

IceStone[®]

DURABLE SURFACES MADE OF RECYCLED GLASS & CONCRETE

Fabrication Guidelines

| | |
|---------------------------------------------------------------------------------------|-----------|
| Introduction to IceStone, LLC and IceStone® Durable Surfaces | 3 |
| Disclaimer | 3 |
| Applications | 4 |
| Standard IceStone Slab Size and Weight | 4 |
| Safety and Protective Wear | 4 |
| Handling and Storage | 4 |
| Removing Bow from Warped Slabs | 5 |
| Fabrication Instructions | 5 |
| Fabrication Tools and Safety Equipment | 5 |
| Marble Institute of America Standards | 5 |
| Color Matching | 6 |
| Visual Slab Inspection | 6 |
| Structural Support | 6 |
| Cutouts and Rod Supports | 7 |
| Radius Corners | 7 |
| Edge Polishing | 7 |
| Recommended Edge Polishing Sequence | 7 |
| Mitered Edges | 7 |
| Sealing | 8 |
| Wax Finish | 12 |
| Installation Overview | 13 |
| Seaming | 13 |
| Additional Instructions for Countertops in Commercial Food Service Areas | 13 |
| Care and Maintenance | 14 |
| Technical Specifications and Certifications | 14 |
| Contact Information | 14 |

Introduction to IceStone, LLC and IceStone® Durable Surfaces

IceStone, LLC is a triple bottom line, mission-driven company. We actively reduce the waste stream by redirecting millions of pounds of glass from landfills for use in our durable surface slabs, made of 100% recycled glass in a cement matrix. Designed to be VOC-free, IceStone is the first and only durable surface material in the world to be Cradle to Cradle Certified (CM) for human health, environmental health, and recyclability. IceStone slabs are manufactured in Brooklyn, New York in a restored day-lit factory.

Disclaimer

IceStone is a surfacing product only sold to fabricators who are bonded and/or licensed and insured in the states they do business. The fabrication and installation of IceStone slabs is similar to mined stone, but has unique requirements that must be followed for optimum performance.

Variation in size, shape, color, gauge, surface texture and finish are inherent to IceStone slabs which are hand made and finished from recycled materials. IceStone, LLC is not responsible for variation between samples or printed materials and slabs received upon delivery. Please make sure that you or your client has reviewed recent samples, which accurately reflect IceStone’s current production. All samples are dated for your convenience.

All slabs must be inspected accordingly upon receipt. Make sure slabs match in color before laying out and cutting, prior to packing for delivery. Slabs should again be examined for overall quality while dry-fitting at the job site. Any defective areas in the slab must be reported to IceStone, LLC immediately with slab 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. Also, please provide the most recent IceStone Care and Maintenance guidelines, which can be obtained by contacting IceStone, LLC.

NOTE: THIS MANUAL IS NOT FOR GENERAL DISTRIBUTION.

This manual is published by IceStone, LLC to enable fabricators to be informed of the recommendations of IceStone, LLC for fabricating countertops from IceStone® slabs and supersedes all previous manuals. Content is subject to change at any time without notice. The use of the term “we” throughout this document refers to IceStone, LLC. IceStone® is a registered trade mark of IceStone, LLC of Brooklyn, NY.

Applications

IceStone is ideal for commercial and residential kitchen countertops, bathroom vanities, backsplashes, bartops, fireplace surrounds, window sills, table tops and flooring, and other interior and exterior applications. IceStone is made with high-performance concrete and is twice the strength of marble. Our fire-resistant surfaces are an environmentally preferable material because they are non-toxic and use recycled content otherwise destined for landfills.

Standard IceStone Slab Size and Weight:

- 52 ½" wide x 96" long
- 1 ¼" thick
- 14.29 lbs/sq ft. weight
- Typical slab weighs 500 lbs.

Safety and Protective Wear

Employers are responsible for providing a safe and healthy workplace for their employees. When fabricating or installing IceStone slabs it is essential to follow OSHA guidelines and the following safety precautions.

Dust Inhalation Exposure

Fine particles that may be generated during certain fabrication operations with IceStone fall within the category of nuisance dusts rather than toxic dusts. The OSHA Permissible Exposure Limit (PEL) for nuisance dust is 5 mg/m³ (respirable fraction) or 15 mg/m³ total dust. (29 CFR 1910.1000, Table Z3). Wet diamond tools or water jets must always be used when cutting and polishing IceStone, as well as proper local ventilation and collection, to minimize dust concentrations in breathing zones of fabrication employees. When the use of wet diamond tools or water jets and ventilation measures are inadequate to keep dust levels below these limits, a properly fitted particulate respirator approved by NIOSH/MSHA for this use should be worn. The American Conference of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV) for Nuisance Particulates of 10 mg/m³. As of September 1987, OSHA has not changed its PEL for either the total or respirable fraction.

Other Safety Guidelines

- Workers should be properly trained and instructed for their particular task.
- Read all instruction manuals, warnings and safety information for all equipment and tools used during the fabrication or installation of IceStone before operating such equipment and tools. Learn the tool's applications and limitations as well as the specific hazards peculiar to it.
- Follow a respiratory protection program and provide workers with a written hazard communication program and training.
- Blades and tools must be sharp and well-maintained to avoid accidents.
- Avoid dry cutting and dry sweeping when fabricating IceStone slabs.
- Waste must be stored, handled, recycled and/or disposed of safely and legally.
- Wear an approved face mask when fabricating IceStone.
- Wear approved eye, hand and foot protection when fabricating IceStone.

Handling and Storage

- Slabs must be inspected prior to lifting. Slabs may receive damage from transport and caution is always required when moving slabs.
- Slabs must be moved using one of the following means: overhead cranes, forklifts, stone transport carts and stone dollies. The slabs weigh approximately 500 lbs, and a pack of twelve (12) can weigh as much as 6,500 lbs including crate.
- Slabs must be stored vertically on a rack system or on A-frames, stacked face to face and back to back.

- Slabs must be clamped while stored to prevent bowing, maintain integrity of the slab and provide a safe working environment. We recommend using four clamp points for each stack of slabs.
- Slabs must be stored in a covered area or covered with a tarp to protect the unsealed material from the elements such as rain, snow, or drastic temperature changes.

NOTE: IceStone is a cement based material that may continue to cure and bow if not properly clamped while stored. It is recommended that all slabs be secured during storage to maintain integrity of the slab as well as a safe working environment.

Removing Bow from Warped Slabs

The bow of an IceStone slab cannot exceed 1.5mm. Slabs undergo a series of quality control measures before being shipped from the factory. Occasionally, however, slabs may bow if stored improperly. In such cases please contact IceStone, LLC for directions on removing bow from slabs.

FABRICATION INSTRUCTIONS

Fabrication Tools and Safety Equipment

Below is a list of critical and highly desired tools and safety equipment that fabricators must have to produce a quality finished product safely and efficiently.

Basic Tools

- Bridge saw
- Electric/pneumatic polisher (variable speed preferred)
- Diamond grinding wheel
- Diamond polishing pads
- Grinding stone
- Core bits
- Diamond contour blade
- Wet profiling machine (edge router)
- Stone carts/dollies
- A-Frame/storage racks
- Stone (pony) clamps
- Fabrication stands
- Air compressor
- Seaming clamps
- Water source

Advanced Tools

- Water jet
- CNC
- Automated profiler
- Diamond jig saw

Basic Safety Equipment

- First-Aid kit
- Safety glasses
- Steel-toe footwear
- Respiratory protection
- Work gloves
- Aprons
- Ear plugs
- Face masks

Marble Institute of America Standards

Generally, IceStone, LLC recommends following the *Fabrication and Installation Guidelines* of the Marble Institute of America (MIA) (<http://www.marble-institute.com>), as applicable to mined stone. Traditional stone fabrication equipment, such as CNC machines, bridge saws, routers, and polishers (with diamond pads and bits) should be used with water. For best results, we recommend using a marble blade with a continuous rim (smooth cut) for cutting. Spin the blade at a high revolution per minute (rpm) and move it across the IceStone panel at a slower linear speed. Avoid using higher linear speeds, which may result in chipped glass.

Color Matching

Due to the unique nature of recycled glass, no two IceStone slabs are exactly alike. While we strive to manufacture as consistent a product as possible, IceStone panels will nevertheless exhibit variations in color, shade and glass size and glass particle distribution. This is part of the inherent character and beauty of the material. These variations are not structural; however, consideration should be given when planning the layout. Taking care to match glass distribution and color at seams will yield the best results.

As glass variations are greater between batches, materials throughout an installation should be from the same batch and should bear labels with the same batch number to improve color consistency. Visually inspect materials to be used for adjacent pieces to assure an acceptable color match. Inspect in lighting conditions similar to those at the installation site.

Visual Slab Inspection

Performing a visual inspection for imperfections or color matching is essential when working with IceStone and should be a standard practice before cutting. Use the following as a checklist to visually inspect for defects:

- Hairline cracks
- Sheet-to-sheet color match
- Color inconsistency within the slab
- Glass pattern irregularity
- Warping/bowing (check length warp using a full-length straight edge when the slab is placed horizontally)
- Irregular spots
- Consistent gloss levels
- Face side pits/voids/knicks

NOTE: We will not accept claims for any of the above defects if the slab is modified in any way. The fabricator is responsible for determining if the slabs are fit for purpose. If they are not, they should be exchanged before the slabs are cut or modified in any way. Once a slab has been cut and/or installed, it can no longer be returned to IceStone, LLC.

Structural Support

IceStone is strong enough that it does not require a substrate if a perimeter frame exist for a countertop installation. However, front-to-back support is required for every 36 inches (90 cm), in addition to the strong perimeter support for spans within cabinets. We recommend using rods, sub-tops and other supports for additional reinforcement in unsupported spans, cantilevered overhangs, seams, sink cutouts, or for small strips or “stringers” used when there is an insufficient cabinet depth at the cutout.

For structures that have support on three sides, such as dishwashers, desks, and frameless cabinets, and depths less than 26 inches (66 cm), additional support is required when lengths exceed 36 inches (90 cm). When depths are over 26 inches (66 cm), additional support is required at lengths greater than 24 inches (60 cm).

For cantilevers of 9 to 12 inches, evenly space corbels every 24 inches from the left to the right of the slab. Cantilevers greater than 12 inches require evenly spaced legs or columns every 24 inches from the left to the right of the slab. Steel rods can be used for overhang supports.

Cutouts and Rod Supports

Any sinks, faucets, cook tops or other items requiring cutouts must be available for measurement or the manufacturer's templates must be supplied. Round steel rods will strengthen IceStone in load in deflection. For extra reinforcement, use round rods with fiberglass to the bottom face. The rods will increase the materials' ability to withstand load and increase deflection over the non-reinforced area. Secure the rods with epoxy or polyester resin (epoxy preferred but not required) to the bottom face of IceStone countertops along both sides where cutouts are required.

- Support cutouts on all sides within 3" of the edge.
- The MIA recommends that you insert threaded round steel rods into cutouts (stainless preferred but not required). Secure the rods with epoxy or polyester resin (epoxy preferred but not required) in the bottom face of countertops along both sides where cutouts are required.
- Under mount sinks can be supported with brackets or cradles attached to the perimeter or cabinet.
- All under mount sink cutouts must have the inside edges polished to match the surface.
- All under mount sinks should be sealed to the countertop using 100% silicone.
- Stainless steel sinks and lavatory under mounts must be secured with clips attached to the underside of the counter. Slip fit and glue inserts are required, pressure fit inserts cannot be used. Mechanical inserts should not be installed directly into IceStone.

Radius Corners

We strongly recommend radius corners on all cutouts. A corner will be more secure as the radius is increased.

- All outside corners of IceStone tops must be machined at a minimum radius of 1/8".
- The inside corner radius of IceStone must be shaped to a minimum of 1/4" to relieve the corner stress. Mitered or corner seams do not need a radius.

Edge Polishing

Always avoid installing IceStone with straight edges, as this may lead to glass chipping and pop-outs. Break all the top and bottom edges of straight edge profiles of IceStone. We strongly recommend using the following edges finishes:

- Bullnose
- Pencil
- Eased

Recommended Edge Polishing Sequence

Edge polishing should be performed with sufficient pressure, using polishers that have a high rpm (>2000). We suggest the following sequence of increasingly finer pads to achieve a smooth, high gloss finish: #120, #220, #360, #600, #1200, #1800, buffing pad.

Mitered Edges

Mitered edges should be done at a 45° angle to ensure maximum strength. The joint should be clean, flush and parallel. All built up edges and 45° joints, such as backsplashes, must be mitered. IceStone should not be laminated at the edges.

SEALING

You must seal IceStone to protect it from staining. For countertop applications, we strongly advise sealing IceStone materials prior to installation and reduce the release of fumes at the client site. For flooring application, you may seal IceStone before or after installation. Honed finishes require a second coat of sealant due to the greater exposed surface area.

Recommended Sealers for IceStone:

1. Enrich N Seal by Aquamix
2. Cementone Clear Sealer by Scofield
3. Buddy Rhodes Penetrating and Topical Sealer
4. AFM Safecoat's 2 part urethane
5. LS Guard by Prosoco (FLOORING ONLY – NOT FOOD GRADE)

REVIEW AND OBEY ANY INSTRUCTIONS, WARNINGS AND SAFETY INFORMATION PROVIDED WITH ANY SEALANT PRODUCT USED WITH ICESTONE PRIOR TO ITS USE.

1. Enrich N Seal

What: Water based penetrating sealer

Where to buy: Lowes, Home Depot, hardware stores or http://www.aquamix.com/where_to_buy/ or call 1-877-278-2311.

Re-application recommendations: The expected wear is up to 15 years. Exterior applications may require more frequent reapplications. Weather conditions, harsh cleaning methods, and high-alkaline, acidic, or solvent-based cleaners will affect wear.

Storage and Shelf Life: Close container tightly after each use. Store in original container only. Store and use between temperatures of 40 °F and 90 °F (4 °C and 32 °C). Unused, stored product is freeze-thaw stable. Dispose of residue or any unused leftover product in accordance with applicable federal, state, and local requirements.

How to apply:

Manufacturer's guidelines: [http://www.aquamix.com/media/uploads/EnrichNSeal\(2\).pdf](http://www.aquamix.com/media/uploads/EnrichNSeal(2).pdf)

1. Surface must be clean, dry and free of existing sealers or coatings.
2. The sealer should be applied in a room that is between 40 to 90 degrees Fahrenheit with good ventilation.
3. Apply using a sponge, brush, paint pad, or cotton towel. Pour the sealer directly onto the surface using one tablespoon per square foot. Spread the sealer evenly across the surface. Continue brushing or sponging the surface for a few minutes to make sure the sealer penetrates the surface.
4. The surface will absorb as much of the sealer as it can, after five minutes wipe off any sealer that does not penetrate the surface using absorbent cotton towels. Wipe the surface in circular motions, pressing firmly, till there are no streaks.
5. For extra protection in heavy use areas, 2 or more coats can be applied. Allow a minimum of 30 minutes drying time between coats.
6. The surface will be ready for surface traffic in 12 hours after final coat.
7. Keep dry for 12 hours. Achieves full cure in 48 hours.
8. Clean applicator tools with mineral spirits after each use.

2. Cementone Clear Sealer

What: Acrylic emulsion

Where to buy: Scofield is the manufacturer of Cementone Clear Sealer. www.scofield.com or call 1-800-800-9900.

Re-application recommendations: Cementone Clear Sealer should be applied again if water no longer beads up on the surface or if staining begins to be a problem. The need for maintenance re-applications will be accelerated in areas of heavy use on areas that receive frequent or aggressive cleaning. It is not necessary to strip the previously applied sealer unless film buildup is heavy or the surface cannot be cleaned sufficiently. Re-apply the sealer using the instructions below.

Storage and Shelf Life: Close container tightly after each use. Store in original container only. Store and use between temperatures of 40 °F and 90 °F (4 °C and 32 °C). Dispose of residue or any unused leftover product in accordance with applicable federal, state, and local requirements. When stored indoors in the original factory sealed containers and protected from freezing and extreme heat, the shelf life of CEMENTONE Clear Sealer is at least 1 year from the date of purchase. Some separation occurs during storage that will be easily reincorporated when stirred before using.

How to apply:

Manufacturer's guidelines: http://www.scofield.com/techdata_cementone.html

1. Surface must be clean, dry and free of existing sealers or coatings. Cover areas and near by objects that should not be sealed.
2. The sealer should be applied in a room that is between 50 to 90 degrees Fahrenheit with good ventilation.
3. Apply a thin coat using a clean and dry synthetic, natural or foam brush. Make sure the brush is not wet. Pour one TEASPOON of sealer per square foot directly on to the surface. Apply the sealer evenly and smoothly to assure the surface is coated consistently.
4. The sealer will show a little bit of brush strokes after it has been applied-Leave it BE! The sealer needs to dry from a liquid to a solid...if it is disturbed as it dries the surface will be bumpy and the sealer will not evenly coat the surface which will leave it susceptible to staining.
5. IceStone recommends applying a second coat because acidic substances like coffee and wine can still stain the surface if only one coat is applied. The second coat may be applied after the first coat is tack-free, normally from 2–24 hours after application of the first coat depending on temperature and humidity.
6. The surface will be ready for surface traffic in 12 hours after final coat.
7. Keep dry for 12 hours. Achieves full cure in 48 hours.
8. Clean applicator tools with soap and water after use.
9. Store the product at a temperature between 45 and 100 degrees Fahrenheit. Keep from freezing.

Manufacturers Warning: If applied improperly or too heavily, the surface may whiten, peel, or become slippery. **SCOFIELD PRODUCTS ARE INTENDED FOR PROFESSIONAL USE ONLY.**

3. Buddy Rhodes Natural Look Sealer and Satin Sealer

What: Natural Look is a water based penetrating sealer. Satin is a water based food grade acrylic sealer used as a topical sealer.

Where to buy: www.buddyrhodes.com or call **1-877-706-5303** to find a distributor near you.

Re-application recommendations: Re seal the surface when water no longer beads up on the surface or when staining becomes a problem. The need for maintenance re-applications will be accelerated in areas of heavy use on areas that receive frequent or aggressive cleaning. It is not necessary to strip the previously applied sealer unless film buildup is heavy or the surface cannot be cleaned sufficiently. Re-apply the sealer using the using the instructions below.

Storage and Shelf Life: Close container tightly after each use. Store in original container only. Store and use between temperatures of 40 °F and 90 °F (4 °C and 32 °C). Dispose of residue or any unused leftover product in accordance with applicable federal, state, and local requirements. When stored indoors in the original factory sealed containers and protected from freezing and extreme heat, the shelf life of Buddy Rhodes is at least 1 year from the date of purchase.

How to Apply:

Manufacturer's Guidelines: http://www.buddyrhodes.com/prod_sealers.html

Step I: Apply Buddy Rhodes Natural Look Penetrating Sealer

1. Surface must be completely clean and dry to the touch before use.
2. The surface temperature must be between 50 and 90 degrees F with good ventilation.
3. Cover surrounding areas that are not intended to be sealed.
4. Apply one even coat of Buddy Rhodes "Natural look" penetrating sealer with a sponge, spray bottle or soft paint roller brush. Wipe down with a clean cloth after 5 minutes. When the surface is not tacky to the touch, usually within 3-10 minutes, apply second coat.

Step II: Apply Buddy Rhodes Satin Topical Sealer

1. Apply Buddy Rhodes "Satin Sealer" after the natural look sealer is dry to the touch but within one hour. The satin sealer will not be as effective if it is applied after the Natural Look sealer dries completely.
2. Using a clean four inch brush or a cotton rag apply a thin, even coat of Buddy Rhodes "satin sealer" to the IceStone surface. You may pour the sealer onto the surface and spread it evenly using the brush or rag.
3. Use approximately a teaspoon of sealer per square foot of counter. Work quickly and steadily with a soft cotton rag. Continue to rub with the rag while the sealer dries for 3 minutes until the sealer is almost invisible on the surface. Hand buff any remaining brush strokes with a rag.
4. Wait 24 - 48 hours prior to using the surface.

4. AFM Safecoat 2 Part Urethane Sealer

What: Water-based two part urethane

Where to buy: Call Safe Building Solutions at 1- 800-697-5371 or 262-968-5147 or email info@safebuildingsolutions.com They can also be found on the web at <http://www.safebuildingsolutions.com/>.

Availability: Safe Building Solutions will only sell to professionals and fabricators because of the difficulty of applying the material.

Re-application recommendations: Re-application is only necessary if continual abrasion occurs. If the surface feels worn down and rough, then the sealer should be re-applied by cleaning the surface and applying a thin coat using the application instructions found below.

How to apply:

1. Surface must be clean, dry and free of existing sealers or coatings. Cover areas and near by objects that should not be sealed.
2. The sealer should be applied in a room that is between 40 to 90 degrees Fahrenheit with good ventilation.
3. Pour Part B into the container of Part A. Stir with a paint stick.
4. Add water till the container is full.
5. Apply a thin coat using a clean synthetic, natural or foam brush. Make sure the brush is not wet. Pour one teaspoon of sealer per square foot directly on to the surface. Brush the sealer on smoothly and evenly to get a consistent coat. The sealer dries very fast; the more it is moved around with a brush the more likely it is to show brush strokes.
6. A second coat is recommended. Wait 30 minutes in between coats.
7. If bumpiness or streaks dry on the surface use fine sandpaper with grit over 200. Use a soft buffing wheel to even out any remaining streaks.
8. The surface will be ready for surface traffic in 12 hours after final coat.
9. Keep dry for 12 hours. Achieves full cure in 48 hours.
10. Store the product at a temperature between 45 and 100 degrees Fahrenheit. Keep from freezing. Once the product is opened it will only last one week. Factory sealed containers have a shelf life of one year.

5. LS Guard

For use on: Flooring. This product contains a non-food grade acrylic; it should not be used on countertops.

Where to buy: www.prosoco.com or call 1-800-255-4255.

Re-application recommendations: Re-application is only necessary if continual abrasion occurs. If the surface feels worn down and rough or if water no longer beads up on the surface than the sealer should be re-applied by cleaning the surface and applying a thin coat using the directions below.

Storage and Shelf Life: store in a cool dry place between 45 to 100 degrees Fahrenheit (10-32 degrees Celsius). Always seal container after dispensing. Shelf life is one year in factory sealed container. Dispose of residue or any unused leftover product in accordance with applicable federal, state, and local requirements.

How to apply:

Manufacturer's Guidelines: <http://www.prosoco.com/ProductDetail.asp?ID={312A262C-A9F1-4E19-9EDB-48E4BD9D4EE9}>

1. Surface must be clean, dry and free of existing sealers or coatings.
2. Make sure to have cross ventilation and fresh air entry during application and drying.
3. The sealer should be applied in a room that is between 40 to 90 degrees Fahrenheit.
4. The sealer can be applied using a micro-fiber pad (available at hardware stores or Grainger) or a brush. If you choose to use a micro-fiber pad you will need to put on 2 coats, because the micro-fiber pad applies thinner coats than a brush. If you use a brush you only need 1 coat. You can use a natural, synthetic or foam 4 or 6 inch brush. Make sure your brush is dry and clean. The goal is to get a 4-5 millimeter coat.
5. Pour one tablespoon of sealer per square foot directly on to the surface. Once you apply the sealer with a brush do not go over that area again. The sealer dries very fast; the more it is moved around with a brush the more likely it is to show brush strokes. Brush the sealer on evenly and smoothly so that it covers the surface consistently.
6. The sealer will level off, if left alone and not applied too thick. WALK AWAY AND LET IT DRY.
7. Clean brush or pad with soap and water.
8. Store the product at a temperature between 45 and 100 degrees Fahrenheit. Keep from freezing.

Wax Finish

We recommend applying a protective wax product to the finished surface after installation. Fabricators may use their discretion, but we recommend Cheng's Concrete Countertop Wax or a comparable product.

Where to buy: Email sales@chengdesign.com or call 1-510-849-3272 x.222 or click to <http://www.concreteexchange.com/catalog/4>

The wax barrier provides additional time to wipe up staining agents before they can do damage. You can test the finish by letting a droplet of water fall onto the surface. If it is absorbed, then you must reapply. Follow the product manufacturer's recommendations.

INSTALLATION OVERVIEW

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

Seaming

In order to achieve a minimally visible seam, IceStone should be seamed with a color matched two-part epoxy or acrylic joint adhesive. The adhesive must be pigmented to a color similar to that of the slab being installed. Seams should be no more than 1/8" in width.

Prior to installation, make sure that:

- IceStone materials are properly sealed.
- Base cabinets are permanently anchored in place and are on a true plane, level to within an 1/8" tolerance across an 8' span.
- A space of 1/16" exists between walls and where the IceStone is to be installed (each countertop requires at least 1/8" at each wall for expansion and contraction).
- Countertops are placed on cabinets to ensure fit; shim if necessary.
- Review all instructions, warnings and safety information provided with any seaming product prior to use.

A clear, non-toxic, low-odor, water-based flexible adhesive should be used to secure the IceStone countertop to the cabinets. Space the beads of adhesive every 12". Do not use rigid adhesive to fasten IceStone to cabinets, and/or tile backsplash.

To ensure accuracy before installing IceStone durable surfaces, use a template, just as you would with mined stone, and adhere to the following procedure:

- a. Remove existing surface tops prior to template.
- b. Mark all center lines on the template where there will be cutouts.
- c. Note the dimensions from cabinet to cabinet throughout the kitchen.
- d. Find and mark the center line (CL) of the principal cutout closest to the width wall. Make a mark at the front and rear of the cabinet.
- e. Double check all of your markings.
- f. Note squareness. Measure from CL to the leading edge of the counter.
- g. Repeat step 5 at rear. Scribe to the wall when the back edge is not square.

Additional Instructions for Countertops in Commercial Food Service Areas

It is important to install IceStone durable surface counters in accordance with the fabrication guidelines. For commercial food service areas, insulation material must be installed between IceStone counters and hot water pans and food warmers.

CARE AND MAINTENANCE

Some chemicals and solvents can damage the surface. The following is a partial list of potentially damaging chemicals: abrasive cleaners, lemon/citrus juice, wine, permanent marker/ink, rust/paint removers, lacquer thinner, oven/metal/toilet/tile and drain cleaners and fingernail polish remover. If contact with any of these materials should occur, wipe up immediately and wash the area thoroughly with mild soap solution. Rinse with water. Please consult our in-depth Care and Maintenance Guidelines for detailed information about keeping IceStone installations beautiful and well maintained.

Technical Specifications and Certifications

| PROPERTY | TEST STANDARD | IceStone RESULTS |
|--------------------------------|--------------------------------|-------------------------------------------------------------------------------------|
| Compressive Strength | ASTM C-109 | 13,000 psi |
| Flexural Strength | ASTM C-293 | 890 |
| Specific Gravity | ASTM C-97 | 2.31 |
| Porosity/Absorption | ASTM C-642 | 0.18% (unsealed) |
| Static Coefficient of Friction | ASTM C-1028 | 0.78 (dry) |
| Chemical Durability | ASTM C-1260 for ASR Reactivity | 0.05% |
| Freeze Thaw | ASTM C-666 | 0.49% (300 cycles) |
| Stain Resistance | | Yes (use recommended sealers) |
| Fire Rating | ASTM E-84 | Class 1 (A) Flame Spread Index 0 Fuel Contribution 0 Smoke Density Index 0 |
| Food Equipment Materials | NSF-51 | Certified |
| Environmental & Human Health | Cradle to Cradle SILVER | Certified |

Contact Information

If you have questions or suggestions about any part of the fabrication or installation process for IceStone durable surfaces, we would like to hear from you. Please contact us at 718-624-4900.



Please sign below indicating that you have read, understand and accept the information contained herein. Please read, understand, accept, sign and fax this form to IceStone, LLC. We will not sell to you and you will not be considered an Approved IceStone Fabricator until you do so.

Fax: (718) 624-4002

I have read and understand the information contained in the IceStone Fabrication Guidelines.

Date:

Company:

Address:

Print Name:

Signature: