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CONCRETE

APPLICATIONS GUIDE



ABOUT SMOOTH-ON, INC.

Since 1895, Smooth-On has been helping people like you discover material possibility. Our rubbers, plastics and other materials are used around the world to turn ideas into reality.



Smooth-On's 380,000 ft² (35,303 m²) facility in Macungie, PA makes hundreds of materials that ship around the world.

This applications guide offers a glimpse of what people have created with our materials and will hopefully inspire you to take the next step.

You will learn how our materials are used around the world to create everything from Stone Veneer, Form Liners, Sinks and Furniture to Concrete Stamps, Countertops and other concrete ornaments.

The Concrete Technical Services Team

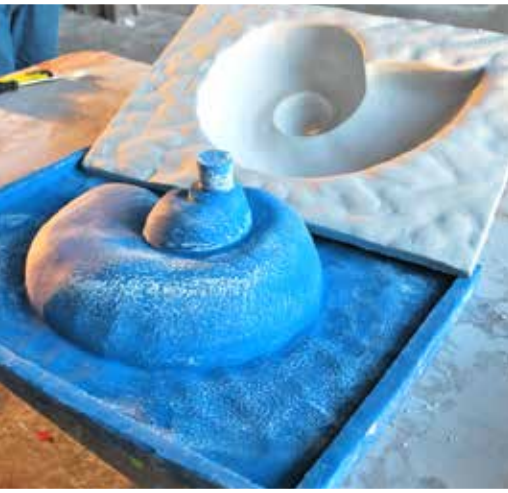
With years of design and casting experience, The Concrete Technical Services Team will help you realize your production goals. We specialize in developing material strategies for:

- *Mold Design and Construction*
- *Choosing the Right Mold Rubber*
- *Admixture Design Options*
- *Stone Veneer*
- *Large Scale Precast Panels*
- *Glass Fiber Reinforced Concrete*



- *Architectural Restoration*
- *Concrete Stamping*
- *Concrete Countertops*
- *Concrete Finishing Options*
- *Polymer Modified Concrete*
- *Sealers and Release Agents*





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STONE VENEER

A CLASSIC LOOK, THE MODERN WAY

Lancaster Stone (Lancaster, PA) has perfected the art of making stone veneer and casts millions of veneer concrete castings annually that ultimately adorn the exterior of homes across the USA and Canada. Color inconsistency between castings can be disastrous and result in expensive replacement claims from homeowners and national distributors. Using the right mold rubber for production concrete casting is critical.

VytaFlex™ mold rubbers were formulated especially for making color accurate concrete castings. Available in Shore 10A – 60A hardnesses, they are easy to use, reproduce perfect detail and have abrasion resistance for optimal production casting.



1 VytaFlex™ 60 mold rubber is mixed and poured into the mold box.



2 Mold cavity is pigmented to desired color.



3 Concrete is then carefully cast into the mold.



4 Concrete is allowed to set fully.



5 Cast stones are demolded and inspected to ensure quality.



6 Cast stones are ready to be shipped to job site for installation.



BLOCK MOLDS:

- Fastest Way To Make Molds
- Molds Are Easy To Handle
- Molds Can Be Stacked In Production
- Durable For Large Mold Designs
- Support Boxes Not Necessary



BRUSH-ON MOLDS:

- Low Material Cost
- Lightweight Support (Backer)
- Molds Can Be Stacked In Production
- Flexible For Easy Demolding
- Good For Stone With Undercuts



CAVITY MOLDS:

- Low Material Cost
- Lightweight Support (Backer)
- Demolds Easily
- Good For Undercuts
- Mold Can Be Mass Produced Quickly



Do You Need To Make Large Molds Or Molds In Quantity?

If you have grown beyond hand-mixing rubber, the EZ-Mix™ Meter Mix Machine is the answer.

Make large molds or many molds quickly and with high quality.

(See page 25 for more information)



CONCRETE CASTING ON A LARGE SCALE

MAKING "GREEN" BUILDING COMPONENTS ON A TIGHT DEADLINE

Slaw Precast (Lehigh, PA) is a family owned business, founded in 1979. They are certified by PCI in 3 distinct categories: Architectural, Bridge and Commercial Structures. They were recently contracted to create energy efficient precast insulated wall panels for a new, state-of-the-art school building in New York City.

The Challenge: The project called for more than 230 panels to be cast, weighing up to 41,000 lbs. each. The panels featured different surface designs that required formliners. Construction delays due to COVID-19 meant the panels had to be cast quickly to meet a tight deadline.

Taking Control of Formliner Production: Slaw Precast calculated that buying expensive, premade formliners would add months of lead time, and was not an option.

The only way to meet the deadline was to make their own. By doing so, they could also design the custom liner system to be modular for added production flexibility. This allowed Slaw to reduce the total number of panels from 320 to 234. **Making their own liners saved Slaw Precast time, labor and money.**

Choosing the Right Mold Rubber: VytaFlex™ 60 was selected to make the rubber formliners because of its lasting durability in production and ability to render color accurate castings. The **EZ-Mix™ Meter Mix Machine** was used to help Slaw quickly and efficiently mix and dispense thousands of pounds of VytaFlex™ to produce the formliners. *Learn more about the EZ-Mix™ Meter Mix Machine on page 25 of this catalog.*



1 VytaFlex™ 60 rubber is dispensed from the EZ-Mix™ Machine over a prepared model. It can dispense 30 lbs of perfectly mixed rubber per minute.



2 The liquid rubber is allowed to cure overnight (16 hours). A corner of the liner is peeled from the model, revealing the exact detail captured.



Total dimensions: 32' x 6' (9.8m x 1.8 m).

3 An overhead crane is used to demold and lift the formliner. The largest liner weighed 1,500 lbs (680 kgs), and was poured in less than one hour.



4 Additional rubber liners are poured and demolded. Multiple liners will be used when casting each panel.



5 VytaFlex™ liners are positioned on the casting deck. Form walls are built around the perimeter and for window knockouts.



6 Rebar is positioned over the form and concrete is cast. A layer of insulation is sandwiched between two layers of reinforced concrete.



7 An overhead crane is used to lift and demold the 41,000 lb (18,600 kgs) concrete panel.



Panel dimensions: 28' x 16' (8.5 m x 4.8 m)

8 The panels are sandblasted and stored in Slaw Precast's yard prior to installation.

VytaFlex™
MOLD RUBBER...
MADE ESPECIALLY FOR
CASTING CONCRETE

THANKS TO
 **Slaw**
precast™



Once completed, the building will serve as a first-of-its kind school, purpose built to meet the needs of students with special needs and disabilities. More than 230 unique insulated concrete panels were made by Slaw Precast, cast into custom VytaFlex™ 60 formliners.

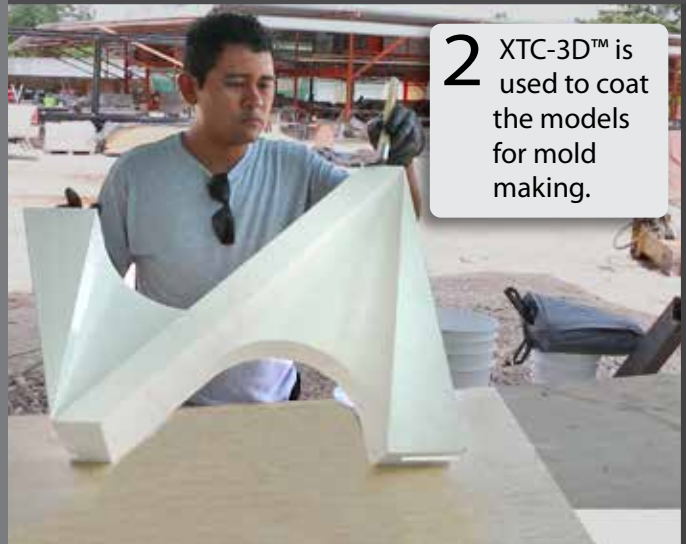


PRECAST BEAUTY AND FUNCTION

Taller de Prefabricados (Cancun, Mexico) has 25 years experience in producing a variety of innovative concrete projects all over the world. From concept to installation, clients know that TDP's creativity is matched only by their design and artisan capability, allowing them to deliver unique concrete elements that range from interior decorative to large scale architectural.

TDP's innovative sunscreen design (celosías in Spanish), that diffuse intense sunlight in tropical climates, has yielded unique precast concrete elements that are both aesthetically pleasing and functional.

1 Two original pieces are designed and 3D printed. They are mirror images of each other.



2 XTC-3D™ is used to coat the models for mold making.



3 VytaFlex™ 60 mold rubber is mixed and poured over the models. VytaFlex™ 60 is time-tested and extremely durable when casting concrete.



4 Over 600 concrete castings were made from the VytaFlex™ 60 molds.



VytaFlex™
MOLD RUBBER...
MADE ESPECIALLY FOR CASTING CONCRETE



5 The finished castings were installed to create celosía walls measuring over 1,600 ft² (150 m²).



AMBIENT ELEGANCE WITH POLYMERIC CONCRETE

TDP also produces custom designed concrete sconces for some of the world's finest hotels. The process begins with a 3-D printed design.

1 XTC-3D™ is used to seal the original for mold making.



2 Smooth-Sil™ 935 silicone rubber is applied in three layers.



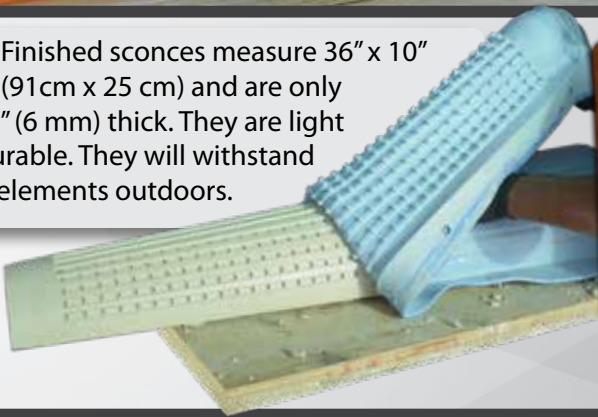
3 After curing, the rubber mold is easily demolded from the original.



4 Smooth-Sil™ 935 silicone was chosen for its ability to stand up against the chemically harsh polymeric concrete used in production of the finished sconces.



5 Finished sconces measure 36" x 10" (91cm x 25 cm) and are only 0.25" (6 mm) thick. They are light & durable. They will withstand the elements outdoors.



6 Prior to installation, the sconce is lightly sanded to expose aggregate.



Smooth-Sil™ 935
SILICONE MOLD RUBBER
EXCELLENT RESISTANCE AGAINST
CHEMICALLY AGGRESSIVE MIXES



WALL SCONCES MADE USING SMOOTH-SIL™ 935

BETTER THAN REAL: FAUX FIRE TABLE

MADE USING VYTAFLEX™, BUDDY RHODES CONCRETE AND GLAZES

Steve Millard of **CNY Concrete Countertops** (East Syracuse, NY) is a concrete artisan in every sense. He has mastered the use of Buddy Rhodes Concrete Products and Glazes to mimic woodgrain detail, producing pieces that look so much like real wood that you have to touch it to believe that it's concrete. Adding to the realism, VytaFlex™ urethane rubber edge molds impart every tiny detail of edge grain and bark to the casting.

Made from Buddy Rhodes Vertical Mix™, ECC Blended Mix™, and colored with Buddy Rhodes pigments and Glazes, this table also incorporates a device using water mist and a series of bright orange LED lights to produce an effect indistinguishable from actual fire, even from close up.

PART ONE - CASTING THE TABLE TOP WITH ECC BLENDED MIX™



1 VytaFlex™ edge molds are screwed to a melamine surface. Cut foam is glued down to form the flame opening.



2 ECC Blended Mix™ is mixed and pigmented to a light tan color.



3 ECC Blended Mix™ is poured into the mold and spread by hand, then troweled level.



4 After curing for 16 hours, the molds are removed, revealing the textured edges. The table top is wet polished using diamond pads.



5 The edges are colored with Buddy Rhodes Glazes to simulate natural bark.



6 Soft brushes are used to feather the Buddy Rhodes Glazes to simulate natural wood grain.



7 Foam and metal lath are attached to a wooden base to create the rough shape.



8 The surface layer of Vertical Mix™ is applied, and roughly carved and shaped to imitate stone.



9 After the base cures, it is colored with Buddy Rhodes Glazes.



10 The top is sealed, and the faux fire generator is installed:



When filled with water and turned on, the combination of lights and water mist looks just like fire.

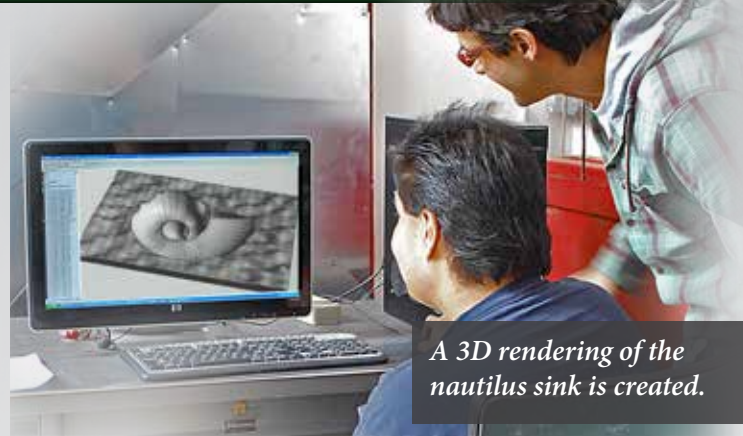


FROM CNC to CONCRETE with MOLD STAR™

In Mexico City, a 600 unit condominium high-rise is being built to attract upscale buyers. A team of fabrication talent came together to create unique concrete fixtures with an aquatic theme. One of the many fine details that will be a selling point includes a never-before-seen concrete bathroom sink design in the shape of a nautilus shell.

Criteria: Sink had to be very strong, water resistant, cost-effective and aesthetically designed to attract potential buyers.

Choosing the Right Mold Rubber: Polymeric concrete mix designs are chemically harsh on conventional mold rubbers and would result in the molds burning out quickly in production. After running mold rubber cycling tests, Mold Star™ 30 platinum silicone was chosen for offering the best resistance to the polymeric concrete mix and yielding the longest mold life.



A 3D rendering of the nautilus sink is created.



1 A CNC model is sealed with gray primer in preparation for mold making.



2 A cavity pour mold making technique is used to create the mold. Sulfur-free modeling clay is used to form the cavity.



3 Plasti-Paste™ II urethane plastic is applied to form the first half of the rigid support shell.



4 Mold Star™ 30 silicone is mixed and poured into the cavity mold.



5 Mold Star™ 30 cures in 6 hours and the other half of the cavity mold is poured.



6 Mold Star™ 30 captures perfect detail and the mold is ready for polymeric concrete casting.



7 A low viscosity polymeric concrete is poured into the mold cavity.



8 After 6 hours, the new sink is ready for installation. Mold Star™ 30 is ready to cast again.

Mold Star™
MOLD RUBBER...
GREAT FOR CASTING
CONCRETE SINKS



STAMPED CONCRETE: THE BEST KEPT DESIGN SECRET



Savvy concrete artisans know the advantages of using rubber stamps to create concrete magic. Used on small and large projects, they deliver impressive results with a minimum of cost.

Among other advantages, stamping concrete allows them to deliver true value to their customers and maximize profits at the same time.

The way from dull to elegant: **Caravan, Inc.** (Mendham, NJ) recently finished an addition to their building and wanted to give their ordinary service entrance a look that reflected their upscale corporate image. Their contractor proposed a cost effective design that would incorporate an elegant lasting stamped concrete walkway that looked like expensive tile.



1 Mold box is built around stone pavers in a pattern.



2 Textured grout is made with clay and a stiff brush.



3 PMC™-780 is pigmented and drill mixed.



4 Rubber is poured onto the pavers, ensuring straps are embedded within the PMC™-780.



5 Once cured, stamp is demolded. Multiple stamps are made for a single job.



6 Ready Mixed concrete is poured at the job site.



7 Concrete is screeded and color hardener is applied prior to stamping.



8 Stamps are positioned and hand-tamped to imprint the pattern on the concrete slab.



9 Stamps are then removed revealing the imprinted tile texture.



10 The concrete slab is stained and sealed.

PMC™ - 780
MOLD RUBBER...
GREAT FOR MAKING
CONCRETE STAMPS



CUTTING EDGE ARCHITECTURAL DESIGN

GFRC POWERED BY FORTON™ VF-774

With over 450 completed commercial cladding projects to its credit, **GFRC Cladding Systems** (Garland, TX) knows the infinite design possibilities of GFRC better than any producer in the world. Architectural design requirements for the new Tom Ford Store in Miami's Design District included innovative angular panels that could only be realized by using GFRC.

Finished panels would have to be environmentally sustainable and comply with Miami building codes that include withstanding the fury of Florida hurricanes (wind and water) and the highest architectural flame rating.

GFRC Cladding has relied on Forton™ VF-774 polymer modifier to make GFRC panels and comply with strict building codes across the USA for 25 years. Forton™ VF-774 meets all PCI specifications for curing admixtures in GFRC and is known throughout the industry to improve the long-term physical and performance properties of GFRC.



1 Two layers of a Forton™ VF-774 enhanced GFRC face mix are sprayed over form surfaces.



2 Additional layers of backup mix reinforced with AR glass fiber are applied.



3 Compaction rollers are used to coat all glass fibers with cement slurry, remove trapped air and consolidate the composite.



4 Additional backup mix is applied by hand to reinforce corners, edges, and reveals.



5 A structural steel frame is carefully lowered into place just above the wet concrete.



6 Pre-welded steel flex anchors attach the frame to the GFRC skin, using GFRC bonding pads.



7 GFRP panels are allowed to cure for 12 hours before being removed with a crane.



8 Panels are sandblasted to yield the desired texture and surface finish.



9 Finished panels are ready to be shipped to the job site.



10 Installation of GFRP panels is finished in a few days.

The GFRP panels, enhanced with Forton™ VF-774, add cutting edge design and long term durability to the Tom Ford Store in Miami, FL.

FORTON™
VF-774
POLYMER ADDITIVE
FOR USE IN GFRP

Use With Confidence:

FORTON™ VF-774 complies with stringent PCI standards and is supported with over 20 years of test data.



GFRC PANELS THAT BLEND WITH NATURE USING REBOUND™ 25 MOLD RUBBER

José Hormiga of **Taller de Prefabricados** (Cancun, Mexico), is an engineer with years of experience matching the right material for a specific job. When presented with the challenge of building durable, lightweight fencing around a resort hotel in Cancun, he chose Glass Fiber Reinforced Concrete (GFRC) for its strength-to-weight ratio. The fence panels also had to be beautiful and fit naturally into the environment. To create the perfect finish, Hormiga developed a technique using Rebound® 25 brushable silicone to make molds of dried bamboo patterns. **Rebound™ 25 was the ideal choice for many reasons:**



- Easy to use and apply • Cures quickly - molds ready for production by the next day
- Reproduces bamboo detail perfectly • Durable - Strong and “stretchy” for hundreds of castings
- Withstands chemical attack from the GFRC • Can be used without a release agent when casting GFRC



1 To create the original pattern, similar size pieces of bamboo were selected and cut in half.



2 Half segments are stabilized and secured to table top. Registration keys were added around the model.



3 Three separate layers of Rebound™ 25 mold rubber are mixed & applied. Silc-Pig™ red pigment and Thi-Vex™ are added to ensure thorough coverage & fill deep areas.



4 After all layers are cured, a mother mold made of fiberglass and resin is applied using a chop gun. Steel tube stock is added to strengthen and support the shell.



5 The support shell is separated from the rubber mold. The mold can then be removed from the original bamboo model.



6 The Rebound™ mold reflects perfect detail captured from the bamboo. The rubber mold is seated into the support shell and is ready for casting.



7 A face coat of GFRG is sprayed onto the mold surface using a hopper gun followed by a base pour of concrete and chopped glass. The mix is allowed to cure.



8 The GFRG panel reflects all of the detail of the original bamboo model. The concrete pieces can be stained for a realistic finish.



9 Rebound™ 25 was also used to capture intricate detail from the bark of a Banyan tree. Molds were used to make GFRG posts used to support the GFRG wall segments.



10 The post halves are assembled to form a single hollow column. A channel guide is pre-fabricated into the columns to accommodate the GFRG panels. Stain is applied to reveal the detail of the Banyan tree bark.



11 Columns are secured in the ground with 18" of concrete footing. Rebar reinforcement is used to marry new concrete poured into the hollow post with the footing.



12 Once cured, artisans align lightweight GFRG bamboo panels with pre-fabricated channels in the columns which makes placement easy.



Thanks to the tongue and groove channel system, installation of the panels goes quickly, with a wall segment (6 panels) completed in less than one hour.

PROJECT SPECIFICS:

- ▶ **11,880 GFRG Panels, 200 lbs. (90 kgs.) each**
- ▶ **GFRG weight reduction vs. cast concrete: 75%**
- ▶ **Panel Dimensions:**
8' long x 16" high x 2.5" thick (2.5m x 41 cm x 6.4cm)
- ▶ **1,980 wall segments measuring:**
8' long x 8' high x 2.5 in. thick (2.5m x 3.05m x 6.25 cm)
- ▶ **Finished Wall Distance: 3 miles (4.8km)**
- ▶ **Contracted time to complete: 365 days**
- ▶ **Actual time to complete: 150 days**



CREATING HURRICANE PROOF FURNITURE

FROM HIGH STRENGTH GFRC



Obratur, S.A. of Cancun developed an idea to create furniture using GFRC that can withstand the devastating power of hurricanes.

Criteria: Furniture had to be functional, practical, able to withstand a category 5 hurricane, and impervious to the elements. The design for this table was inspired by the strength of the Royal Poinciana tree root.

Choosing the Right Mold Rubber: A critical production tool will be the rubber mold used to make the GFRC castings. The tree root poses a challenge in that there are deep undercuts and texture that require a soft mold rubber. Rebound™ 25 silicone was the best material to produce the many castings needed.



1 Tree root is positioned and prepared for making the mold.



2 Rebound™ 25 mold rubber is dispensed 1A:1B by volume. A drill mixer is used to thoroughly mix the two parts.



3 The mold is made in 2 halves, each consisting of 4 brush-on layers.



4 A support shell is applied, allowed to cure and then removed. The rubber mold is removed and ready for GFRC casting.



5 GFRC is sprayed into the mold halves. Mold halves are then put together.



6 Mesh fiber and additional GFRC is hand applied to blend seams.



7 Finished GFRC casting is removed from the Rebound™ 25 rubber mold.



8 A multi-step staining process makes the GFRC casting look exactly like the original.



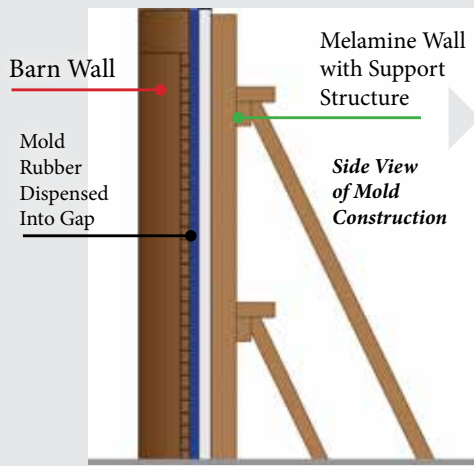
Rebound™
MOLD RUBBER...
GREAT FOR CASTING
GFRC FURNITURE



CAPTURING DETAIL FROM 200 YEARS AGO



Restoring a 200 year old home called for using modern materials to simulate architectural elements consistent with original construction. All materials had to be environmentally sustainable and borrowed from the property when possible. Capturing wood grain detail from the walls of the original barn and then reproducing that detail in GFRC to replace bathroom shower panels and more, was an inspired idea that met all requirements.



To capture wood grain detail from a segment of the granary wall, liquid mold rubber will be applied vertically, filling a gap in between the wall and constructed support.

1 The mold wall is braced to withstand the pressure of the mold rubber.



3 Cured Mold Star™ 30 silicone is demolded easily from the granary wall.

2 Mold Star™ 30 is dispensed, quickly filling the gap.



VF-774 yields higher density panels & greatly enhances water resistance.

5 GFRC components are mixed in a high-shear mixer.

4 Mold will first be segmented to make four shower walls.

WHY GFRC?

- Unlimited Design Possibilities
- Economical to Produce
- Environmentally Sustainable
- Water Resistant and Flame Rated
- Unmatched Strength and Durability
- Safe to Use - No VOCs



6 A hopper gun is used to spray the GFRC face coat.



7 Back up mix (with AR glass fibers) is applied.



8 Four GFRC panels of different sizes will be made from the same mold

Mold Star™
MOLD RUBBER...

**GREAT FOR CASTING
GFRC PANELS**



9 GFRC panels are post finished with a concrete stain and sealer.

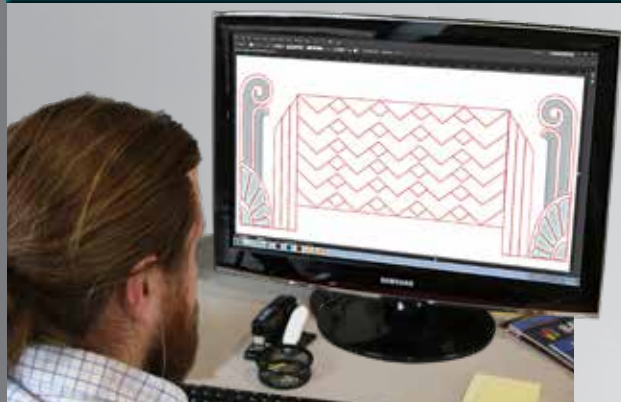


GFRC panels made with Forton™ VF-774 are highly water resistant and will last for years.



PERMANENT ARCHITECTURAL FORMWORK

CREATING THE PERFECT OUTDOOR SPACE



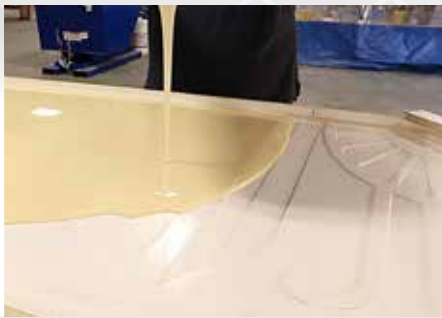
1 An original Art Deco line drawing is created.

GFRc is commonly used for building cladding or custom countertops. The superior performance characteristics and unlimited design possibilities are key advantages. But what if you wanted to combine the aesthetic beauty of GFRc panels with the structural integrity of a traditionally poured concrete wall?

Permanent Architectural Formwork is the perfect solution. This process utilizes GFRc panels as formwork. Once the core is poured, the panels remain in place for a lifetime of service. See the complete video on Smooth-On's ConcreteU page, visit: www.smooth-on.com/concreteU



2 Model components are fabricated and assembled.



3 VytaFlex™ 60 is properly measured, mixed and poured over the entire model.



4 After curing for 16 hours, the rubber liner is demolded.



5 The GFRc face mix is sprayed using a hopper gun.



6 The GFRc backer mix (with AR glass fiber) is then applied.



7 Four precast formwork panels are ready to ship to the job site.



8 Precast panels are placed onto footers and fastened using anchors and rebar.



9 Ready Mixed concrete is then poured into the formwork.



10 Custom countertops are fabricated and secured to the permanent base.



11 Steel Pergola and concrete pavers are added to complete the outdoor space.



VytaFlex™
MOLD RUBBER...
MADE ESPECIALLY FOR
CASTING CONCRETE

SCAN
FOR VIDEO

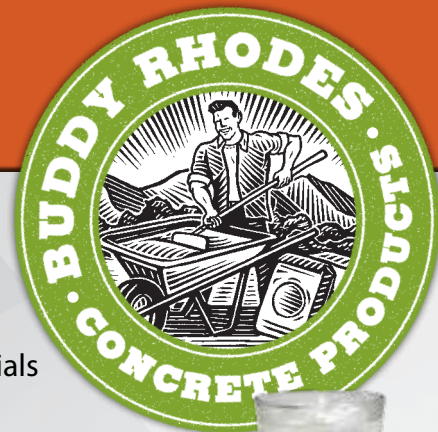


The Perfect Backyard Entertainment Venue—
GFRc panels made with Forton™ VF-774 are UV Stable,
flame rated, and will weather the elements for years to come.

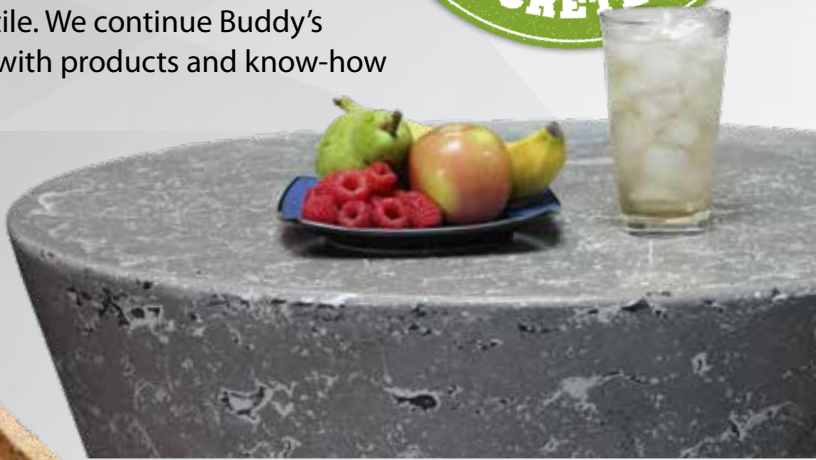
PERMANENT GFRc FORMWORK MADE USING VYtaFLEX™

BUDDY RHODES

CONCRETE PRODUCTS



Smooth-On is the home of Buddy Rhodes Concrete Products. Buddy Rhodes started a concrete revolution years ago with his easy to use, innovative formulas that have become known around the world for making concrete countertops, furniture, art and sculpture. He now has the full support of Smooth-On's laboratories and technical departments to develop new materials that make concrete lighter, stronger and more versatile. We continue Buddy's tradition of supporting artisans and DIY enthusiasts with products and know-how to help transform your vision to concrete reality.

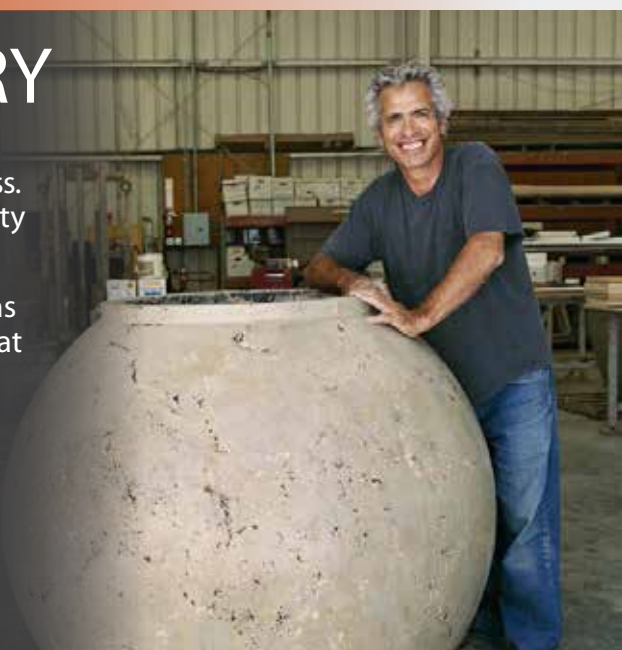


THE BUDDY RHODES STORY

As a young man, Buddy was consumed by clay. More important than the material itself, Buddy was compelled by the creative process. Eventually that creative process pushed his desire beyond the capacity of clay.

Buddy struck out to find something different to quench his desire as a maker. He was after a material that would behave like clay, but that could develop strength and durability without the need of a kiln. He was after a self hardening clay.

Buddy found his solution in concrete, he created a material that behaved like both clay and concrete. Over the decades of this collaboration, a whole new language has been born. A language in the tradition of the craftsman movement, and a set of materials that would allow the maker community to create their vision.



THE MIXES



BUDDY RHODES VERTICAL MIX™

Buddy Rhodes Vertical Mix is a flame rated (E84 – Class A) cement-based overlay that is troweled onto vertical surfaces and carved, sculpted or stamped to create rock, stone, tile and other textures. For interior or exterior areas, this lightweight, zero slump formula is used for a variety of applications.

*Visit buddyrhodes.com/verticalmix for info!



BUDDY RHODES CRAFTSMAN MIX™

Newcomers and seasoned artisans know Buddy Rhodes Craftsman Mix as easy to use and one of the most enjoyable concrete mixes to work with anywhere. Modify the mix to a consistency that is right for your project for hand pressing (clay-like) into a form, wet casting or troweling.



BUDDY RHODES GFRC BLENDED MIX™

Buddy Rhodes GFRC (Glass Fiber Reinforced Concrete) Blended Mix does not contain fibers or large aggregates. This makes it a versatile base mix that can be combined with different reinforcements and decorative aggregates to create truly custom mix designs. It can be sprayed, poured, pressed, or troweled.



BUDDY RHODES ECC BLENDED MIX™

Originally developed for use in seismic zones for its high ductility, the strength of Buddy Rhodes ECC recipes comes from the combination of particle gradation and the addition of a high dosage of fiber. From a creative standpoint, ECC can be mixed to unique workabilities, allowing for many variations in finish.

PIGMENTS, SEALERS AND MORE

The mixes are the building blocks for any project. The accessory products are what make it personal. We offer a full line of colors, sealers, tools and raw materials.

Chopped AR Glass

0.5 inch (13 mm) and 0.75 inch (19 mm) glass is added to backer mixes in GFRC composites.



BR COLOR WHEEL®



BUDDY RHODES CATALOG of CONCRETE PRODUCTS & TECHNIQUES

The Buddy Rhodes catalog compiles techniques, recipes, process insights and a comprehensive list of materials into a useful tool for anyone inspired to create artisan concrete. Learn more about this craft and be inspired.

Download your copy at: www.buddyrhodes.com/catalog

EZ-MIX™ METER MIX MACHINE

MIX AND POUR LARGE AMOUNTS OF RUBBER



*Make More Molds, More Efficiently.
Make Larger, Better Molds Faster.*



The EZ-Mix™ Meter Mix Machine is a simple yet effective way to quickly mix large amounts of mold rubber and offers many advantages. It is compatible with either drum or tote units and can dispense up to 30 lb (13.6 kg) of mixed rubber per minute. Greatly reduce waste due to human error.

SAVE TIME, SAVE LABOR

EZ-Mix™ Machine pays for itself quickly by drastically reducing the amount of labor required to make many production molds, or to make large molds like architectural formliners. Two people can make more molds in 20 hours using the EZ-Mix™ Machine vs. 5 people hand mixing and pouring rubber in 40 hours. EZ-Mix™ Machine molds are stronger and last longer due to less air entrapment. Dispense from 55 gallon units or 275 gallon totes*.

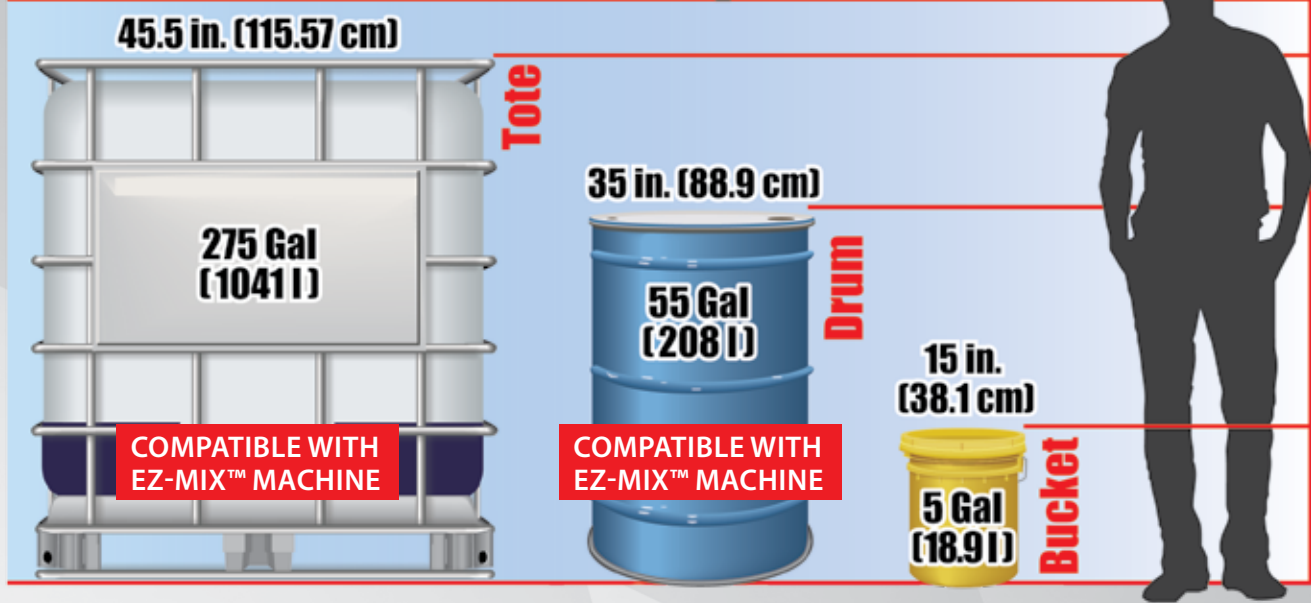
*See Container Size Comparison Chart on page 26.

- Easy to Use
- Easy to Clean
- Easy to Maintain
- Easily Transported
- Variable Mix Ratios
- Variable Viscosities



6 ft. (1.82 m)

Container Size Comparison Chart



USING THE RIGHT SEALING & RELEASE AGENTS YOUR SUCCESS DEPENDS ON IT

FEATURED PRODUCTS:



Sonite™ Wax
Soft paste wax used to seal highly porous surfaces such as concrete.



Universal™ Mold Release
Made for mold making and casting with urethane rubber and plastic.



Kwikiee™ Sprayer
An economical alternative to aerosols for dispensing liquid release agents and sealing agents in a fine mist.



Aquacon™
Concrete Release Agent
Made especially for releasing concrete from urethane rubber molds.



1 SONITE™ WAX IS APPLIED TO SEAL THE ORIGINAL MODEL



2 UNIVERSAL™ MOLD RELEASE IS APPLIED TO THE SEALED ORIGINAL MODEL



3 VYTALEX™ MOLD RUBBER IS POURED



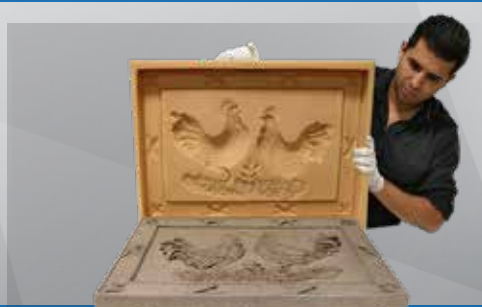
4 ORIGINAL IS DEMOLDED ONCE RUBBER IS FULLY CURED



5 AQUACON™ IS APPLIED TO THE MOLD WITH THE KWIKIEE™ SPRAYER



6 CONCRETE IS POURED INTO PREPARED MOLD OF PLAQUE



7 MANY CASTINGS FROM A SINGLE MOLD ARE POSSIBLE

CONTAINER CHART, SEALERS & RELEASE AGENTS

Urethane Rubber

Product Name	A:B Mix Ratio	Mixed Viscosity ASTM D-2393	Pot Life ASTM D-2471	Cure Time @ 73°F/23°C	Shore A Hardness ASTM D-2240	Specific Gravity (g/cc) (ASTM D-1475)	Specific Volume (Cu. In./lb.)	Die B Tear Strength ASTM D-624	Elongation at Break %	Shrinkage (in/in)	Urethane Rubber	
											Color	
VytaFlex™ 20	1:1 pbv	1,000 cps	30 min.	16 hrs.	20A	1.00	27.7	60 pli	1,000%	<0.001	Clear Amber	
VytaFlex™ 30	1:1 pbv	1,800 cps	30 min.	16 hrs.	30A	1.02	27.3	78 pli	1,000%	<0.001	Off-White	
VytaFlex™ 40	1:1 pbv	2,000 cps	30 min.	16 hrs.	40A	1.03	26.9	82 pli	660%	<0.001	Off-White	
VytaFlex™ 45	1:1 pbv	2,000 cps	30 min.	16 hrs.	45A	1.04	26.4	100 pli	900%	<0.001	Off-White	
VytaFlex™ 50	1:1 pbv	2,000 cps	60 min.	16 hrs.	50A	1.04	26.7	102 pli	400%	<0.001	Off-White	
VytaFlex™ 60	1:1 pbv	2,000 cps	60 min.	16 hrs.	60A	1.04	26.6	136 pli	480%	<0.001	Off-White	
Formlastic™ 48	1:1 pbv	3,000 cps	25 min.	24 hrs.	48A	1.14	24.3	98 pli	1,250%	<0.001	White	
Formlastic™ 60	1:1 pbv	3,000 cps	40 min.	24 hrs.	60A	1.14	24.3	146 pli	1,000%	<0.001	Off-White	
PMC™-780	2:1 pbv	2,000 cps	25 min.	48 hrs.	80A	1.02	27.2	200 pli	750%	<0.001	Light Amber	
Task™ 16	1:2 pbw	1,400 cps	6 min.	24 hrs.	80A, 30D	1.08	25.6	N/A	233%	0.0025	Light Yellow	

Silicone Rubber

Product Name	A:B Mix Ratio	Mixed Viscosity ASTM D-2393	Pot Life ASTM D-2471	Cure Time @ 73°F/23°C	Shore A Hardness ASTM D-2240	Specific Gravity (g/cc) (ASTM D-1475)	Specific Volume (Cu. In./lb.)	Die B Tear Strength ASTM D-624	Elongation at Break %	Shrinkage (in/in)	Silicone Rubber	
											Color	
Mold Star™ 15 SLOW	1:1 pbv	12,500 cps	50 min.	4 hrs.	15A	1.18	23.5	88 pli	440%	<0.001	Green	
Mold Star™ 16 FAST	1:1 pbv	12,500 cps	6 min.	30 min.	16A	1.18	23.5	88 pli	440%	<0.001	Blue-Green	
Mold Star™ 30	1:1 pbv	12,500 cps	45 min.	6 hrs.	30A	1.12	24.7	88 pli	339%	<0.001	Blue	
Rebound™ 25	1:1 pbv	Brushable	20 min.	6 hrs.	25A	1.14	23.5	102 pli	690%	<0.001	Orange	

KEEP OUT OF REACH OF CHILDREN. WARNING: Known to the state of CA to cause cancer, birth defects or other reproductive harm. www.P65Warnings.co.gov

Forton™ VF-774 for GFRC

Liquid Polymer Properties

Solids by weight: 51% (±1%)

Viscosity: 100 - 300 cps

pH: 8 - 10

Density at 20°C: 1055 kg/m³

Tg: 11°C

Particle Size: 0.1300 - 0.2500

Grit: 0 - 50 ppm

Typical Range of Cured Premix Properties

Density (Dry)	110 - 130 pcf
Compressive Strength (Edgewise)	6,000 - 9,000 psi
Flexural:	Yield (FY) 700 - 1,200 psi Ultimate Strength (FU) 1,450 - 2,000 psi Modulus of Elasticity 1.0x10 ⁶ - 2.9x10 ⁶ psi
Direct Tensile: (ASTM C 1230)	Yield (TY) 600 - 900 psi Ultimate Strength (TU) 600 - 1,000 psi Strain to Failure 0.1 - 0.2 %
Shear:	Interlaminar N/A In-plane 600 - 1,000 psi
Coefficient of Thermal Expansion	Approx. 12x10 ⁻⁶ in./in./deg. F
Thermal Conductivity	3.25 - 7.0 Btu/in./hr/ft ² /deg. F
Fire Rating (ASTM E-84)	Class A/Class 1

Typical Range of Cured Spray-Up Properties

Density (Dry)	120 - 140 pcf
Compressive Strength (Edgewise)	7,000 - 12,000 psi
Flexural:	Yield (FY) 900 - 1,500 psi Ultimate Strength (FU) 2,000 - 3,500 psi Modulus of Elasticity 1.0x10 ⁶ - 3.0x10 ⁶ psi
Direct Tensile: (ASTM C 1230)	Yield (TY) 700 - 1,000 psi Ultimate Strength (TU) 1,000 - 1,600 psi Strain to Failure 0.6 - 1.2 %
Shear:	Interlaminar 400 - 800 psi In-plane 1,000 - 1,600 psi
Coefficient of Thermal Expansion	Approx. 12x10 ⁻⁶ in./in./deg. F
Thermal Conductivity	3.25 - 7.0 Btu/in./hr/ft ² /deg. F
Fire Rating (ASTM E-84)	Class A/Class 1

Forton™ VF-774 for GFRC

GFRC Mix Design-Parts By Weight

These are typical values and are not to be used for design or control purposes. Each manufacturer must test production composites to establish physical properties for design. The values achieved in practice will be dependent on mix design, quality control of materials, fabrication process and curing. Values achieved after 28-day cure.

	Type 1 Portland Cement	Sand	Forton VF-774™	Water	Plasticizer	AR Glass Fiber
Premix	100	85	10 - 12	24 - 27	4 - 8 oz (118 - 236 ml)	3% by weight of entire mix
Spray Up	100	100	12 - 14	24 - 27	4 - 8 oz (118 - 236 ml)	5% by weight of entire mix

Buddy Rhodes Concrete Mixes

Product Name	Coverage	Density (lbs./ft ³)	Total Cementitious Binder	Flexural Strength (28 day)	Compressive Strength - psi (28 day)	Color
Buddy Rhodes Vertical Mix™	8 ft ² at 0.75" thick (0.75 m ² at 19 mm thick)	85-95 pcf (1,360 - 1,520 kg/m ³)	27.5 lb (12.5 kg) per bag	904 psi (6.23 MPa)	5,616 psi (38.72 MPa)	Light Grey
Buddy Rhodes Craftsman Mix™	5 ft ² at 1" thick (0.5 m ² at 2.5 cm thick)	110-130 pcf (1,762 - 2,082 kg/m ³)	20.5 lb (11.8 kg) per bag	1,280 psi (8.83 MPa)	8,793 psi (60.63 MPa)	Bone White
Buddy Rhodes GFRC Blended Mix™	5 ft ² at 1" thick (0.5 m ² at 2.5 cm thick)	110-130 pcf (1,762 - 2,082 kg/m ³)	26 lb (11.8 kg) per bag	1,460 psi (10.06 MPa)	12,762 psi (87.99 MPa)	Bone White
Buddy Rhodes ECC Blended Mix™	5 ft ² at 1" thick (0.5 m ² at 2.5 cm thick)	110-130 pcf (1,762 - 2,082 kg/m ³)	29.45 lb (13.36 kg) per bag	2,140 psi (14.76 MPa)	13,406 psi (92.43 MPa)	Bone White

Intensive multi-day training will focus on topics associated with making molds for casting concrete. Slides, videos, group discussion and hands on demonstrations will introduce you to the basics in an easy-to-understand format including:

- *Mold Design and Construction*
- *Choosing the Right Mold Rubber*
- *Mixing Mold Rubber The Right Way*
- *Minimizing Color Variation*
- *GFRC: Is it Right For You?*
- *Sealing and Release Agents*
- *Admixture Design Options*
- *Polymer Modifiers for Concrete & Gypsum*

You Will Make Your Own Molds & Castings:

Smooth-On's Concrete Technical Team will guide you as you make a "pour-on" mold and a "brush-on" mold. Molds will be used to make your own castings.

- *Specialty "Side Show" Demonstrations Will Be Ongoing.*
- *Bring Your Questions. Let's Discuss Your Project.*
- *Class Size Is Limited & Teacher To Student Ratio Is Very Low To Maximize Your Learning Experience.*



For more details, visit smooth-on.com/seminars

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