




**ARCHITECTS &  
DESIGNERS**  
PRODUCT MANUAL



Throughout the centuries, there has been a number that has sparked the curiosity and fascination of philosophers, mathematicians, astronomers, and even artists from all eras. Since ancient Greece, this number has been linked to the mathematical expression of beauty, understood as proportionality.

The number **Phi**, also known as the Golden Ratio or the Divine Proportion is a ratio between two numbers that equals approximately 1.618 and it is considered the numerical representation of excellence.

The Golden Ratio gained fame among mathematicians and artists, as it is a number naturally pleasing to the eye. Many renowned artists throughout history incorporate it into their masterpieces, such as Leonardo Da Vinci in the Mona Lisa and Michelangelo in David.

However, it is not confined merely to geometry or the arts. In the arrangement of rose petals, the veins in the leaves of certain trees, or the shells of some mollusks, nature replicates this ratio repeatedly and it is also present in the human body and galaxies.

Now, **Aurea Stone** is proud to introduce **PHI**, the ultimate surface: a symbol of beauty and perfection. Its avant-garde material is manufactured through advanced and sophisticated technology which brings very low crystalline silica surfaces with full-body veining and unparalleled appearance. Additionally, it features an innovative Nano-Ink printing technology, resulting in 4D surfaces with an incredibly realistic look that mirrors natural stone.

**PHI by Aurea Stone** presents a selection of attractive and delicate patterns where subtle veins and rich nuances ebb and flow against backdrops of the purest white. Slabs with a superior visual depth and sharpness in every pattern, reflected in realistic veins and bright and stable colors.

The final product presents itself with the highest translucency, brightness, and better light reflection than any other stone available in the market.

A whole new universe of virtuosity and perfection unfolds before the eyes.

**PHI** BY  
AUREA  
STONE

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THROUGH · BODY · PERFORMANCE

TBP

## A new dimension has been revealed

### THE INFINITE EXCELLENCE OF TBP (THROUGH BODY PERFORMANCE)

In the 13th century, an Italian mathematician nicknamed Fibonacci stumbled upon a numerical sequence that had a close connection to the golden number. By dividing any of the numbers in the Fibonacci sequence by its predecessor, the result approached the divine figure significantly, though not reaching it exactly, as Phi is, by definition, "an infinite and unique number." Like that divine sequence, **PHI by Aurea Stone** has found the formula that brings it extraordinarily close to perfection.

**TBP** is the only material on the market with a low crystalline silica content -less than 20%- featuring a full-body performance, and, at the same time, presenting sharp and well-defined patterns to the extent that it is challenging to discern whether it is a natural or an engineered stone.

This is due to the dual process that the slabs undergo before achieving the desired product. On one hand, the innovative Phi 4R Full-body technology delivers a very high-end surface with an environmentally friendly formulation, translucency equivalent to real marble, unparalleled appearance, and a full-body performance, with natural veins, color nuances, and patterns running through the slab's body.

On the other hand, innovative and exclusive Nano Ink technology injects ink up to 1 mm under the surface, providing remarkable color stability, unparalleled sharpness, and unprecedented visual depth. This results in surfaces being further perfected, opening up to an entirely new dimension: a fourth dimension filled with motion and realism.

After the advent of printing, this has been the industry's central goal. Only **Phi by Aurea Stone** has been able to achieve this milestone.



# Technology had never come so far

## PHI 4R FULLBODY: LOW CRYSTALLINE SILICA CONTENT + FULL BODY + EASE OF FABRICATION

The manufacturing process of TBP is carried out through the exclusive **PHI 4R FULLBODY** cutting-edge technology. An enhanced version of its predecessor, PHI 4R, that provides surfaces with an unparalleled appearance, easy workability, and a low crystalline silica content.

After a high hybrid process, PHI slabs reveal a translucency equivalent to real marble and an impressive visual depth, with unmatched white backgrounds. Without visible grains in the particulate and a high light reflection, Phi countertops are visibly smooth and bright, with patterns and veins achieving exquisite sharpness and realism. Nothing compares to Phi TBP as it reaches the zenith of excellence in the engineered stone industry.

Additionally, this technology achieves a full-body performance of the slabs, authentically replicating the 3D effect found in natural stones. This significantly simplifies the manufacturing process: the color and pattern run through the entire thickness of the slabs, allowing for flawless edge finishes without the need for mitering.

The **PHI 4R FULL-BODY** technology provides a non-porous material with lower water and stain absorption, great durability, and a high resistance for scratches. The fabrication process of Phi requires no changes in processing techniques when compared to traditional quartz surfacing. No changes in cutting techniques, consumable tooling, adhesives or handling of the material.

## IMPROVED WITH THE 4R FORMULA

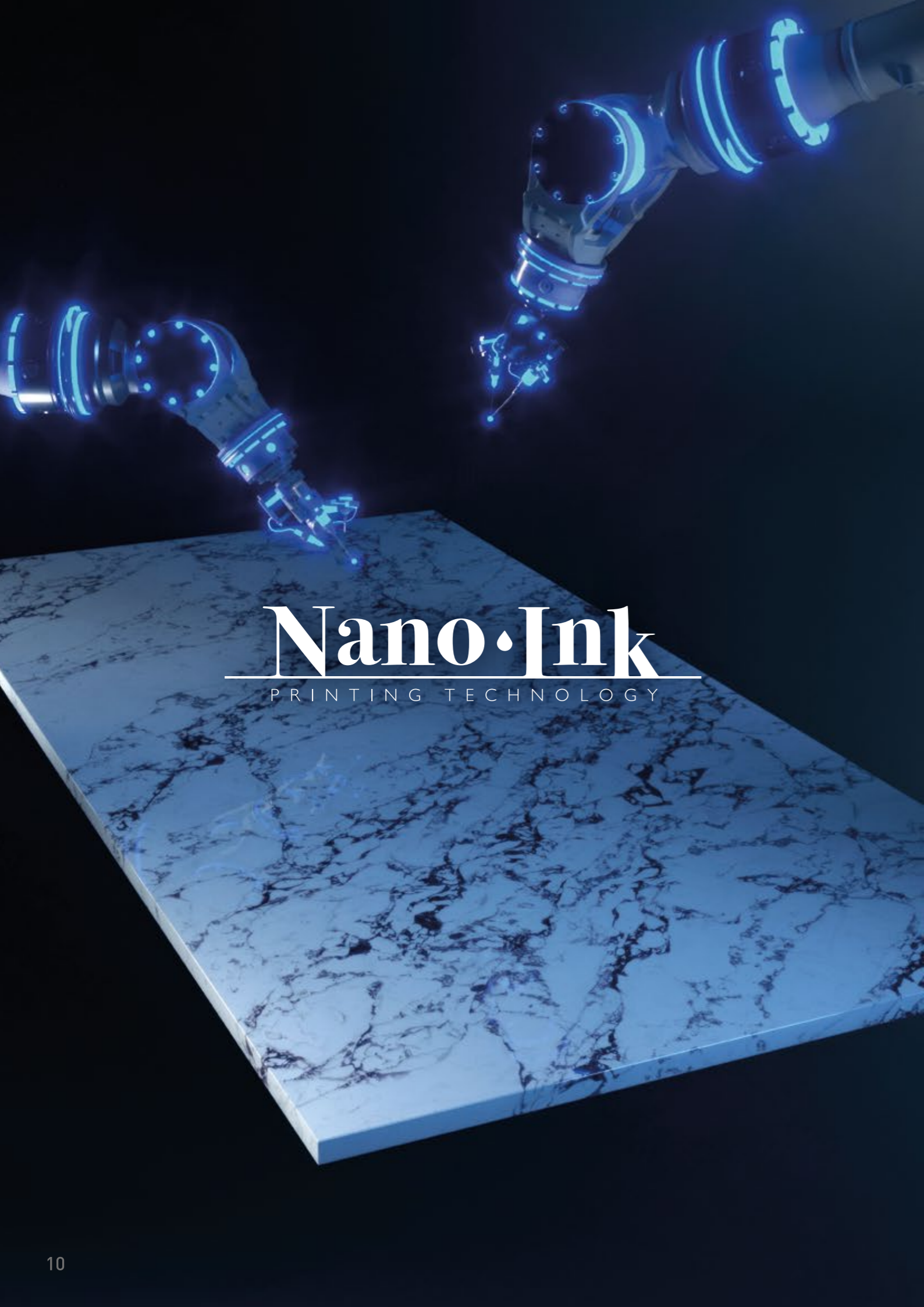
This ultimate **PHI 4R FULLBODY** technology is based in four major pillars: Reduce, Recycle, Reuse, and Respect.

**REDUCE.** The PHI 4R FULLBODY technology manufacturing process reduces the crystalline silica content in all the slabs to less than 20%. In comparison to traditional quartz surfacing, it is reduced up to 70%.

**RECYCLE.** PHI TBP surfaces include up to 70% of recycled materials such as glass and no more than 20% of premium quartz directly extracted from our quarries. By reducing the use of raw materials, the carbon footprint generated during the material production process is significantly smaller.

**REUSE.** PHI 4R FULLBODY technology reuses nearly 100% of the water required in the slab manufacturing process. Moreover, it contributes to keeping rivers and oceans clean and preserving their biodiversity by achieving a zero-water discharge.

**RESPECT.** A more sustainable and respectful manufacturing process is possible with PHI 4R FULLBODY thanks to the use of recycled materials, the reduction of crystalline silica, the harnessing of water, and the waste management.



# Nano·Ink

PRINTING TECHNOLOGY

## A revolutionary way of printing

### NANO INK TECHNOLOGY

PHI TBP reaches a milestone in the stone sector as the first surface with a hybrid pattern transfer system. On one hand, the full-body performance achieved during the pressing process of the slabs, and subsequently, the generated patterns printed on the surface through the exclusive **Nano-Ink Technology** that give the slab a new and revolutionary fourth dimension.

Under high temperatures and pressures, **Nano-Ink Technology** penetrates the surface of PHI slabs, creating a four-dimensional effect and providing authenticity to the patterns. Preceding generations of engineered stones limited the pattern only to the top of the surface, while our unique and revolutionary technology injects the ink up to 1 mm into the surface, enhancing color stability, and providing increased scratch resistance.

### TECHNICAL FEATURES



TRUE  
NATURAL  
BEAUTY

#### True Natural Beauty

Amazing light reflection, color brightness and high definition in every pattern create realistic details for a natural appearance.



INK  
DEPTH

#### Ink Depth

Nano-INK technology injects the ink up to 1mm under the surface avoiding the drawbacks of printing a pattern that is limited to the top surface only. This drastically improves the stability of colors, creates a deep 4D effect, and provides better resistance to scratches.



ETERNAL  
COLOR

#### Eternal color

Color remains unchanged and stable over time without losing intensity. Better light reflection, brightness and clarity in colors than any other engineered stone available. Non-yellowing white backgrounds.



DEPTH &  
TRANSLUCENCY

#### Depth And Translucency

Supreme authenticity in appearance without compromise. Thanks to an even purer translucency, it provides each pattern with a deeper visual strength.



HIGH  
DEFINITION  
PRINT

#### High-Definition Print

Unsurpassable high-definition sharpness of print with neat lines, which are clear and impeccably delineated. Deep visual strength in each pattern.



# Anti-Stain lifetime warranty

## NEOS, REPEL THE UNWELCOME

**Nano Enhancement of Surfaces (NEOS)** is a high-performance stain and substance repellent technology developed by our engineers to keep your surfaces clean with minimum maintenance.

Invisible to the naked eye, **NEOS** has been formulated to produce a hybrid protectant with physical characteristics that resist staining, keeps surfaces clean and guards them against everyday wear and tear. With **NEOS**, Phi surfaces are safely protected against most common household chemicals.



Easy  
Maintenance



Stain  
Resistant



Durable



Food  
Safe



Chemical  
Resistant

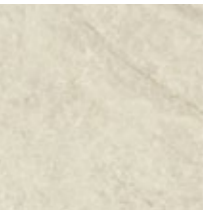
Phi hybrid composition based on high-quality minerals, quartz and recycled materials enhance the surfaces stain and scratch resistance, making daily maintenance and cleaning easy.

**NEOS** Technology is designed to add an extra layer of protection. Its permanent bond lasts forever, making Phi surfaces the most durable product in the industry.

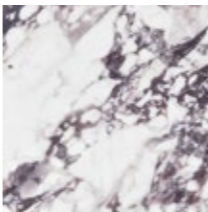


# Colors

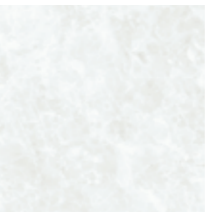
AU73009  
**Pristine**



AU71092  
**Palace**



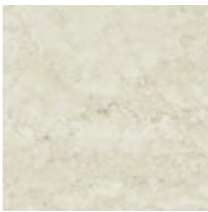
AU71088  
**Pacific**



AU71091  
**Prestige**



AU73016  
**Pinnacle**



AU71093  
**Paradise**



AU71121  
**Passion**



AU72083  
**Patience**



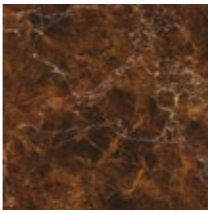
AU72085  
**Peak**



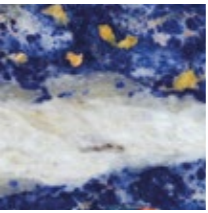
AU71089  
**Peace**



AU76026  
**Premier**



AU75013  
**Positive**



AU74009  
**Poetry**





# PRODUCT DESCRIPTION

Phi grew from our strong desire to present the world with the most natural, believable marble designs. The result? A peerless surface with high definition character movement and sharp, clean, tight lines, which in previous generations often appear blurry or washed out.

We produce surfaces with a 'no grain' surface, with a better light reflection and higher shine. No other in the market is brighter, or whiter. What's more, Phi's translucency is unmatched. And Phi's unparalleled depth is evident through soft and subtle undertones of color beneath the surface.

Precision and efficiency defines our material. Whether for private quarters, work areas or public spaces, Phi represents a solid asset that ensures value for money and return on investment for years to come.

## SIZE

The slab dimensions of Phi surfaces are: 126"x63" (3200 x 1600 mm)

These options give fabricators the flexibility to maximize their utilization of the material.

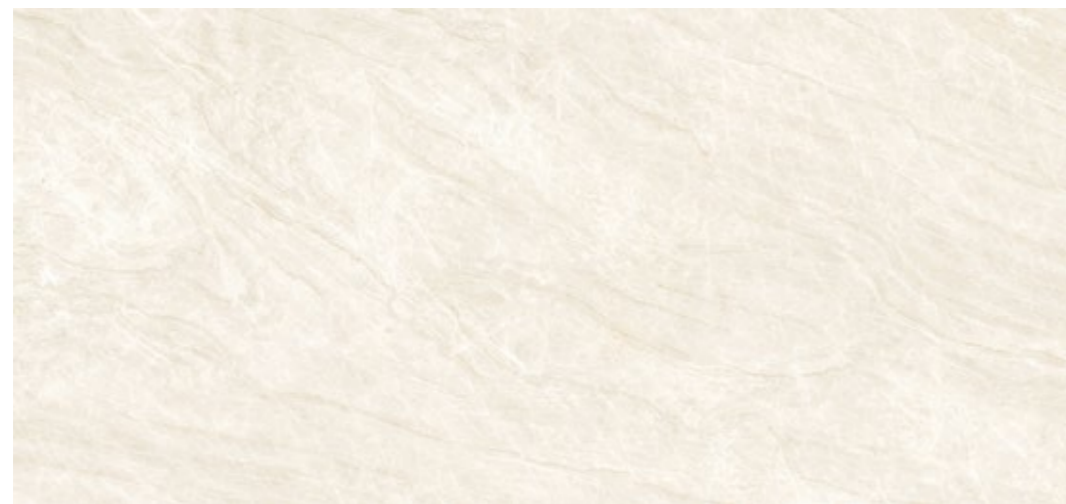
## THICKNESSES

The slabs are available in

20 mm (3/4 inch)

30 mm (1-1/4 inch)

**FINISH AVAILABLE:** Polished & S-Tech



3200 mm

1600 mm

# TECHNICAL SPECIFICATIONS SHEET

TEST ITEM	TEST METHODS	TEST RESULTS
APPARENT DENSITY	ASTM C97/C97M-09	2.25g/cm <sup>3</sup>
WATER ABSORPTION	ASTM C97/C97M-09	0,01%
MOH'S HARDNESS	EN101	5
FLEXURAL STRENGTH	ASTM C880/C880M-09	97.66MPA
ABRASION RESISTANCE	ASTM C241/C241M-13	36
LINEAR THERMAL EXPANSION COEFFICIENT	ASTM C531-00(2012)	32.5x10 <sup>-6</sup> /°C
CHEMICAL RESISTANCE	ASTM C650-04(2009)	Not affected
BREAKING STRENGTH	ASTM C 648-09	5660 N
IMPACT TEST	With reference to ANSI 2124.6-2007 Section 4.2.1	No visible damage
Cigarette Burn Test	With reference to ANSI 2124.6-2007 Section 5.4	No visible damage
Heated Pan Test	With reference to ANSI 2124.6-2007 Section 5.6	No visible damage

# SLAB INFORMATION

## FABRICATION GUIDE: COMPLETE INSPECTION OF PRODUCT

### VISUAL INSPECTION OF SLABS:

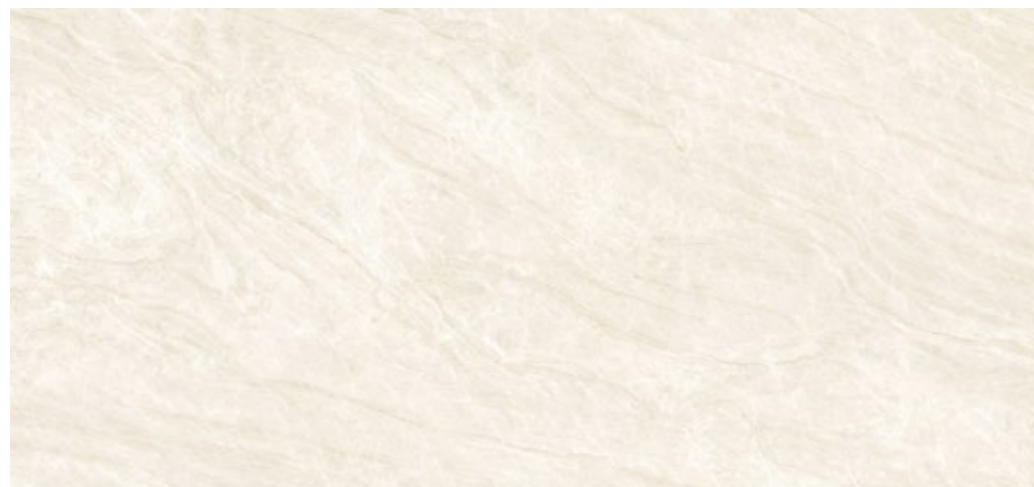
Always inspect all material before fabrication. Phi replicates marble and is a veined material that has a non-directional pattern. During the layout process it is very important to use extra care in layout relative to your seam locations. Phi vein distribution can be different throughout the slabs and at all edges, whether factory or fabricated. Our veined patterns will require a somewhat more careful/specialized layout to produce the optimal esthetic look.

Color-matching slabs before fabricating is a very important step. It is typical and expected for Phi slabs to exhibit slight color variation between batches and/or production cycles, due to the complex blending of natural minerals and raw materials.

If your job requires more than one slab you will want to check the Phi labels to check batch number along with the shade number of each slab. After inspecting all slab numbers, it is important to remove the protective plastic film. Now you will want to visually inspect slabs for color variation, color match and any other defects before cutting material.

During layout don't forget to consider backsplashes. It is important that they color match and have vein patterns similar to those on the countertop.

Layout is one of the most important processes in fabricating Phi and vital to ensuring the best end result. Because Phi closely replicates the look of natural marble, it requires a little additional attention in this process to maximize the homeowner's lasting enjoyment.

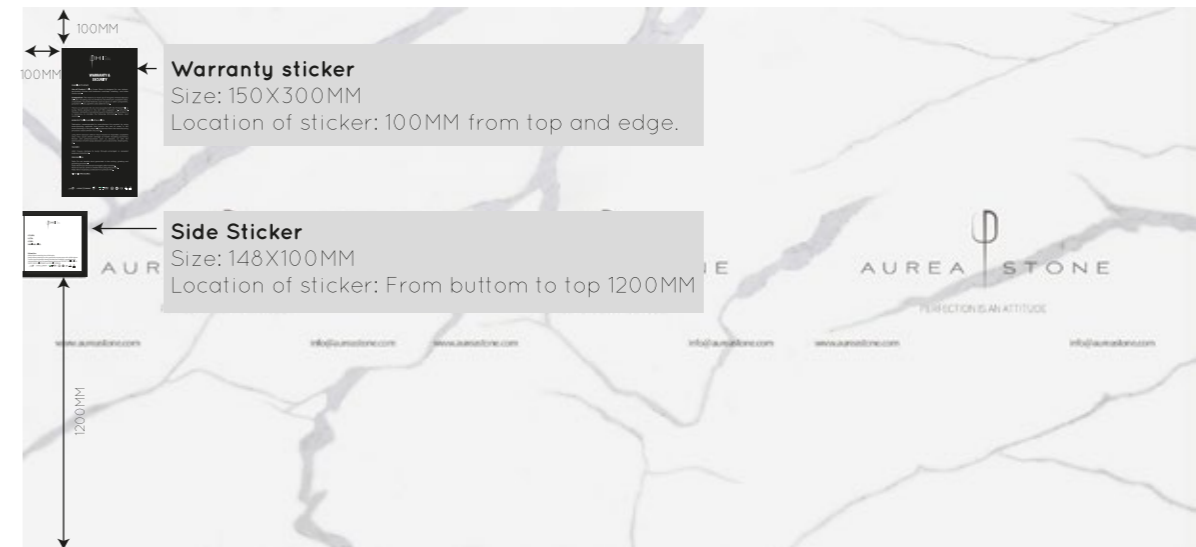


# SLAB INFORMATION

## PHI LABELS

Standard Phi Labels on Front of Slabs.

Each slabs will be put three stickers: Warranty Sticker, Slabs Edge Sticker, Tear Off Paper



Tear off sticker and edge sticker information:

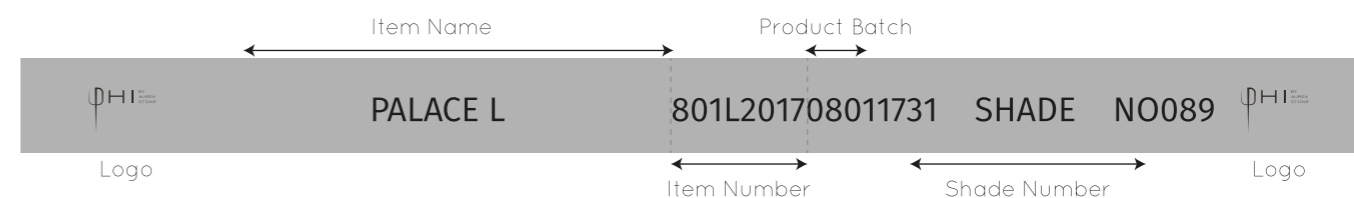
1. Item name
2. Item number
3. Production batch
4. Shade number

For example:

PALACE L 801 1717 SHADE005 are on both stickers and they must be the same.



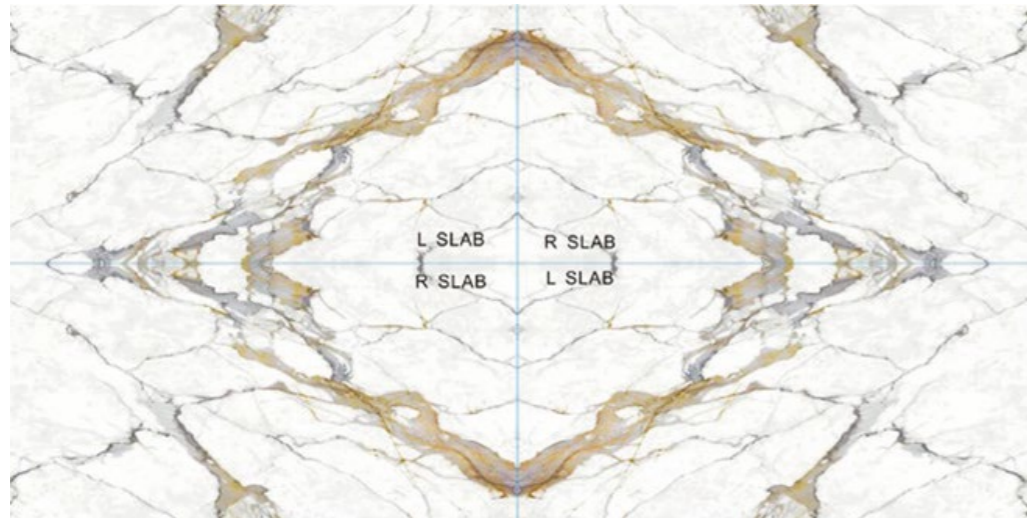
### Standard Phi Label on the Back of Slabs :



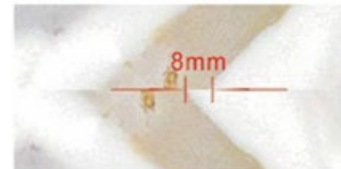
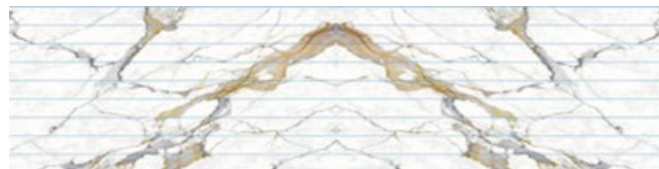
# SLAB INFORMATION

FABRICATION GUIDE:  
COMPLETE INSPECTION OF PRODUCT

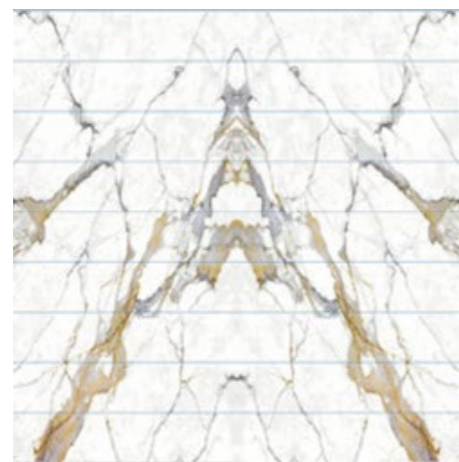
## BOOKMATCH STANDARD: 4 EDGES BOOK MATCHED



## STANDARD OF BOOK MATCHING



10mm unconnected tolerance



In any batch, no less than 70% of slabs will be bookmatched. For the remaining 30% that may not be bookmatched, it is acceptable that the quantity of L slabs and R slabs may not be equal.

# SLAB INFORMATION

FABRICATION GUIDE:  
COMPLETE INSPECTION OF PRODUCT

## WAYS OF PACKING PHI SLABS

Standard Phi Label on Front of Slabs.



## LOCATION OF STICKERS ON THE SLABS

The stickers are put on the right-hand edge of the left design slabs. The stickers are put on the left-hand edge of the right design slabs.

## WAYS TO PACK THE SLABS IN BUNDLES

Slabs of book matched left-hand and right-hand design slabs are packed together in the same bundles. Book matched labels will be put on the edge of slabs. Please use the book matched slabs with the same book matched labels.

Slabs of non book matched but with same shade of left-hand and right-hand designs are packed in the same bundles.

For orders of 30 slabs or more, there will be at most 3 separate shades. If the number of shades exceeds 3, then customer's approval will be sought before shipping.

# PRE FABRICATION

## SUPPORT REQUIREMENTS

Structures with support on four (4) sides. Structures supported on four sides do not require any additional support for 2cm material if the countertop depth is less than 26" and the countertop length is less than 118".

However, if the above dimensions are exceeded, support will be required every 36".

Structures with support on three (3) sides (i.e. dishwashers, frameless cabinets, desks, and Lazy Susans). Structures supported on three sides require additional support for 2cm material as follows:

- 2cm material needs support every 24"



# PRE FABRICATION

## OVERHANG/CANTILEVER REQUIREMENTS

Overhangs cannot exceed 1/3 of the countertop depth and must have a minimum length of 24".

Material that is 2cm requires support every 24".

Overhang ratios require that two-thirds of the width/length of the material to be used be supported; one-third of the width/length of the material to be used can be unsupported (an overhang).

No cutouts or cored holes are permitted on any overhangs.

Additional support (i.e. support bars or 5/8" plywood) may need to be added to meet additional span requirements.

Overhangs that exceed cantilever rules will need to add columns, corbels or legs to be properly supported as follows:

Overhang 2cm material	No Support Needed ≤ 8"	Corbels Required > 8"	Columns Required > 18"
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## RECOMMENDED SUPPORT MATERIAL FOR CABINETS

Plywood, wood, medium density fiberboard and structural steel are the recommended support materials for cabinets that need additional support for Phi.

Materials or products that are not moisture resistant, like oriented strand board and particle board, are not acceptable as support material.

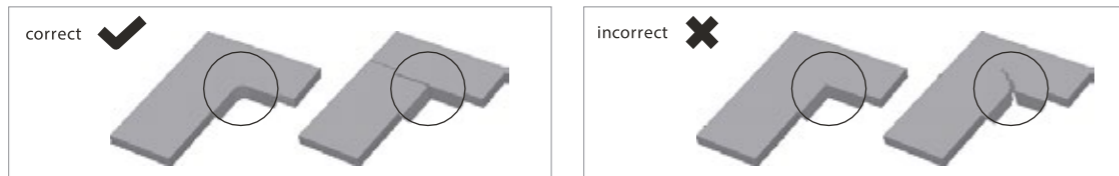
The above information should be taken into consideration during the templating and layout/measuring process. This will help to prevent any problems during the fabrication and installation process. Not following the procedures in this fabrication guide voids any warranty provided by Phi.

# PRE FABRICATION

## DETERMINE SEAM LOCATIONS

During the layout process, determine all your seam locations. This is very important to ensure the optimum aesthetics of the material and the kitchen. Seams should never be placed in the following locations:

- Through the center of sink cutout.
- In places where there is direct sunlight.
- Above dishwashers



## FABRICATION GUIDE: TEMPLATING: JOB LAYOUT & MEASUREMENT

### DIGITAL TEMPLATING:

Today there are many digital templating methods from which to choose. Digital templating is used to capture accurate countertop dimensions and configuration data. Digital templating has the advantage of being able to send/relay the digital information directly to compatible fabrication equipment, such as computer numerical control (CNC) machines, bridge saws and waterjets. These digital systems use lasers, digital cameras and point-to-point digitizers. Digital templating technology is a faster, more accurate and efficient way to measure jobs because information can be transferred digitally to your fabrication equipment.



### MANUAL TEMPLATING:

Handmade fabrication templates are created to accurately transfer the measurements and configurations from the job site to the fabrication shop. The most common items used are thin plywood, luan strips and cardboard. Job drawings containing the specific job information and are very important to support the actual template.

It is important to capture all necessary information to accurately fabricate all aspects of the job, including sink and appliance centerlines, faucet hole locations, finished edges and overhangs. It is recommended that all appliances, sinks, cooktops, or any item that requires a cutout on the countertop be on site when the job is templated.



# PRE FABRICATION

## INFORMATION TO GATHER FROM HOMEOWNER

- Choice of 2cm material
- Name of Phi slab selection
- Determine seam locations if needed
- Edge profile
- Backsplash
- Sink location
- Faucet location
- Appliance locations (i.e. cooktop/range, refrigerator, dishwasher)
- Location of additional items (i.e. soap dispenser, sprayer)
- Clarify inside corners (in order to get a 3/8" minimum radius, fabricators have to use a 3/4" bit. Phi is requiring inside corners to have a 3/8" minimum radius.)

### Very important regarding cabinets:

Make sure that the cabinets are finished and installed properly. Fabricator must verify that all cabinets are level. The top of the cabinets must be true and flat with no more than a 1/16" slope over the span of 18". The cabinets must be adjoined to each other and secured to the immediate wall. All cutouts and seams must be properly supported; similarly, there should be extra, structural support around the dishwasher.

## CUTTING

All equipment that is used to cut Phi should always be kept cool with a sufficient amount of water. **ALWAYS AVOID EXCESSIVE HEAT WITH ALL DIAMOND-CUTTING TOOLS.**

The first cut of your Phi slab should be made along the largest part of the slab and then proceed to the shortest.

When using a bridge saw, never plunge cut.

**Important:** Never cut inside square corners when fabricating Phi. This can create stress points in the countertop and can result in cracking. **ALWAYS USE A DIAMOND CORE BIT FOR ALL CORNERS OR RADIUSSES.**

Inside corners that are fabricated on a single slab must have a minimum of a 3/8" radius.

Never use cross cutting when fabricating Phi countertops. Always use a diamond core bit to create your radius. Please clarify: This should always be used on inside corners, so any internal angled corner must have a radius. **NEVER CROSS CUT!**

Remember that Phi slabs contain resin, which can cause warping or bowing depending on the weather and how they are stored. If bowing or warping does exist in the slab, cutting the slab into component parts will release the tension and flatten out the pieces.

# PRE FABRICATION

## CUTOUTS

This can be completed with several different types of equipment. A bridge saw can be used for straight cuts, but a radius needs to be cored with diamond core bits with no cross cutting. The same rules apply to CNC machines, which are also very popular. A waterjet can also be used with the proper abrasives and water pressure.

L- or U-shaped countertops with inside corners should always be fabricated from a single slab and must have a minimum of a 3/8" radius. Always keep in mind that the larger the radius, the stronger the corner.

If the distance between the cutout and the seam is less than 6", the seam needs to be supported. This can be achieved during the layout process by making sure that all seams are at a cross member of the base cabinet; otherwise, additional cross members need to be added.

Internal cutouts on all inside corners should have a 3/8" radius at minimum.

Cutouts for all drop-in sinks, cooktops, outlets, slide-in stoves, etc. should include an extra 1/8" from the edge to allow for expansion.

Cutouts range from simple, core holes for faucets and soap dispensers to complex cutouts for specialized equipment. It is best to have all equipment on the job site during the installation process as this is the safest way to determine the shape and size of the core or cutout.

Always refer to the manufacturer's recommendations when available.

The customer should make the final decision regarding the location and the size of the cutout in their countertop and sign off on this.

Additional support should be added to both ends of the cutout if the base cabinet cross bars are not within 3" of cutout.

All hot cutouts (i.e. cooktops) require that 9-mil aluminum foil tape (heat tape) be used to prevent the transfer of heat to Phi. Always follow manufacturer's guidelines.



# PRE FABRICATION

## LAMINATIONS

When laminating, it is important to make sure that the lamination piece is the full length of the top piece and that the corners are cut at 45 degrees. If for some reason the two laminated pieces must be joined, the joint must be cut at a 45-degree angle. The use of a mitered end cut reduces stress on the material that may cause stress fractures.

The lamination strip should be cut from the same slab as the countertop surface material to ensure a color match. When cutting the piece to be laminated, add the lamination piece size to your cutting measurements to ensure that a lamination strip of the correct length and color is available for the lamination process. A 45-degree corner joint is recommended to minimize the stress on the corners.

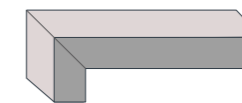
Use full-length lamination pieces if possible.

For long countertop runs where a joint may be required, make sure that the joint in the laminated piece is at 45 degrees to minimize stress points.

When clamping and gluing miter joints, we recommend the use of Mitsubishi G-Tape or a tape of similar properties. For standard 1 1/2" mitered edge profiles, tape should be applied prior to glue every 8" to 10". As edge profiles become taller (3" to 8") tape will need to be applied more frequently to support the weight of the apron piece being attached. If mechanical clamping systems or jigs are being used to secure the miter during the gluing process, be aware that both uneven clamp pressure, or clamp pressure higher than required can introduce warpage into the finished product.

### Examples of Mitered and Butt Joints:

Butt Joints (Square Laminated) are not recommended as you will have an interruption of pattern at the lamination joint.



Square Mitered



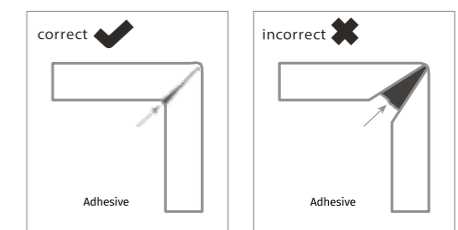
Square Laminated

### Mitered Edge:

A mitered edge is one with a perfect, 90-degree angle. This is created by joining two pieces of Phi, each with a 45-degree angle. This is typically done with 2cm material. The longer the apron, the harder it is to hide the seams because it is more difficult to clamp. It is never recommended to have a mitered edge over 4" unless a special support is added.

### Adhesives:

We recommend that a cartridge-style acrylic or epoxy that is already color matched for Phi be used. Phi is translucent, so solid colors will not match the translucency of the stone. Acrylics and epoxies have a chemical attraction to the stone and will provide the tightest seams. This is very important for mitered edge details because, when properly done, the adhesive is not visible.



# PRE FABRICATION

## POLISHING/EDGE DETAIL

Polishing: It is very important to select the right polishing pads for Phi. Please note: Do not use polishing pads that have colored resin. While such pads can work well with granite, they require an excessive amount of water and can transfer the resin's color to the edges of Phi. We recommend using only white resin pads for all applications, whether hand polishing, or using an automatic edge polisher or a CNC machine.



**1. Rigid Backer Pads:** Flexible backers work well for concave profile edges, such as ogee edges. The need to use a flexible backer on most other profiles is not needed. Keep in mind automatic edge machines all use extremely rigid polishing tools and backer pads; these machines will produce a far better edge than what many fabricators can do by hand.

**2. Polishing Pads:** Common problems include both using too much water and not enough water, and not using the proper polishing technique. The Sequence of grits shown above for both Polished and Hone finishes are a guideline for achieving a polish equal to the factory finish.

When too much water is used while applying pressure to the center of the pad, the water gets trapped in between the pad and the stone, causing a hydroplaning effect. This causes the water to escape to the outer edges of the pad, making it difficult for the polishing pad to effectively polish the edge or edge's surface. This will result in a spotty polish.

When too little water is used, the polishing pads tend to flex or cup outwards around the center of the pad (mainly with higher grits). This causes the outer edges of the polishing pad to touch the surface, but will not allow the center of pad to polish. The tendency is to apply more pressure, which also leaves a spotty polish.

When polishing the edge detail on Phi, be sure to use the entire polishing pad surface, which is stated in the tips below. When polishing any bullnose edge, it is important to use the center of the pad only as it will give the proper water distribution for the pad and the stone.

Never use a final buffing pad for Phi. These come in black and buff and contain different chemicals and no diamonds and are meant to bring granite to a high polish. The final step for polishing Phi is to use a grit level of 3000.

Dry polishing the edge profile may cause overheating of Phi. Excessive heat to the stone can alter the physical properties of the slab which can cause micro-fissures not visible to the naked eye. This can lead to chipping, discoloration and a poor, uneven polish. Never use dry polishing pads on Phi.

# PRE FABRICATION

**When polishing the top edge of the miter after gluing has been completed, we recommend the following steps:**

*Begin the process with a 400 polishing pad applying very light pressure on the tool. Repeat this process with a 600 polishing pad, again applying very light pressure on the tool. Fabricators who routinely work with porcelain or sintered stone products typically must exert a much higher degree of pressure on the tool due to the extreme hardness of the materials they are polishing. If this process is adhered to, the visible line that appears at the transition from the top surface to edge in Phi will be much less visible than the typical result you would see in either a porcelain or sintered stone slab.*

Phi should never be polished on the top surface of the manufacturing finish.

### Polishing Tips:

When polishing any edge detail on Phi you should use the proper amount of water. Polishing pads with grit levels of 50-400 have a higher concentration of diamonds and require less water; a trickle from your center water feed will be sufficient. Higher 800-1,500 grit pads have less diamond content and require more water. Using the proper water flow allows the pads to work faster.

Polishing should be done in circular motion, utilizing the edges of the polishing pad as it rotates from the top half of the edge to the bottom half as it moves down the piece. While polishing, you will feel resistance with each grit level, which is the diamonds polishing. Allowing the diamonds to do the work requires less pressure from the polisher. When resistance is no longer felt, it is time to change the polishing pad to the next grit. Follow this procedure until you arrive at the final grit level.

### Air/Electric Polisher RPM:

The rpm for all air/electric polishers should be between 2,800-4,000. It is best to start at 2,800 rpm and increase as needed. Anything over 4,000 rpm could result in burning or smearing the resin on your edge detail. This is where the color of the resin on the polishing pad makes a big difference. If the edge is burned with a white resin polishing pad, it can be easily removed with denatured alcohol.

However, the dye in colored resin polishing pads can create a major problem when working with white, translucent Phi.



# INSTALLATIONS

## INSTALLATION

It is important that cabinets are leveled, and shimmed where necessary, to 1/16" tolerances prior to final countertop installation. Check all cabinets for level.

After the support system is installed and leveled, installation of the Phi countertops can begin. Measure cabinets and verify that the pieces will fit before placing the Phi on the countertop.

Bring the pieces in one at a time, and test fit them in their proper place on the cabinets. Adjust as necessary to ensure a good fit and proper alignment. Always make any necessary cuts outside, cutting wet to control dust.

Space should always be allowed as Phi needs room to expand. Each countertop requires at least 1/8" at each wall for expansion and contraction. Fill the gap between the wall and countertop with silicone.

After all of the pieces have been adjusted for fit, you will need to attach the tops to the cabinets and support strips using caulk that is 100 percent silicone. Apply silicone caulk approximately every 8"-12" around the perimeter of the cabinet, and at the cross supports. Do not use epoxy adhesive, acrylic adhesive or the product Liquid Nails. The purpose of the silicone is to allow the top to expand and contract as needed.

Use extra silicone on all corners and joints, and around all cutouts.



# INSTALLATIONS

## SEAMS

Seam tolerance is generally the same for all hard-surface countertop material. The recommended seam width is 1/16"; recommended seam tolerance is +/- 1/32". Both pieces should be level across a seam, with a tolerance of +/- 1/32". One side of a seam can be slightly raised, or one side can be slightly lowered, but not both.

The two edges to be seamed must be cut straight and true. If a waterjet is used for cutting, the edges should be ground flat to remove any grooves from the cutting process.

Test fit to make sure that the two pieces to be seamed together form a tight, level and uniform seam before applying adhesive. Shim and level pieces if required. Also, check to make sure the color and vein pattern matches across the seam.

Always clean the joined edges with denatured alcohol and wipe clean with a white cloth. Apply strips of tape to the top and underside of the two pieces to be joined/seamed. Put tape on each side of the two pieces, leaving about 1/4" between the pieces. This prevents adhesive from dripping into the cabinets and allows for easy clean-up on the top surface.

### Tip:

If possible, use a pneumatic seam setter with a vacuum and posts/pins to level and to make seams as tight and inconspicuous as possible. Several manufacturers sell this equipment. Seams should never be more than 1/16" wide.

### ADHESIVE:

Seams should be made using a pre-mixed cartridge adhesive, which can be either acrylic or a two-part epoxy system.

Insert the adhesive cartridge in the seaming gun with a fresh, disposable mixing tip. Always purge the adhesive (generally the length of the tip you are using) with your cartridge adhesive system to ensure that the adhesive and hardener is properly mixed before seaming the material. After each use, remove and replace the tip, otherwise the remaining adhesive will cure in the tip.

Remove the used tip and replace the original cap for an airtight seal. The normal cure time for acrylics is about 15-20 minutes in 70° F. During the summer month's hot temperatures, work time is reduced. During winter's colder temperatures, work time is increased. The cure time for two-part epoxy systems can be anywhere from 2-6 hours.



# INSTALLATIONS

## SINKS

We recommend that the sink manufacturer's guidelines be followed when installing all sinks, whether they are top mount or undermount.

We recommend that all sink installations be fully structurally supported without reliance on the Phi as a form of support.

Under no conditions can mechanical fasteners (screws, nails, etc.) be affixed directly to Phi. These items will rust with moisture and the rust will bleed through the stone.

For under mount sink installations, follow the minimum edge profile recommendations around the cutout to prevent chipping. Fasteners or clips should be used along with silicone.

All sinks must be sealed to the countertop using 100 percent silicone.

Always follow the sink manufacturer's recommendations. Some sinks may require support systems like cradles, rail systems and sink setters.



# INSTALLATIONS

## INSTALLATION OF BACKSPLASH MATERIALS

A backsplash is typically 3" in height unless a full backsplash is desired. The backsplash should always be cut from the same lot or batch as the countertop material.

Cut all backsplash material to the sizes required for the project. The top edge and any exposed ends should be polished. Generally, the backsplash has a flat top with a slightly beveled edge.

Dry-fit the backsplash to make sure that all joints and edges are tight. Apply a continuous 1/8" bead of silicone to the bottom of the backsplash that will be adhered to the countertop surface. Then place dabs of 100-percent silicone every 4"-6" on the back, unpolished side of the stone and adhere it to the wall.

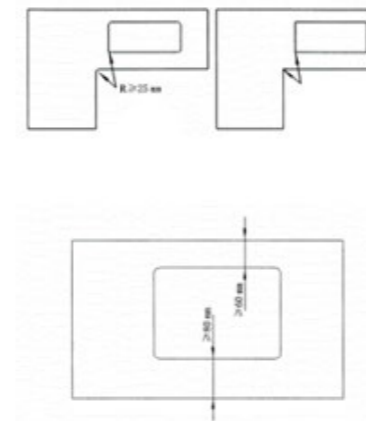
Do not hard-seam backsplash to countertop.

Phi can be installed as a backsplash behind a gas, induction or vitroceramic cooktops. Install cooktops following the manufacturer's instruction, paying special attention to insulation requirements and materials.

The cutout requires a minimum distance of 60mm to the backsplash and 80mm to the edge.

All cooktops requires a minimum distance of 120mm from the perimeter of the nearest burner, to any vertical application to avoid heat transfer.

For L or U-shaped countertops, cooktop requires no less than 25mm to the corner.



# INSTALLATIONS

## WALL APPLICATIONS (VERTICAL)

Phi can be used for all internal cladding of walls and vertical applications. The installation of vertical panels varies from location to location. Check with your local building codes. When designing and installing vertical panels and cladding, it is necessary to take the weight of the product into account and the services of an experienced structural engineer should be sought during the designing and installation phases.

### Installation Guidelines:

1. Measure for any cutouts required on the water line wall of the shower. This is the wall with the Tub Diverter, Bathtub Faucet and the Shower head. Use a tape measure to determine where you need to cut holes in the Phi slab for the pipe cut-outs. Mark the slab and use the diamond core bit to cut out the necessary holes. Allow a 1/2" clearance around all pipe cutouts.
2. Install the front and back slabs first before you install the side pieces. Apply a setting epoxy adhesive to the back of the slab that you are adhering to the wall. Use a 1/4" notched trowel to spread the setting epoxy onto the back of the slab. This may require more than one person for the heavier/larger slabs. Maneuver the slab into position. Place it firmly against the following substrates, Cement board, Waterproofed plywood or existing Backer board on the walls.(if using existing backer board make sure it is free of any defects)
3. Apply firm pressure and move the slab up and down and side to side as much as you can to force the epoxy glue to completely bond with the wall/substrate behind and the slab itself. Once finished, allow the slab to come to its final resting place on top of the shower pan. Provide a minimum of 1/8" expansion joint (to be caulked with 100% silicone) at the bottom/top of the slabs, which would be the shower pan and ceiling. Use 1/8" shims at the top and bottom of slabs to get the proper spacing for expansion joints. Repeat the process with all other wall panels that are needed to finish the wall surround.
4. Epoxy or "hard" seams are not recommended for vertical wall applications. All corners should be caulked with 100% silicone caulk. Allow 1/8" minimum expansion joint between adjacent Phi slabs. Use 1/8" shims between the adjacent slabs to get the proper spacing for expansion joints.
5. Apply the proper braces to support the wall panel until setting epoxy adhesive is completely cured. Keep the braces in place for at least 24 hours or according to the drying time on your setting epoxy adhesive.
6. Remove the braces. Apply silicone caulking to the inside corners and fill the gaps between the slabs. Also, silicone the area where the slabs meet the shower pan and ceiling. Allow the caulking to dry for 72 hours before using the shower.

# CARE & MAINTENANCE

## PROPER CLEANING & MAINTENANCE OF PHI

Phi requires very little maintenance to keep the surface looking its best. It is a non-porous material, therefore cleaning with a damp cloth and warm clear water is all that is required.

### DAILY CLEANING

For routine cleaning, simply wipe down your surface with a damp cloth or paper towel and a pH neutral cleaner for natural stone.

The pH activity level is what determines the best maintenance cleaner for Phi. For example, most neutral cleaners have a pH balance of 7; however, some neutral cleaners are stronger than others because they have higher pH activity levels. Some neutral cleaners are not active enough to thoroughly clean the Phi, while some neutral cleaners are too active for it.

To keep your worktop beautiful, spot free and shiny you can use a wide selection of available cleaners and their respective pH levels, since NEOS resists ranges between pH1 and pH13, making it the only protectant resistant to a broad list of chemicals and safe from acid corrosion.

Granite cleaners that are available at Lowe's, Home Depot or local grocery stores are typically pH neutral and can safely be used to clean Phi. Make sure about its pH before using it.



# CARE & MAINTENANCE

## PERIODIC CLEANING

It is recommended that Phi subject to heavy traffic of use be treated (once in a month besides daily cleaning) with a heavy duty intensive and neutral cleanser, which is stronger than a daily cleaning product. Such type of a periodic cleaning will provide a mirror gloss effect.

In the use of industrial cleaning machines, make sure that soft pads are used on the machines while strictly avoiding wax strippers. Customers that use industrial-cleaning machines should always use appropriate types of pad and brush. For the dense dirtiness to resolve, professional cleaning products are applied by using a cleaning machine with plastic brush or soft pad. Following the application of the cleanser, rinse the surface thoroughly with water.

Installers and fabricators should avoid using acetone on Phi as it will leave a film on the countertop surface. We recommend using denatured alcohol if needed. Acetone is harmful to resins and should never be used as a cleaner.

Soap and water can also be used, but the surfactants in some soaps will leave a greasy film on the surface. The film can feel sticky and is very difficult to remove.

Phi is heat and scratch resistant, but not heat- and scratch-proof. Never put hot pots directly on the countertop surface; always use hot pads or trivets.

Phi does not require any waxes or sealants because it is a non-porous surface. It retains its lustrous gloss and smooth surface without the need for polish or sealant.

Do not use bleach or any cleaners that contain bleach.

Granite cleaners that are available at Lowe's, Home Depot or local grocery stores are typically pH neutral and can safely be used to clean Phi.



# CERTIFICATIONS

Phi is internationally certified to ensure maximum safety and protection. Such certificates offer consumers the assurance that Phi is a safe, top-quality material. Our certificates offer a 100% guarantee.

## NSF

With the NSF certificate, Phi is deemed to be a safe material for direct contact with all types of food. This certificate is endorsed by esteemed organizations such as the FDA (Food & Drug Administration) and WHO (World Health Organization).

## GREENGUARD

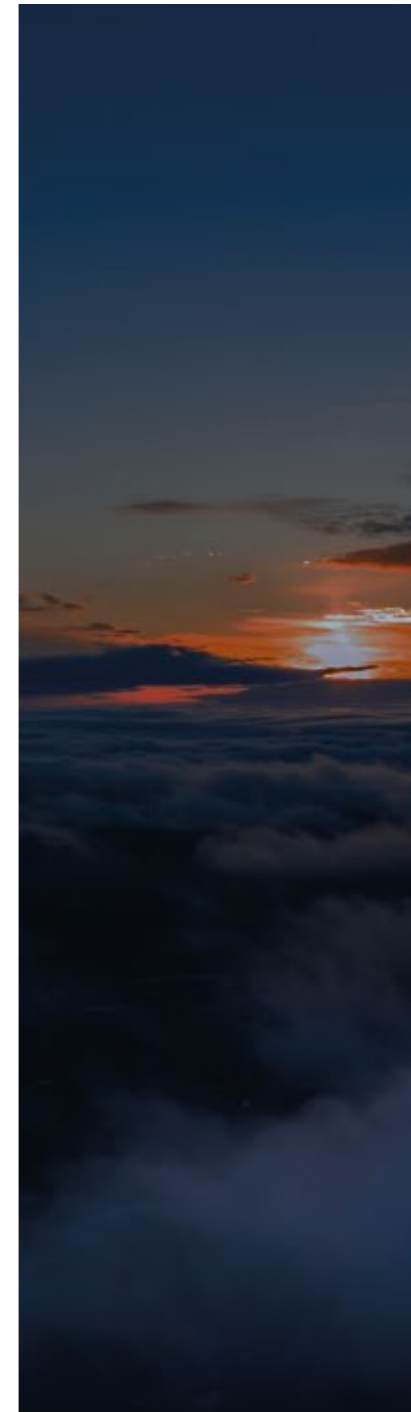
This certificate proves that Phi does not generate any substance that is harmful to the environment. It also certifies the use of our surfaces in closed areas.

## GREENGUARD GOLD

Phi has also been awarded the "Greenguard Children & Schools Certificate," which confirms maximum safety in its applications for schools and universities.

## EPD

As per our commitment to measuring and reducing the environmental impact of our products, Aurea Stone presents the Environmental Product Declaration (EPD) by The International EPD® System, a hyper-transparent, comparable, objective and accredited third-party verified report that shows the environmental performance of our surfaces.



# WARRANTY

Phi by Aurea Stone products have stringent quality standards and quality controls to offer an excellent product. Phi offers unique marble effect designs with the best high-quality performance.

## TERMS AND CONDITIONS:

This warranty applies only to Phi products in interior residential or commercial applications.

### Validity of the warranty:

25-year Limited Warranty. Phi guarantees that our material will be free from manufacturing defects during the indicated period.

Thanks to its beyond-belief technology NEOS, Nano Enhancement of Surfaces, an innovative high-performance stain and substance repellent technology developed for Phi, we are the only brand to include a Lifetime Stain Warranty.

Phi guarantees that your countertop will resist staining and will be protected from a broad range of chemicals and acid corrosion (between pH1 and pH13).

To activate this policy, it is compulsory to register the product here <https://phibyaureastone.com/warranty-activation/>, a maximum of 6 months after the purchase. The original receipt could be required anytime by Phi. In the case of acquisition of a new property, Phi honors the real estate purchase contract as the original receipt. You are responsible for entering the correct details in the registration form. Those are: contact details, where Phi is installed and product information. In case any information is not correct, your Phi product may not be properly covered.

This warranty is assigned to the natural person that registers his/her personal information according to the instructions given in the registration form, and is non-transferable.

In order to obtain assistance during the validity of the warranty, you must contact the commercial establishment where the product was purchased or alternatively, you may contact Phi directly.

In order to assess any product claim, the policyholder agrees to allow any professional authorized by Phi to enter wherever the product is installed to examine the product and take pictures of the material and installation.

The purchaser and/or the fabricator/installer are responsible to inspect each slab for color, pattern and defects. Material with visible manufacturing defects must not be used. Samples are small select cuts from a slab; they do not exhibit all the characteristics of a design and therefore are not fully representative of what will be installed.

The warranty covers only manufacturing defects found to adversely affect the installation of Phi in residential applications. Phi has the right to repair or replace any material it deems defective, at its sole discretion.

This warranty is only applicable to the product that has been used and maintained by following the care and maintenance recommendations, as prescribed herein by Phi.

This warranty is only applicable to Phi that have been permanently installed indoors and have not been moved from the original installation.

Phi is not a seamless product; seams are visible. Where there are seams, the product pattern and shade can change.

# WARRANTY

## EXCLUSIONS:

1. Those products that have not been completely paid are excluded from the warranty.
2. This warranty does not cover products installed outdoors.
3. In cases where Phi opts in its sole discretion to provide replacement material to satisfy valid warranty claims, Phi will not be responsible for the costs of transporting material to the destination.
4. Because Phi does not have control over, including but not limited to, handling, templating, fabrication, manipulation, cutting, polishing or installation, any incidental and consequential damage arising from these activities are not covered. These items are understood and agreed to be the responsibility of the independent fabricator/installer involved in each project. Phi highly recommends to carefully read the Architects & Designers Manual and/or the Fabrication & Installation Guide before manipulating Phi products.
5. This warranty does not cover any fabrication or installation cost, nor the incidental costs incurred by other trades, including but not limited to plaster work, plumbing, electrical or structural work, etc.
6. This warranty does not cover installed products with manufacturing defects that were, or should have been, known or visible to installers at the time of installation, including, without any limitation, possible differences of color or tone. Phi is made with pure natural materials. Variation in the natural stone color pattern, size, shape and shade are inherent and unique characteristics to be expected with this product.
7. This warranty does not cover any incorrect use. Damage caused by exposure, in use or otherwise, to abrasive or strong alkaline or acid or free radicals or oxidizers or the like (whether high, neutral or low pH) products is not covered, neither damages caused by exposure to excessive heat, weather or ultraviolet light or by inappropriate Care & Maintenance.
8. This warranty does not cover stains caused by exposure, in use or otherwise, to substances over pH13.
9. Use of the product in floors or other areas intended for the transit of persons or machinery is expressly excluded.
10. Use of the product in fireplaces or similar is expressly excluded.

No other entity but Phi is authorized to offer any warranty agreement related to Phi products.

This document has been updated December 2023. It prevails over any other Phi previous warranty document and it shall come into effect on the date of its publication.

# A more promising future starts here

## BETTER PRODUCT, BETTER HEALTH, BETTER WORLD

Phi by Aurea Stone's commitment to a better future materializes in a formula that is more respectful with the environment and the communities. It results in less waste ending up in landfills and a **lower carbon footprint in the production** of the finished product.



In addition to this, PHI by Aurea Stone **reduces the crystalline silica** content in all the slabs to less than 20%, marking a reduction of up to 70% compared to traditional quartz surfacing. People's health and safety are our top priorities. Phi surfaces are entirely safe for customers, and their handling by workers is completely secure as long as appropriate measures are taken.

[www.phibyaureastone.com](http://www.phibyaureastone.com)

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STONE