

*Version 3.0*  
*2012*

# FABRICATION GUIDELINES

*IceStone*<sup>®</sup>  
MADE IN THE USA





# IceStone®

MADE IN THE USA

FABRICATION GUIDELINES | 2012



# TABLE OF CONTENTS

## SECTION 1

5	About IceStone Durable Surfaces
6	Disclaimer
7	Applications
7	Standard Slab Size and Weight
8	Technical Specifications and Certifications
9	Dust Inhalation Exposure
9	Certified Fabricator & Warranty Program
10	Proper Handling & Inventory Storage
14	Loading Loose Slabs
16	Indoor Storage Only
16	Transportation

## SECTION 2

19	Fabrication Instructions
19	Fabrication Tools & Safety Equipment
20	Marble Institute of America Standards
20	Color Matching, Batch Numbering, and Slab Identification
22	Removing Bow From Warped Slabs via Rewetting
23	Microporosity
25	Pop Outs
26	Basic Fabrication
27	Cutouts and Reinforcing Rod Supports
28	Soap Dispenser Placement
29	Radius Corners
29	Edge Profiles
30	Aprons and Built Up Edges
30	Recommended Edge Polishing Sequence
30	Structural Support
31	Dishwasher Support
31	Cantilevers and Overhangs
31	Installation Overview
32	Seaming
33	Sealing and Waxing
34	Surface Repair
34	Heat Tolerance

## SECTION 3

37	Care and Maintenance
38	Cleaning IceStone Surfaces
38	Sealing and Waxing Guidelines
39	Caring for IceStone Surfaces
39	Contact Information



# SECTION 1

## ABOUT ICESTONE DURABLE SURFACES

IceStone has been crafting its premium durable surfaces in the historic Brooklyn Navy Yard since 2003. Made from 100% recycled glass, portland cement, and non-toxic pigment, IceStone® durable surfaces are the sustainable surface material of choice for fabricators, contractors, designers and homeowners nationwide.

We believe that quality craftsmanship, social responsibility, and environmental stewardship are equally essential to the success of our business and yours. To learn more about IceStone's mission and certifications, please visit [www.icestoneusa.com](http://www.icestoneusa.com).

Sincerely,

The IceStone Team



## Disclaimer

IceStone durable surfaces are only sold to Certified Fabricators. Please contact Customer Service if you are interested in becoming a Certified Fabricator. The fabrication and installation of IceStone slabs is similar to quarried stone, but has unique requirements that must be followed for optimum performance.

IceStone, LLC is not responsible for variation between samples or printed materials and slabs received upon delivery. Please ensure that you and your clients have up to date samples that accurately reflect IceStone's current palette and production. All samples are dated for your convenience.

All slabs must be inspected upon receipt according to IceStone's Terms & Conditions. Variation in glass size, shape, color, and gauge are inherent to IceStone slabs, which are hand crafted using recycled materials. Slabs must also be inspected for color matching prior to fabrication. Project layout should be determined before packing up for delivery. Slabs should be examined again for overall quality while dry-fitting at the job site. Any defective areas in the slab must be reported to IceStone, LLC immediately with panel ID number, color, shipment date, nonconformity details and digital photos. IceStone, LLC will not reimburse for labor or material when defective slabs are cut and installed without adequate inspection.

After installation, please have the customer inspect the job to ensure satisfaction. Provide the customer with the most recent IceStone Care and Maintenance Guidelines, which can be obtained by visiting IceStone, LLC's website or by contacting Customer Service.

This manual is published by IceStone, LLC and supersedes all previous manuals. Content is subject to change. For the most recent version of Fabrication Guidelines, please visit IceStone, LLC's website at [www.icestoneusa.com](http://www.icestoneusa.com). IceStone® is a registered trademark of IceStone, LLC of Brooklyn, NY.

# Applications

IceStone durable surfaces have been installed in many beautiful commercial and residential spaces throughout the United States and Canada.

IceStone surfaces can be used as:

- Commercial and residential kitchen countertops
- Bathrooms
- Backsplashes
- Reception areas
- Conference tables
- Cash transaction areas
- Window sills, and more

# Standard Slab Size and Weight

Width x Length	52.5 inches x 96 inches (35 square feet)
Thickness	1.25 inches
Weight	16.3 pounds / square foot

A typical slab is 35 square feet and weighs 570 lbs.



## Technical Specifications and Certifications

Property	Test Standard	IceStone Results
Compressive Strength	ATM C – 109	13,000 psi - 16,000 psi
Flexural Strength	ASTM C – 203	890 psi
Specific Gravity	ASTM C – 97	2.31 g/cm3
Porosity/Absorption	ASTM C – 642	0.18% unseated
Chemical Durability	ASTM C – 1260 for ASR reactivity	0.49% 300 cycles
Freeze Thaw	ASTM C – 666	0.05%
Stain Resistance	ASTM E – 84	yes (when used with recommended sealers)
Fire Rating	ASTM E – 84	class 1(A) flame spread index 0 fuel contribution 0 smoke density index 0
Coefficient of Static Friction	ASTM C – 1028	0.69 polished dry 0.61 polished wet 0.71 honed dry 0.62 honed wet 0.85 sandblasted dry 0.77 sandblasted wet
Food Equipment Materials	NSF – 51	certified
Environmental & Human Health, Recyclability	Cradle to Cradle GOLD Level B Corporation	certified



## **Dust Inhalation Exposure**

To minimize dust concentrations in breathing zones, IceStone, LLC requires using either wet diamond tools or water jets when cutting and polishing IceStone slabs, as well as proper local ventilation and collection equipment. Fine particles that may be generated while fabricating IceStone surfaces with wet diamond tools or water jets fall within the category of nuisance dusts. If the use of wet diamond tools or water jets and ventilation measures are inadequate to keep dust levels below specified limits, wear a properly fitted particulate respirator approved by National Institute for Occupational Safety and Health. Please review IceStone's Material Safety Data Sheet for more safety information.

## **Certified Fabricator & Warranty Program**

IceStone, LLC offers free training to fabricators to become Certified. Certified Fabricators benefit from exclusive discounts, additional training, and their installations are eligible for IceStone, LLC's warranty. To become a Certified Fabricator, please visit our website or contact Customer Service. Certified Fabricators must follow all procedures listed in the most recent version of the IceStone Fabrication Guidelines and Care & Maintenance Guidelines.

Installations by Certified Fabricators are eligible for IceStone, LLC's Commercial 5-Year and Residential 10-Year Limited Warranties. The home or building owner must register their installation on IceStone's website within 30 days of installation.

## Proper Handling & Inventory Storage

IceStone slabs weigh approximately 570 lbs, and a full crate of twelve slabs can weigh as much as 7,100 lbs including the A-frame crate. Be sure your forklifts can handle this weight before you move any crates or material.

### SLAB STORAGE PROCEDURE

A thorough material inspection is recommended before securely storing IceStone slabs; please inspect your delivery upon receipt and submit any damage claims within 5 business days.



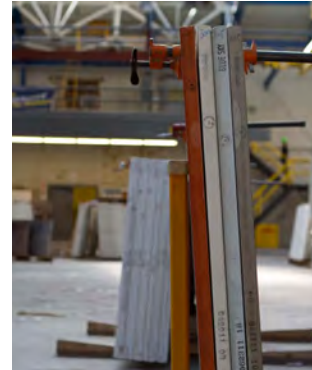
1. Unload delivery crate from the flat bed or LTL box truck using a forklift. Always move crates with a forklift. Do not push, pull or drag crates. IceStone crates are for delivery purpose only. Do not store IceStone slabs on delivery crates.
2. Move crates to designated indoor area for slab inspection and relocation to pipe racks or A-Frames.
3. Follow IceStone's procedure for opening small and large crates (pages 12 to 13).



4. Place the first slab on the pipe rack or A-Frame with the polished face against the frame or rack.
5. Place the second slab with the polished face facing out (the back of the second slab should be against the back of the first slab).



6. Place the third slab with the polished face against the polished face of the second slab. The unpolished face of the third slab will face out. Ensure that the bottom edges of slabs are touching. Unload all the slabs following this procedure.



7. When stored on pipe racks, slab should not be vertical; instead, position the slab at an approximately 20 degree angle from vertical position.

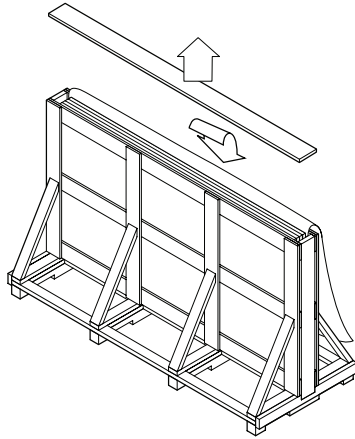


8. After unloading, inspection and relocation, begin clamping process.
9. Use two bar clamps spaced 24" from top right hand and top left hand edges of the slab. Tighten the clamps to first resistance. Do not overtighten.
10. Use two bar clamps spaced 24" from bottom right hand and bottom left hand edges of the same slab. Tighten to first resistance. Do not overtighten.

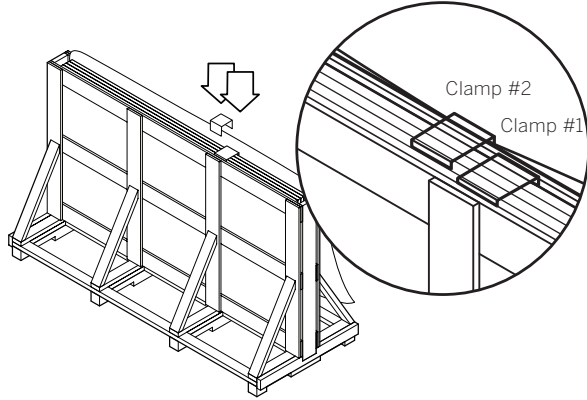


11. When adding or removing slabs from inventory, always follow the above procedure.

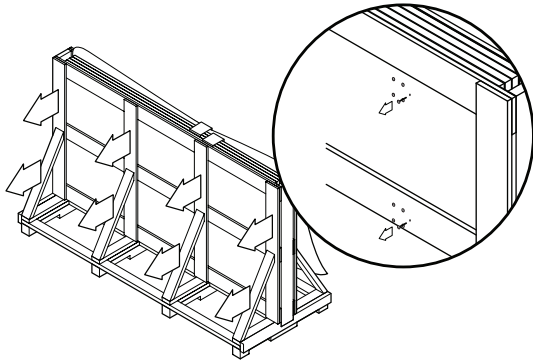
## UNLOADING A SMALL CRATE



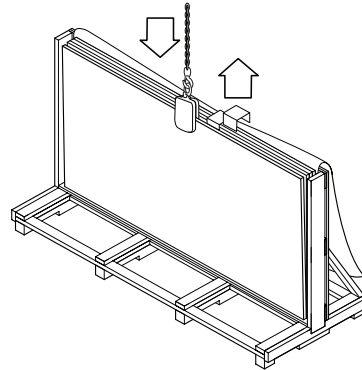
1. Unscrew and remove top plank.
2. Pull up flap of Tyvek protective wrap and drape over back side.



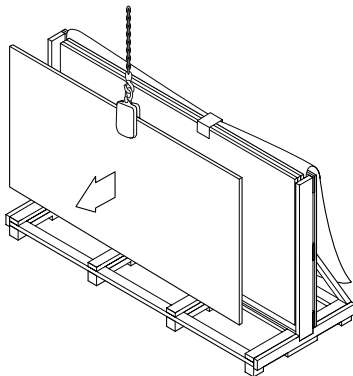
3. Attach first clamp around all slabs.
4. Attach second clamp around side of crate and all slabs except slab to be unloaded.



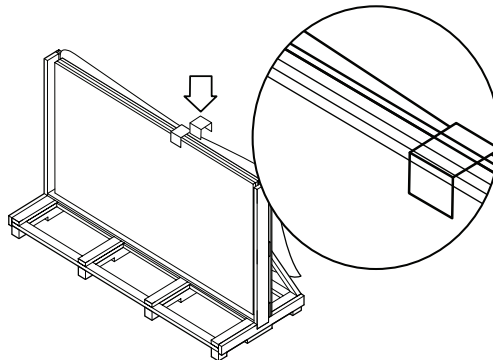
5. Unscrew and remove supports and gate from one side of crate. **To remove gate, use specially marked screws.**



6. Lower clamp around slab and engage.
7. Remove first clamp exposing slab to be removed.



8. Carefully lift slab.



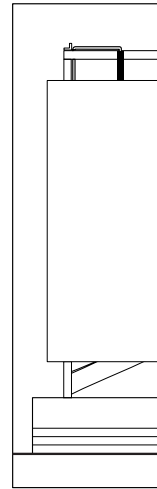
9. To remove more slabs, attach clamp around side of crate and all slabs except slab to be unloaded. Repeat steps 6-9.



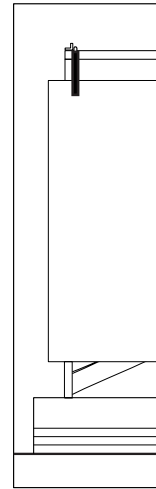
## UNLOADING A LARGE CRATE



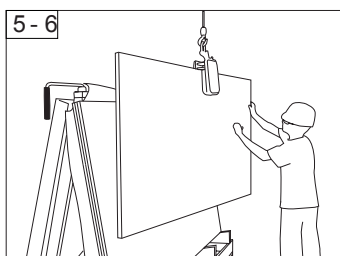
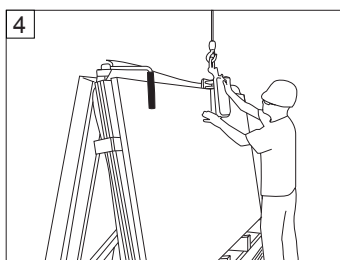
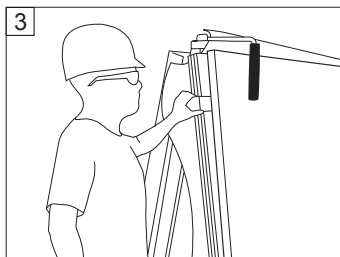
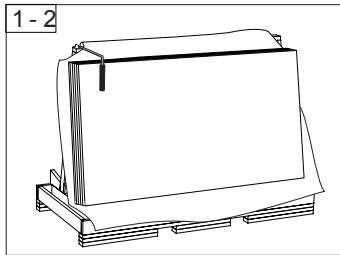
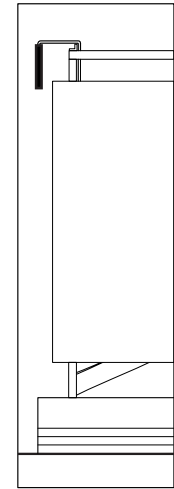
Transit Position



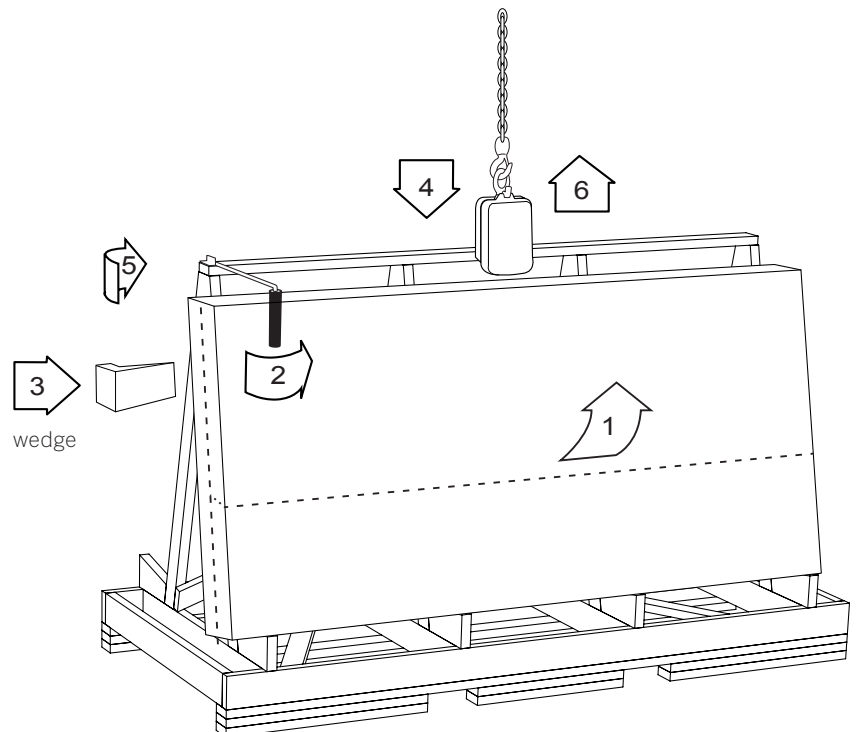
Active Position



Inactive Position



1. Fold back the protective Tyvek wrap
2. Rotate safety bar from transit to active position
3. Push a wedge in between the slabs to create a space for the clamp
4. Position the clamp at center of slab and engage clamp switch
5. Rotate safety bar to inactive position (use caution around slab)
6. Lift slab
7. Repeat steps 2-6 to unload the rest of the slabs



## Loading Loose Slabs

Slabs that are not in a crate can be loaded onto:

- A metal A-frame that is mechanically secured to the flatbed of a truck,
- A metal or wooden A-frame secured to the bed of a pickup truck, or
- A portable A-frame that can be removed from a box truck, loaded, and then placed back in the box truck and secured

In all of these cases, at least two vertical straps are required to secure the slabs to the A-frame. IceStone will not load loose slabs onto a box truck that does not have a removable A-frame, as the height of box trucks prevents loading with a boom or overhead crane. Whether a truck, A-frame, or strap meet the requirements for carrying and/or transporting our slabs is completely at the discretion of IceStone, LLC.



1. At least two people must guide the slab to the designated truck. If the slab is being moved with an overhead crane, one worker should be operating the crane, while the other steadies the slab as to reduce extraneous movements which could result in cracking. If the slab is being moved via a boom, one worker should operate the forklift, while the other worker steadies the slab.
2. When maneuvering the slab onto the truck, at least one worker must help the driver rest the slab on the A-frame or backer slab in order to make sure the slab remains level throughout the process.



3. Once the slab is on the truck, the driver should secure the slab using at least two vertical straps to help evenly distribute the pressure along the slab. Tighten the straps just enough to restrict movement of the slab during transportation. Any excess tightening may lead to cracks.



4. Add padding where the strap meets the slab at the top and at the bottom. The padding will reduce the tension on the slab during transit.



5. This picture illustrates an IceStone slab on a A-frame secured to the truck against a backer slab. Slabs should be loaded face to face, back to back. All loose slabs of IceStone must be loaded on a A-frame that is secured to a truck. While backer slabs are not mandatory, it does offer more protection than a slab being flush against a metal or wooden A-frame.

## Indoor Storage Only

IceStone slabs need to be stored indoors. We do not recommend outdoor storage as acidic rainfall will etch the material, even if the slabs were covered with tarp. The slab shown in **FIGURE 1** were stored outside, and damaged by acidic rainfall condensation under a tarp.



**FIGURE 1**

Example of a slab that was etched from condensation

## Transportation

### VEHICLE LOADS

It is the responsibility of the driver to ensure that the load is within the legal carrying capacity of the vehicle. Allow approximately 570 lbs per IceStone slab, plus the weight of any other items already loaded on the vehicle.

### SECURING THE LOAD

It is the responsibility of the driver to ensure that the load is fully supported and safely secured to the vehicle prior to leaving our premises. IceStone, LLC will not secure the load to your vehicle. All transporting A-frames must be secured to the truck. IceStone reserves the right to refuse loading material on truck in which A-frames are not secured to the bed of the truck.







# SECTION 2

## FABRICATION INSTRUCTIONS

### Fabrication Tools & Safety Equipment

Below is a list of critical tools and safety equipment needed to fabricate IceStone efficiently and safely.

#### BASIC TOOLS

---

- |  |  |
|--|--|
| • Bridge Saw   | • Stone (pony) Clamps                        |
| • Electric/Pneumatic Polisher (variable speed preferred) | • Fabrication Stands                         |
| • Diamond Grinding Wheel                                 | • Air Compressor                             |
| • Diamond Polishing Pads                                 | • Seaming Clamps                             |
| • Grinding Stone   | • Water Source                               |
| • Core Bits  | • Reinforcing Rods and Adhesives             |
| • Diamond Contour Blade                                  | • Forklift Truck with Boom and Lifting Clamp |
| • Wet Profiling Machine (edge router)                    |  |
| • Stone Carts/Dollies                                    |  |
| • A-Frame Storage Racks                                  |  |

#### ADVANCED TOOLS

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- Water Jet
- CNC
- Automated Profiler
- Diamond Jig Saw
- Radial Arm Polisher

#### BASIC SAFETY EQUIPMENT

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- First-Aid Kit
- Safety Glasses
- Steel-Toe Footwear
- Respiratory Protection
- Work Gloves
- Aprons
- Ear Plugs
- Face Masks

When machining IceStone slabs on CNCs, take the following precautions to reduce the possibility of discoloration:

- Remove pieces as soon as they are completed
- Avoid leaving vacuum pods engaged overnight or for prolonged periods of time
- Clean vacuum pods routinely
- Replace worn or deteriorating vacuum pods

## Marble Institute of America Standards

IceStone LLC recommends following the Fabrication and Installation Guidelines of the Marble Institute of America (<http://www.marble-institute.com>) and the Concrete Countertop Institute (<http://www.concretecountertopinstitute.com>) as applicable to quarried stone. Traditional stone fabrication equipment, such as CNC machines, bridge saws, routers, and polishers (with diamond pads and bits) should be used with water. A variety of fabrication machinery is used in every shop, so it is important to explore tooling and fabrication techniques to identify the best practices for your shop's equipment. For best results, IceStone, LLC recommends using high quality diamond blades and tooling suitable for use with hard granite.

## Color Matching, Batch Numbering, and Slab Identification

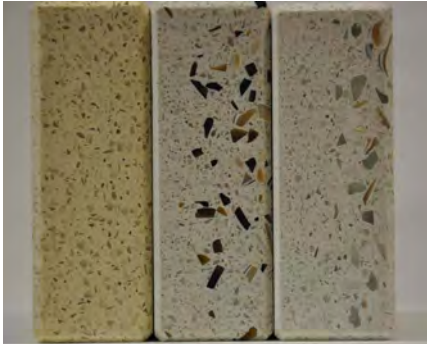
### VISUAL SLAB INSPECTION

IceStone slabs must be inspected upon receipt. IceStone behaves like quarried stone, not engineered stone, so there could be some cracked corners when the slab arrives. The fabricator is responsible for determining if the slabs are fit for use. If the slab is defective, the fabricator must submit a Material Damage Claim within five business days of receipt. Contact Customer Service for the Material Damage Claim form. Claims submitted after five days may not be honored. If your slab is defective, do not cut or modify slabs in any way before exchanging the material with IceStone, LLC. Once a slab has been cut and/or installed, it can no longer be returned to IceStone, LLC for credit or refund.

A visual inspection for imperfections and color matching is essential when working with IceStone surfaces and should be standard practice before cutting. Inspect in lighting conditions similar to those at the installation site. Use the following as a checklist during inspection:

- Cracks
- Slab-to-slab color match
- Color inconsistency within the slab
- Warping/bowing
- Consistent gloss levels
- Glass segregation on the edges (see **FIGURE 2**)
- Lighting conditions are similar to those at the installation site





**FIGURE 2**

Example of acceptable glass segregation on the left and unacceptable glass segregation on the right.

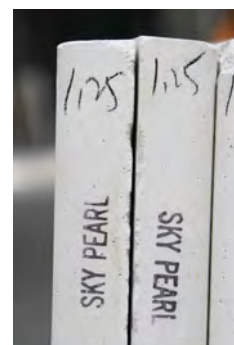
### **COLOR MATCHING**

Due to the unique nature of recycled glass, no two IceStone slabs are exactly alike, and will exhibit variations in color, shade, glass size and glass particle distribution. These variations are not structural, and are part of the inherent character and beauty of the material.

Before fabricating, always visually inspect slabs to ensure that an acceptable color match is achieved. When inspecting slabs for color, use similar lighting conditions as will be found at the job site. Slabs that are being seamed together must be from the same batch date.

### **BATCH NUMBERING AND SLAB IDENTIFICATION**

The batch number is stamped on the two short sides of each slab. IceStone, LLC refers to the batch number as the “Panel ID”, which is a 8–digit code that represents the date and sequence in which a particular slab was cast. For instance, a panel ID of 041809 42 means that the slab was batched on April 18th, 2009, and the slab was the forty-second made that day. Record Panel IDs for warranty registration and in case issues arise during the transportation, fabrication, installation, and use of the material.



**FIGURE 3**

Each IceStone slab has a Panel ID number, circular quality control inspection stamp, color name, thickness measurement (1.25" or 3cm), and Made in USA stamp

## Removing Bow From Warped Slabs via Rewetting

Bowing occurs when an IceStone slab becomes warped or curved from improper storage and is no longer flat. Bowing can occur when the slab is not clamped properly. Measure bow by using a 96" straight edge and a caliper. Hold the straight edge steady along the top of the backside (unpolished face) of the slab. Measure the bow along the top of the slab, at the midpoint of the long side (see **FIGURE 4**).



**FIGURE 4**

Use a caliper to properly measure slabs for bowing

Slabs that have bowed beyond the acceptable level of 3.0mm (on the length of the slab) need to be removed from the inventory and rewetted following the procedure below. After the bow on the slab is eliminated (or reduced to an acceptable level), the slab can be moved back to the inventory and is ready for fabrication.

If a bow is greater than 3.0mm, rewet the slabs by following either of the following procedures:

### **REWETTING OPTION 1:**

1. Place bowed slab on a bridge saw table.
2. Use a hose to continuously saturate the slab with running water for 10 minutes.
3. Leave slab on bridge saw table for one hour.
4. After an hour, measure the bow again. If the slab still measures a bow greater than 3.0mm, repeat above steps.

### **REWETTING OPTION 2:**

1. Place bowed slab on an A-frame against a flat slab of granite, with the unpolished face of the IceStone slab facing out.
2. Use a hose to continuously saturate the slab with running water for 10 minutes.
3. Turn the slab around so that the polished side is facing out, clamp it to another slab of IceStone or granite with C-clamps following our clamping procedures.
4. After an hour, measure the bow again. If the bow is still greater than 3.0mm, repeat the steps in Rewetting Option 2 again.

## Microporosity

IceStone, LLC has developed a patching method that is recommended for any small surface problems like roughness, pinholes or slight discoloration. The patching kit is available by order from IceStone, LLC. If there are large voids in the surface (larger than 2.0mm), follow the Pop outs procedure listed in the next section of these guidelines.

You will need the following materials and tools:

- Patching kit (a color matched cementitious mix)
- Plastic spatula or spoon for stirring
- Metal mixing bowl
- Water
- Grout float
- Clean rag



1. Mix the dry patching kit in the metal bowl to ensure pigments are dispersed evenly.
2. Add 40 grams of clean cold water to the mixture.
3. Stir until the mixture is smooth. The mixture should be thicker than pancake batter but not as thick as creamy peanut butter. Add more water (5 g at a time) if necessary. The less water used, the stronger the concrete will set.
4. Wet the whole surface with a spray bottle of water. Empty half of the mixture in one line in the middle of the IceStone piece. One bag of patching kit makes enough slurry for 2 slabs.
5. With circular motions spread the slurry evenly over the face of the slab with the grout float, making sure the whole surface area is covered.



6. Scrape excess slurry into the mixing bowl. Make sure the patch dries in a consistently thin layer. Areas with too much patch will appear discolored and will require reworking.



7. After the patch has completely dried, wipe off all the dried material from the surface with a clean cotton cloth. The pores should be filled and level.



## Pop Outs

Shellac can be used to fill any large voids over 2.0mm in the IceStone surface. Shellac is most often used to fill in voids if a piece of glass pops out of the IceStone matrix. Contact IceStone to order shellac pieces that match the color of the IceStone surface. To fill pop outs, you will need the following materials:

- Shellac pieces that match the color of the matrix
- Small metal spatula
- Razor blade
- Electric burner or heat gun



1. Heat the metal spatula by resting the blade on the electric burner.
2. Use hot metal spatula to press shellac into the void. If the pop out is particularly large, break off small pieces of shellac so that the cavity is filled. Use the metal spatula to melt more shellac until the void is full. There should be no air bubbles in the filled void.
3. Wait 1 minute until the shellac has cooled and hardened. Use a sharp razor blade to scrape off excess shellac from the surface of the slab. Pop out should be filled, leveled with the rest of the surface and smooth to the touch.
4. If a pop out was not successfully filled, use a razor to remove the shellac from the void and try again.

## Basic Fabrication

Traverse the slab at a slower linear speed (see **FIGURE 5**), as higher feed rates will result in excessive edge or glass chipping.



**FIGURE 5**

Run blades and tooling at a high RPM and flood slab with water at all times.

When routing IceStone sink openings or edge profiles, avoid segmented bits, as they will increase the risk of chipping (see **FIGURE 6**).



**FIGURE 6**

Routing IceStone sink openings

## HAZING

During the fabrication process, dirty slurry may dry on the surface of the slab causing a visual haze. To avoid the effects of hazing, flush the surface often during fabrication. This haze can also be removed after fabrication using a non-scratch Scotch-Brite pad. Pre-sealing slabs prior to fabrication will also prevent hazing.

## Cutouts and Reinforcing Rod Supports

IceStone, LLC requires that all rough and finished openings be supported with reinforcing rods at both the front and back bridges to span a minimum of 6.0 inches beyond either side of the opening. Openings include but are not limited to cook tops, surface mount sinks, under mount sinks, down draft vents, etc.

IceStone, LLC recommends that reinforcing rods be 1/8 inch x 1/2 inch Fiberglass Rodder stock (or approved equivalent) set vertically in a 3/16 inch wide x 5/8 inch deep blade kerf (or space left by the saw blade after cutting) covered in Tenax Micto VOC Free 2 Part Epoxy. IceStone, LLC recommends fiberglass over metal rodding because fiberglass will not oxidize overtime and will physically bond to the adhesive (see **FIGURE 7 AND 8**).



**FIGURE 7**  
Fiberglass rod and roll



**FIGURE 8**  
Saw kerfs for rodding

## Under Counter Sink Mounting Specifications

Stainless steel sink basins designed for under counter application should be mechanically anchored to the underside of the IceStone countertop using 3/8" x 5/8" diameter caulk-in-anchors with 10-24 machine screws (**FIGURE 9**) or with adhesive type hardware (**FIGURE 10**) or with approved equivalent. Heavier cast iron enamel and quartz composite sink basins require built-in cabinet support as per manufacturer's installation instructions and should not be mechanically attached to the IceStone countertop.



**FIGURE 9**  
Undermount sink mounted with mechanical anchors



**FIGURE 10**  
Peel and stick sink mounting clip

All undermount sinks should be adhered to the underside of the countertop using 100% silicone. Do not use solvent –based adhesives or plumbers’ putty; they will stain the IceStone surface.

All sink basins should be installed following manufacturer’s instructions and by using manufacturer’s supplied mounting hardware whenever possible.

Always follow manufacturer’s specifications for sink basin rough opening and fixture drilling diameters and locations. Use manufacturer’s provided templates whenever possible.

All under counter sink bowl cutouts must have the inside edge polished to match the IceStone surface.

### **Soap Dispenser Placement**

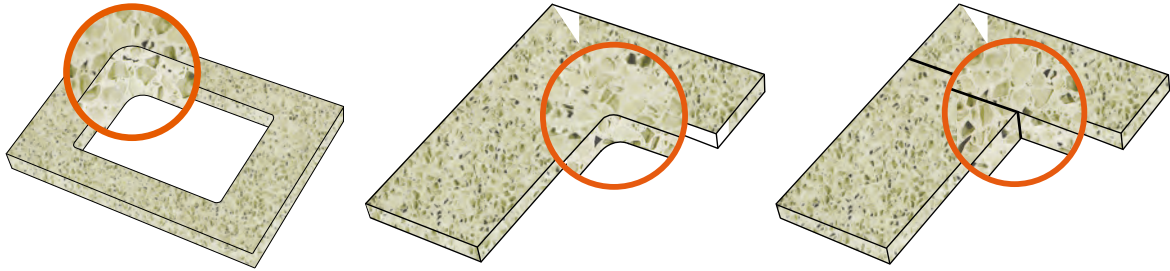
Hand pump soap and lotion dispensers should be placed so that spout drips into sink bowl or basin and not on the countertop. Avoid using swivel dispensers.



**FIGURE 11**  
Soap dispenser should drip  
directly into sink bowl

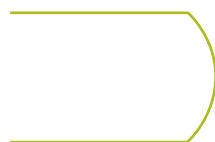
## Radius Corners

IceStone surfaces require radius corners on all cutouts. The inside corners of IceStone cutouts and countertops must be shaped to a minimum of 1/4 inch radius to relieve corner stresses. Mitered or 90 degree corner seams do not need a radius. All outside corners of IceStone surfaces must be tooled to a minimum of 1/8 inch radius.



## Edge Profiles

Always avoid installing IceStone with 90° edges. 90° edges may lead to glass chipping and pop-outs. Edge profiles recommended by the Marble Institute of America are appropriate for IceStone surfaces, including the ones listed below.



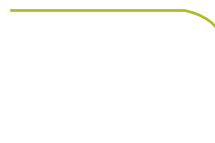
*Radius Edge*



*Half Bullnose Edge*



*Ogee Edge*



*Pencil Edge*



*Full Bullnose Edge*



*Platner Edge*

Glass segregation in some edge profiles may be pronounced. This can be addressed using a full bullnose, radius or platner edge. Ogee and platner edges should be completed by an experienced fabricator.



## Aprons and Built Up Edges

To avoid the visual effect of segregation, IceStone recommends mitering all built up edges. IceStone slabs should not be stack laminated at visible edges. Laminating may create an undesired look if there is glass segregation in the slab edge. The joint should be clean, flush and parallel.



**FIGURE 12**

Example of properly built up edge

## Recommended Edge Polishing Sequence

Edge polishing should be performed with sufficient pressure. Use only polishers that have a speed of 2000rpm or higher, and high quality industrial diamond abrasive polishing pads. Polish using a sequence of increasingly finer pads to achieve a smooth, high quality, high gloss finish: #50, #100, #200, #500, #1000, #2000, #3000 and buffing pad

## Structural Support

### FOUR — SIDED PERIMETER SUPPORT

IceStone surfaces are strong enough that they do not require additional substrate support if a four-sided perimeter frame exists for a countertop installation. However, front-to-back support is required for every 36 inches.

### THREE — SIDED PERIMETER SUPPORT

For structures that have perimeter support on three sides, such as vanity bases, desks and frameless cabinets, additional support is required. Installations with depths less than 26 inches require supports every 24 inches. Installations with depths over 26 inches require supports every 18 inches.

## Dishwasher Support

Dishwashers should not be attached directly to IceStone surfaces. Review the dishwasher manufacturer's specifications for the proper side mounting installation procedure. You can also attach the dishwasher to the cabinets by using a dishwasher mounting bracket.



**FIGURE 13**

Use a dishwasher mounting bracket to attach the dishwasher

## Cantilevers and Overhangs

Cantilevers and overhangs less than 9 inches do not require additional support. Cantilevers larger than 9 inches require additional support at 24 inch intervals. Supports can be korbels, legs, columns or reinforcing rods.

## Installation Overview

IceStone surfaces have a similar structural stability to quarried stone. We recommend the installation guidelines specified in the Marble Institute of America's Dimension Stone Design Manual (<http://www.marble-institute.com>). The recommendations below will offer additional guidance as you install IceStone durable surfaces:

- Use quality transport A-frames
- Always carry IceStone slabs on the vertical edge to avoid flexing
- A minimum of two installers are required for all projects
- Install only on level and plumb base cabinetry
- Never shim in excess of 1/16 inches
- Use 100% silicone caulking (or approved substitute) to adhere countertops to all substrates

To ensure accuracy before installing IceStone durable surfaces, use a template just as you would with quarried stone or engineered quartz products. When templating, use traditional 'stick' templates or digital templating systems to ensure accurate fabrication.

1. Always remove existing surface tops prior to template.
2. Check all walls and base cabinetry to ensure everything is plumb and level. Scribe to the wall when the back edge is not square.
3. Mark all center lines on the template where there will be sink cutouts, cook-top rough openings, fixture drillings or electrical outlets.
4. Note the dimensions from cabinet to cabinet throughout the kitchen.
5. Double check all measurements and markings.
6. When nesting templates prior to cutting DO NOT mark IceStone slabs with ink pens or grease pencils.

## Seaming

In order to achieve a minimally visible seam, IceStone surfaces should be seamed with a color matched two-part polyester, epoxy or acrylic joint adhesive. The adhesive must be pigmented to match the slab being installed. Seams should be no more than 1/16 inch in width. Use seam setters to achieve best results. Tenax Rivo 50 A & B part knife grade epoxy can be tinted to color match with Tenax Tepox Epoxy colors. Tenax Rivo 50 A & B are VOC free.

Prior to installation, make sure that:

- Seams are supported to assure integrity over time. Unsupported seams may buckle or sag.
- IceStone surfaces are properly sealed and waxed.
- Base cabinets are permanently anchored in place and are on a true plane completely leveled across all planes.
- A space of 1/8 inch exists between walls where the slab will be installed and the material (installations require at least 1/16" at each wall for expansion and contraction).
- Surfaces are placed level on top of cabinets or base; shim if necessary to ensure fit.
- Review all safety instructions and warnings before using any seaming products.

IceStone will expand and contract minimally as the concrete adapts to the ambient humidity. To allow for this movement and avoid cracking, always use 100% silicone adhesive to secure the slab to cabinetry or bases. Do not use cementitious grout between IceStone countertops and backsplashes, especially if the backsplash is tile.

## Sealing and Waxing

IceStone, LLC requires that fabricators seal and wax the surface before or at the time of installation. Apply one of these recommended sealers and waxes below according to the manufacturer's instructions. The most up-to-date list of recommended sealers and waxes are always on [www.icestoneusa.com](http://www.icestoneusa.com)

### Recommended Sealers:

- Meta Crème Next Generation Impregnating Sealer
- Miracle 511 H2O Plus
- StoneTech BulletProof Sealer
- Tenax Protex Premium Sealer

### Recommended Waxes:

- CHENG Concrete Countertop Wax
- Goddard's Granite & Marble Liquid Polish

If the surface was ever sealed with a solvent-based sealer, you cannot use a water-based sealer for subsequent applications. If the surface was sealed with a water-based sealer, consistently use a water-based sealer for subsequent applications, or use a solvent-based sealer.

### COMPARISON BETWEEN RECOMMENDED SEALERS

Recommended Sealers	Protex by Tenax	Meta Crème	Miracle 511 H2O Plus	StoneTech BulletProof
Water Based		•	•	•
Solvent Based	•			
Penetrating Sealer	•	•	•	•
Minimal Odor		•	•	•
Low Volatile Organic Compounds		•	•	•
Staining Protec-	•	•	•	•
Etching Protection	none; wax after sealing	none; wax after sealing	none; wax after sealing	none; wax after sealing
Applied by au- thorized applica-		•		
Manufacturer	Tenax/Tenax USA	Dry Treat	Miracle Sealants	Dupont
Telephone	800.341.0432	866.667.5119	626.443.6433	877.786.6383
Website	<a href="http://www.tenaxusa.com">www.tenaxusa.com</a>	<a href="http://www.drytreat.com">www.drytreat.com</a>	<a href="http://www.miraclesealants.com">www.miraclesealants.com</a>	<a href="http://www2.dupont.com">www2.dupont.com</a>

## Surface Repair

### SCRATCHES AND ETCH MARKS

Minor scratches and marks can be buffed out of the surface using a powdered mixture and cotton cloth. Brands of powdered buffing mixture include Dia-Glo or Akemi Liquid Polish. Rub vigorously in small circles until the area is smooth.

Greater damage will require use of a low rpm electric polisher and dry polishing diamond pads. Because the glass in the IceStone surface is harder than the cement, start with the highest abrasive (3000g) and work down (2000g, 1000g) until the damage is gone, then reverse the steps (1000g, 2000g, 3000g) until the marks are gone. Seal and wax after removing the marks.

### STAINS

Use a damp cloth to wet the surface with non-chlorine bleach (we recommend Seventh Generation non-chlorine bleach). Leave the saturated cloth on the surface until stain clears, which can take 15 minutes to 7 hours, depending on the severity of the stain. Check the surface periodically to see whether the surface has been restored to its natural color. After the stain is removed, seal and wax the area that was affected.

If the above method does not remove the stain, make a poultice with DryTreat Hanafinn Oxy-Klenza™ and leave the poultice on the stained area for at least 24 hours. Follow the instructions on DryTreat's website: <http://www.drytreat.com/Products/Cleaning/HANAFINN-Oxy-Klenza>

## Heat Tolerance

IceStone surfaces can withstand incidental heat contact up to 450° F. However, please note that the sealer and wax applied to the surface might not be heat resistant, so hot plates or trivets should be used under pots and pans recently removed from a heat source. Cook top appliances that are surface mounted require adequate insulation to prevent thermal conductivity between the appliances and the IceStone surface. Follow manufacturers instructions regarding insulation for freestanding ranges and ovens. Under-counter ovens should not be installed under IceStone.

### COUNTERTOPS IN COMMERCIAL FOOD SERVICE AREAS

Do not install IceStone surfaces under heat lamps or areas where the surface will be exposed to extended periods of direct heat. Heat trays, heat sinks, soup warmers, etc., should not be installed in IceStone surfaces.







# SECTION 3

## CARE AND MAINTENANCE

IceStone recycled glass and concrete surfaces are a beautiful, unique, and sustainable alternative to quarried stone and petrochemical based engineered surfaces. Each IceStone slab is handcrafted in the heart of New York City. IceStone surfaces can easily be cleaned with a damp cloth and one of our recommended cleaners. Keep the surface dry and immediately wipe up spills, especially of coffee, wine, soda, juice, and oil or vinegar based products.

IceStone surfaces are manufactured without any petrochemicals or resins, making it a healthy choice for interior environments. The surface is very dense, but still porous, so IceStone® surfaces have to be sealed to prevent staining, and waxed to prevent etching. Staining is caused by liquids that have penetrated and discolored the surface. Etching is caused by acidic liquids that have eroded, dulled and discolored the surface. Etching and staining can be removed by following the proper procedures in the Surface Repair section of these guidelines (page 34).

IceStone surfaces are designed with durability in mind. Like all surfaces, IceStone will show signs of everyday wear and tear over time. With common sense care, and regular sealing and waxing, IceStone surfaces will retain their beauty and quality for years to come. This section includes the recommendations and requirements listed in the IceStone Care & Maintenance brochure. Please share these recommendations with your customers.

## **Cleaning IceStone Surfaces**

IceStone® surfaces can easily be cleaned with a damp cloth and one of our recommended cleaners. Keep the surface dry and immediately wipe up spills, especially of coffee, wine, soda, juice, and oil or vinegar based products.

Use cleaning products that are free of chlorine bleach, ammonia, acids or citrus scents. Avoid harsh cleaning products such as Windex, Brillo, Ajax, Spic n' Span and Clorox Greenworks. Instead, use the following cleaning products:

### **RECOMMENDED CLEANERS**

- Seventh Generation All-Purpose Cleaner
- Method All-Purpose Cleaner
- Method Daily Granite Cleaner
- Simple Green Stone Cleaner
- Hanafinn Oxy-Klenza

If the surface was ever sealed with a solvent-based sealer, you cannot use a water-based sealer for subsequent applications. If the surface was sealed with a water-based sealer, consistently use a water-based sealer for subsequent applications, or use a solvent-based sealer. Once a solvent-based sealer has been applied to a product, a water based sealer will not be able to penetrate through to the material.

## **Sealing and Waxing Guidelines**

IceStone, LLC requires that the fabricator seal and wax the surface before or at the time of installation. After installation, the end user should reseal and rewax IceStone surfaces

- if liquids do not bead up on the surface
- after removing a stain
- if it's been six months since the last application

Refer to page 33 for a list of recommended sealers and waxes. Use CHENG Concrete Countertop Polish once a week to maximize the durability of the sealer and wax.

### **TO SEAL AND WAX ICESTONE SURFACES**

1. Pour acetone directly on the surface and wipe it clean and dry with a white cotton cloth.  
The acetone removes any residual sealer, wax and dirt.
2. Apply one of the recommended sealers by following the manufacturer's instructions.
3. Apply one of the recommended waxes by following the manufacturer's instructions.

4. Seal and wax every six months. IceStone must be waxed after every sealing. If the installation is in a high-traffic commercial area, like an office pantry, IceStone, LLC can provide a customized commercial care and maintenance schedule.

## **Caring for IceStone Surfaces**

- Immediately wipe up spills with a damp cloth and water, especially acidic liquids like coffee, wine, fruit juices, and vinegar.
- Use CHENG Concrete Countertop Polish on your surface once a week to maximize the durability of the sealer and wax.
- Use the cleaning products recommended by IceStone LLC (page 38).
- Place a tray under coffee machines and soap dispensers to prevent any drips from staining and etching the surface.
- As with all surfaces, use trivets and cutting boards to help protect the sealer.

To remove stains or etch marks, please refer to the Surface Repair section of these guidelines on page 34.

## **Thank You & Contact Us**

We strive to design surface solutions that won't compromise human or environmental health. To that end, every IceStone slab is free of toxic pigments and harmful carcinogens, and contains just three core ingredients: pigment, cement, and 100% recycled glass. Safe for our employees and safe for our customers.

IceStone, LLC was founded on the belief that manufacturing sustainable, high design products could revitalize and revolutionize American manufacturing and have a positive impact on the environment. IceStone has diverted over 10 million pounds of glass from landfills since 2003, and we thank you for helping us save the world, one countertop at a time.

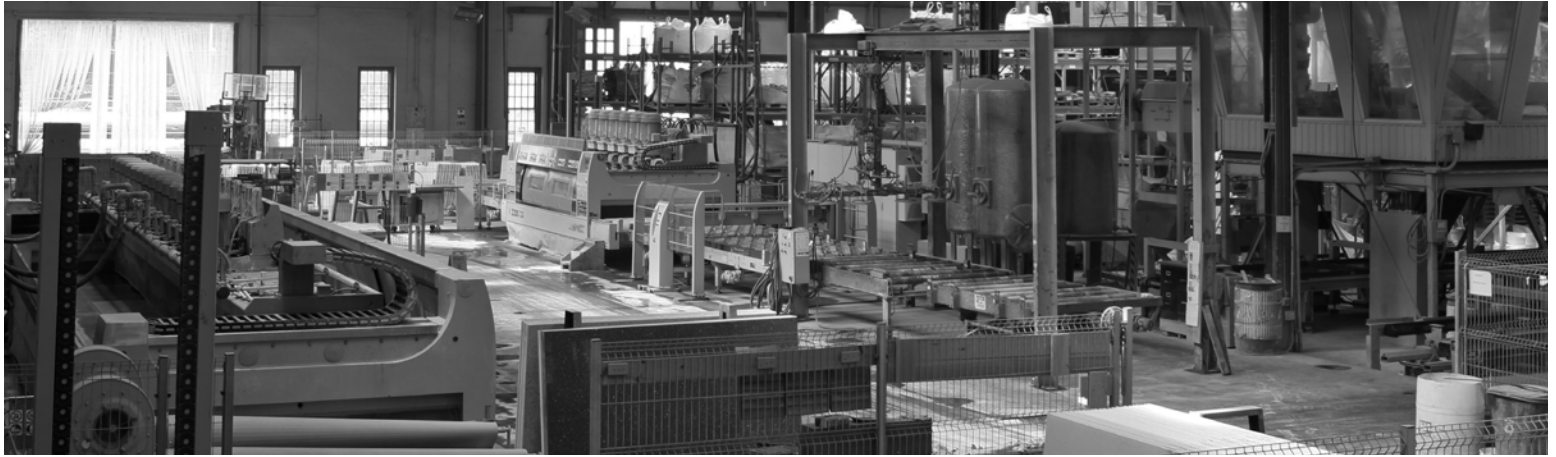
Contact us with questions or suggestions about any part of the fabrication or installation process.

### **IceStone Customer Service**

[customerservice@icestoneusa.com](mailto:customerservice@icestoneusa.com)

718.624.4900 ext. 0





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