floors, walls and countertops will still look like new.

Digital inkjet technology has breathed new life in the tile industry in just over a decade. We marvel at the product now, but can't wait to see what's to come as the possiblities seem endless. And so the revolution continues.

BETONA - YOUR ART ON PORCELAIN

Favorite photographs and original works of art can become a statement backsplash or a personalized entryway with Betona Tile. The Michigan based company will assist you in designing a custom tile installation from your own personal collection or from their website tools, including Pantone colors and featured artists. The sturdy, yet flexible concrete tile is made from 50% post-consumer recycled glass and contributes a potential 12 LEED points with its sustainable practices. And to sweeten the deal even further, Betona has a minimum purchase of 200 square feet and short lead times. Designing your custom porcelain may be the hardest part of the process.

Betona is available through Capco Tile & Stone. *+ betona.com*



REX CERAMICHE

One of the leaders in elegant, modern tile is Italian brand Rex Ceramiche. For years, they have been known to take chances on tiles inspired by button tufting to animal horns. The company has a strong connection to design trends and luxury, in combination with creating environments that tell a story.

What really captured our interest, is their attention to the finished surface. The Selection Oak line comes in six natural colors that closely resemble natural wood in tone and shade. It appears to be wood plucked straight from the forest and cut with such care to enhance the grain. The texture, however, is velvety smooth to fall in line with their rough lux philosophy. The TAIGA collection has a more worn look, reminiscent of reclaimed wood with a lightly brushed stain and is available in a four color pallete to reflect the seasons. Splits and fissures in the grain are just part of the "natural" charm. The color and textured look is so close to that of real wood, that many people are unaware they are walking on tile. A quick touch may reveal the truth, as porcelain tile doesn't leave you with splinters in your fingertips...yet.

Rex Ceramiche TAIGA and Selection Oak lines are available through Decorative Materials.

+ decorativematerials.com

Porcelain versions of natural wood, stone or rock are more durable and allow for a broader range of applications. Want a shower encased in "oak" planks? No problem. How about a "marble" kitchen countertop that gets daily use. Why not?

AS BIG AS IT GETS

AT A WHOPPING FIVE FEET BY TEN FEET, ITALIAN BASED MAXXTILE LAUNCHES "THE WORLDS LARGEST TILE" AND IN THE PROCESS RAISES TILE TO A NEW HEIGHT.

ONLY 6MM WIDE >

Images: Crystal Allen

The tile industry is advancing in so many ways, that we couldn't just stop at digital inkjet printers and call it a day. Introducing one of the industry's best-kept-secrets....well, as secret as a gigantic slab of marble finished polished porcelain can be.

MAXXtile® is billed as the "World's Largest Tile" and it is an impressive piece of large format porcelain tile. It's also the largest dust-pressed porcelain tile slab, which is an amazing feat once you understand the process. A combination of clay and other natural materials are milled and processed to a point where a dried powder, or dust remains. This dust is placed into a hydraulic or electric press that pushes it into shape with a force of up to a 100,000 pounds per square inch (psi). The resulting product has great tensile strength.

The MAXXtile® itself is 50 square feet and only 6mm thin, but the thin profile doesn't mean it's fragile. It still has that dust-pressed tensile strength. The 6mm thickness also means it can be placed on top of an existing surface with minimal demolition needed, and the large size will help reduce visible seams. No need to spend all afternoon scrubbing grout with a toothbrush. But the best part is that it costs less than its natural stone counterpart. It's decadence on fewer dimes.

Capco Tile & Stone is the exclusive distributor of MAXXtile®.
+ worldslargesttile.com

ENGINEERED STONE

TIME TESTED

The history of engineered stone has its beginnings millions of years ago when the earth harbored prismatic quartz deep within its lava flowing veins. Quartz still courses through those veins and happens to be the second most abundant mineral found within the crust of the earth. It's a main component of granite and is known for its inherent strength.

Quartz surfacing, otherwise known as engineered stone, is a combination of 90% or more quartz or crushed stone and a polymer resin. It was developed decades ago, when a more resilient alternative to natural stone was desired in the modern home. Natural stone, like granite, has its limitations as a countertop surface. Fissures in a slab can open up with heat and spills may stain the naturally porous surface. And finding slabs that match in color and veining can be difficult for larger applications. To obtain the look, but with added durability and consistency, more and more people are turning to quartz surfaces.

HAPPY EARTH, HAPPY HEARTH

In the modern world, we need our surface material to do more. Performance and environmental impact are important factors in surfacing selections. Engineered stone is a product that resists stains, scratches and moderate heat more than natural stone. The nonporous and nonabsorbent surface needs no sealant and is easy to care for with minimal maintenance. It is also considered an environmentally friendly option, where many manufacturers are adding recycled content to the quartz mix or earth friendly resins as a binding material. Natural resources are also protected from over mining when engineered stone is used in its place.

Quartz surfacing, otherwise known as engineered stone, is a combination of 93% quartz or crushed stone and a polymer resin. It was developed decades ago, when a more resilient alternative to natural stone was desired in the modern home.

ABOVE:
The options of engineered stone don't stop at color selection. The unique and varied edge profiles offered by Caesarstone give you many ways of expressing your traditional or modern side. Beveled or rounded, the choice is yours.

Caesarstone's latest addition to the color family, "Red Shimmer", packs a punch with a subtle sparkle and bright hue. Combine the durability of engineered stone with a pop of caliente color against neutral tones and the heat will always be turned up around your cooktop.
+ caesarstone.com

BELOW:
Pental Quartz engineered stone is known for resilient performance in conjunction with sleek appearance. The high shine of Coastal Grey, shown below, will not be damaged by heat or dulled by acids, making it a functional statement surface in your kitchen.
+ pentalquartz.com

An expanse of Silestone in White Zeus Extreme may look too delicate to use as a kitchen surface, but don't let looks fool you. The use of a high percentage of quartz makes a durable mix and their unique Bacteriostatic Protection make it the most user friendly white you've ever met. ***+ silestoneusa.com***

Since it can be manipulated to look similar to natural stone (or pop in an unexpected bright hue) it has become a popular choice for countertop applications. With modern technology, engineered stone on kitchen islands can turn from a horizontal surface and slide seamlessly down to the floor. Countertops can be layered at different heights for different tasks, but in a unified and consistent looking surface material. The imaginative application of engineered stone keeps growing and we looked to the leaders in the industry to see what's new.

At Caesarstone, the Motivo Collection uses the latest in patented technology to create high pattern surfacing perfect for vertical application. Textured and embossed engineered stone in crocodile or lace, is making an appearance on foyer walls and vanity tops. And the recent addition of bold and shimmering colors to their Classico Collection will brighten up any kitchen or bath. Silestone, by Cosentino, has always been on the cutting edge of the industry. Their unique bacteriostatic formula helps ward of the proliferation of surface bacteria, which is great for kitchen and bath installations. And the Integrity Sink was created to unite your countertop with the sink, eliminating creases or weak areas. The resulting look is cohesive and ultra-modern.

Engineered stone has been created to withstand your daily routine, which is why it is a top choice in many kitchen and bath areas. Sure granite can look great, but quartz surfacing is made to withstand all that our modern lives demand.

Engineered stone doesn't always have to come with a glossy sheen. Today's offerings can mimic a variety of textures, with suede topping the list. Silestone Suede has a velvety touch and imparts a visual softness to the strong engineered stone. There is no extra care needed for the luxurious texture and it will stand up in performance just like other Silestone lines. ***+ silestoneusa.com***

FITTING IN

New installation technologies help fabricators measure, match and place stone and tile easier than ever before. Konstantin Khrestsov from YK Stone Center demonstrates how to put the pieces together.

Selecting a new surface may be the most difficult part of a renovation. Perfect installation is crucial and there's no hiding it once it's in place. Often times, the demo work takes longer than the install. These days, advanced measurement equipment is making installation more accurate and faster. It wasn't that long ago that installation of a new kitchen countertop involved tape measures, written calculations, some on-site cutting and a whole day of patience. Today it's all about lasers, computers, precision and a 2-hour window.

We took a trip to YK Stone Center and saw firsthand how technology is changing fabrication and installation methods. Our guide, Konstantin Khrestsov, brought out a Prodim Proliner and showed us how quickly a countertop can be accurately measured. The tripod legs support a digital display that doesn't require any levelling or lengthy set up time. The technology in action was a marvel to see. A swivelling measuring head is the "brains" of the machine, and contains a retractable wire with metal measuring pen. With just a tap on the relevant points of the existing surface and the click of a handheld remote, a digital file is created. In a few short steps, a template is ready to go.

Once the surface template is created, it can be used to find the perfect cutout possibilities on a slab. But you can't just upload any old picture. Those need to be accurate in dimension and coloring, too. Thanks to a Slabsmith photo station, a true-to-life digital representation can be created in minutes. The subtlest of color changes are captured and the measurement is dimensionally accurate to within a millimeter. Cut-ability is determined before any machine touches it, allowing flaws or weak spots to be avoided. Once the template is completed, the file is saved and sent off to the client for sign-off. When the OK is given, the digital file is programmed into a large CNC machine that automatically makes the predetermined cuts. Just one last stop at the dust reducing, water-jet polishing station and the completed slab is ready for the job site.

The integration of technology into the world of installation is so beneficial for both the fabricator and the client. Not only will the installation be laid out in a way that optimizes the yield and reduces the waste from a slab, but homeowners can see a representation of what they are getting before a slab is even cut. This elevation of installation technology has refined the way fabrication is completed and makes visualising a project easier. Thankfully, what you see is what you get.

Images: Crystal Allen

Konstantin Khrestsov taps a countertop with the metal measuring pen of the Prodim Proliner to map the geometry of the surface. The click of a wireless remote makes the data transmission easy, with no breaks in the process needed.

Accurate slab dimensions and coloring are captured by a Slabsmith photo station. The precision details captured by the camera pinpoint any fissures or flaws in the piece before it ever sees a saw. Once the client signs off on the file, it is turned over to the CNC machine for cutting, then passed on to the expert hands of the polishing and finishing crew. Next Stop - your house.