

Glass²

Fabrication, Handling, and Installation Instructions

1. Introduction

glass² is a high-grade, inorganic material produced by high temperature forging; it is an environmentally friendly material for countertops, bar tops, vanities, shower doors, flooring, cladding and paneling. It can be used for both indoor and outdoor applications. **glass²** is resistant to weathering due to wind, rain, and sunlight. **glass²** is produced from 99% fused recycled glass and is resin free. This material is easy to clean and 100% non-porous. **glass²** is available three (3) slab thicknesses: 16mm, 20mm, and 30mm.

2. Saw Cutting

glass² only recommends and supports the use of a waterjet for cutting.

- The best cutting result is reached by using a water jet and following manufacturer's guidelines for cutting and drilling into glass; which includes using the correct abrasive.
- A solid surface barrier made of ½ inch thick plywood or high-density foam insulation sheets at a minimum of ½ thick is required on top of the steel waterjet grating. Both of these items will provide a level, clean, and vibration dampening surface.
- This is a proven method of insuring a clean, damage free, and safe cut with minimal to no edge chipping.
- The waterjet can perform all cutting and drilling operations and should be used.

Should fabrication be done using traditional methods and techniques as for natural stone or a man-made solid surface, then the following procedures must be performed to maximize the chance for a successful cut:

- Every cut must be done using as much water as possible.
- The proper blade speed, authorized blades, and extremely flat table beds are prerequisites for clean cuts, with no chips.
- Every blade used should be first tested, by the fabricator, to find the optimum cutting speed for each bridge saw, CNC, or other type of machine used.
- A medium bond diamond blade gives the best cutting results and the type saw blade of choice for cutting **glass²** is a porcelain or ceramic type blade with a maximum thickness of 2.5mm.
- When making any cut, the blade must pass through the **glass²** by a minimum 2mm.
- When using a stone/concrete cutting table, it must be very clean with no stone fragments.
- If the stone table is not perfectly flat, then it must first be leveled and a surface barrier put over the stone/concrete table.
- A ¾" thick plywood sheet placed is an authorized surface barrier as well as a high-density foam insulation sheets at a minimum of 1" thick. Both of these items will provide a level, clean, and vibration dampening surface.
- A piece of scrap stone (granite) or solid surface (quartz) must be placed adjacent to the **glass²** slab at the end of the saw rip. The cut from the **glass²** slab should continue into the scrap material. This allows the blade's energy to be transferred to the scrap stone and will help protect the corner of the **glass²** piece being cut.
- Saw blade rotational speed should be approximately 4,000 – 4,500 rpm's, the cutting speed at no more than 1 LF per minute travel, and the highest amount of water volume possible should always be

used. Blade speed and travel are based on a bridge saw with a 20 hp motor using a 14" silent core continuous rim blade. This is for reference only because each fabricator must test, evaluate, and determine the proper rotational speed of the saw blade and the proper cutting speed through the material being used which depends on all individual equipment performing the cut.

3. Hand Cutting

Hand cutting blades should be the continuous rim ceramic or porcelain type.

- Hand cutting must be done utilizing water; never can **glass²** be cut dry or with minimal water. Water fed tools that cool the blade from both sides work best when making any type of cutout (sinks, bowls, cook tops, faucet holes, electrical receptacles, etc). If water is not available, as on some installation sites, then the **glass²** material must be taken to a location where water is available. Cutting the **glass²** material dry will most likely result in large chipping, breakage, or fractures.
- It is necessary to wear safety glasses and a mask to prevent possible injuries, especially to the eyes. Water fed cutting also helps prevent injuries from occurring due to excessive chipping.
- When performing any cutting of **glass²**, never put too much pressure on the blade. The fabricator should allow the blade to perform the work and this will produce a very nice cut.
- Standard electrical receptacle cut outs have square corners and are not allowed in **glass²**.
- The only authorized method for providing an "opening" is to drill a hole.

Using an abundance of water is the key to success in any cutting or drilling situation and this is not optional, whether at the shop or the job site.

4. Grinding

To perform grinding by hand, use aluminum-backed cup wheels with medium-bond diamonds.

- Aluminum backed wheels limit vibration and since it is softer than steel-backed wheels they allow minor flexing so there's more control. This type of the wheel gives a very smooth grind and will minimize chipping.
- You cannot use aggressive diamond tools on **glass²** without great risk of material damage (chips and fractures).
- After cutting, when making a sink cutout with a CNC or handheld profiling machine, DO NOT start grinding with Position 1 (coarse). Start grinding with Position 2 and insure that your diamond wheel has holes for the water feed.
- Before you start grinding, be sure that you put a small bevel on the top and bottom to prevent chipping.
- Do not use the tool like you would on granite. Grinding has to be slow (let the diamond tooling do the job) and make sure that the water feed is continuous, abundant, and consistent.

To make a straight polish for glass, grinding is not needed if the proper saw blade is used for the initial cut; this is especially true with the water jet.

- The grinding cup wheels will be used only for fabricating non-straight edges (bevel, round, etc.).
- The cup wheel of choice has either a smooth surface or is filled between the segments with epoxy resin or some other appropriate material.
- L-Shaped countertops require an inside corner radius equal to or greater than the thickness of the material being used (2cm thick material = 2cm radius ... 2cm x 2 = 4cm diameter ... 4cm = 1.57" ... 1-9/16" drill bit is best to form the corner).
- All 90 degree inside corners must be avoided, whether countertops, sink holes, stove tops cut-outs, etc.
- Grinding stones are not allowed in the fabrication of **glass²**.

5. Filling holes

Similar to other glass materials, **glass²** will have some holes on the edges. Filling up these holes must be done before polishing.

- After the material has been cut-to-size, the surface must be thoroughly dry; use a high-pressure air nozzle to get out all water and debris from the holes.
- After drying, wipe the edge with acetone as this also cleans the smallest of holes.
- If you use a torch to assist in the drying process, you must monitor the temperature of the glass and not let it get above 90 degrees Celsius (195 degrees Fahrenheit).
- **Glass²** is heat resistant but all glass absorbs heat at least two times faster than stone! Excessive heat will damage all glass, including glass².
- Surface holes should be filled with clear flowing epoxy and the excess cut off with a razor blade.
- The area filled can then be polished using Cerium Oxide as discussed in the next section.

Three ways to fill holes:

1. Fill up the entire edge to be polished with polyester resin (similar to how you fill up travertine) and then after it is dry, start polishing with a Grit 100 polishing pad. In this case, because it is very coarse, this pad will grind away all of the extra glue (resin) so you must be very sure that the water feed is has plenty of pressure, otherwise this pad will “pull out” the glue from the small holes and could possibly burn the epoxy.
2. Fill up only the visible holes and then start polishing with Grit 200 polishing pad. This pad will take off any extra polyester resin and will polish all of the desired edge to be finished.
3. After making the cut, start polishing with Grit 100 polishing pad and continue to Grit 200 polishing pad. After this is done, then completely “dry out” all edges to be finished and clean the holes. Fill up all holes with polyester resin and let it dry. Do not apply too much resin, just enough to cover each hole. Next, continue polishing with Grit 400 polishing pad. Spend a little more time until all of the excess polyester has been removed. Again, continue polishing with Grit 800 polishing pad through Grit 3000 polishing pad. This method gives the best results; the whole process is a little slower than #1 and #2.

In the case that not all of the holes were filled using one of the above three (3) methods, you can also fill up holes after the polishing is done. Just be sure that the surface is dry before filling up any holes that were missed or that were removed during polishing. Just before the resin cures (gets hard), cut off any excess with a razor blade and smooth it all with a very fine steel wool (#0000) or use the last two polishing pads again. For all transparent colors (Ash White, Pine Green, Ocean Blue, and Coral Blue) use “water-clear” resin and for dark colors (Azurite and Chorus) create a matching resin color using “water clear” resin.

6. Polishing

Glass² has very good polishing qualities; the polishing technique is very simple and very similar to natural stone polishing. The difference is that **glass²** is a consistent material so there are no “soft & hard spots” within the material.

- The polishing should begin from Grit 100 pads and then go up to Grit 3000.
- Stepped polishing will achieve a smooth finish without waves or ripples.
- There is no need for buffing or waxing.
- Dry polishing must be avoided, even on the job site.

The top and bottom edges of ALL sides should be beveled to a minimum 5mm because:

- this helps relieve stress in the material,
- this creates a safer edge for both the fabricator and the end-user, and
- this is the proper way to start all other edge details.

7. Drilling

A water jet is the preferred method of drilling faucet holes or forming the inside corners.

An abundant amount of water must be used for cooling the bit while drilling. Before buying a special drill bit, test the ones you already use for natural stone drilling.

- The best drilling results are achieved by using “water fed, medium coarse, continuous rim, bonded diamond” drill bits.
- Drill bits, like saw blades, must be prepared (sharpened) before use; prepare in the same manner as the saw blade, using a fireproof tile or grinding stone to clean the diamonds.
- **Glass²** can be drilled very smoothly as long as the proper speed is used (2,000 – 2,500 rpm’s).
- Avoid twisting and applying extra pressure while drilling; drill slowly, allowing the drill bit to cut steadily.
- The backside of the **glass²** material must be “supported” with a wood product when drilling a faucet or other type hole. The support should not allow the **glass²** to either flex or move in the slightest. Drilling into the support also avoids “blow out” on the backside and prevents excessive tool penetration, which could result in “high speed tool contact” with the **glass²** surface, an excessive force likely to create damage to the **glass²** countertop.
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8. Sink Cut Out

Drill holes into each corner of the sink template before cutting the appropriate sink hole.

- For example, if you have a square or rectangle sink hole, you should drill in all four corners with a drill bit that creates the required radius and then start cutting.
- This will relieve the stress and will prevent the **glass²** from opening (fissures and cracks). Unlike other baked glass materials, **glass²** has a very limited percentage of stress, which allows you to cut holes into any size slab produced
- Before making a cut, be sure that the fabrication table is flat with no gaps or spaces at any point-of-contact and that there is no movement of the counter top during the sink cutting process.
- There must be a minimum of 4” of **glass²** on either side of the kitchen sink hole or the bathroom vanity bowl hole.
- The minimum radius of all inside corners equal to the thickness of the **glass²**
 - 2cm x 1 = 2cm or 3/4”
 - 3cm x 1 = 3cm or 1-3/16”
 - Note ... the radius requirement is for a holes or shapes regardless of the item’s final use.

9. Handling

Handling of **glass²** is one of the most important aspects and listed below are very important procedures and details. Follow these proven methods:

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- a. **Glass²** will be loaded into special wooden crates for all slabs sizes at the factory. These special crates are very specific in design and made with such a high quality that these can be used again for transportation from the distributor to the end-user. It is best to use these crates or have similar ones made to the same dimensions and quality. This not only gives the supplier and the distributor confidence in material being delivered in a good state, it eliminates the majority of credit claims by the customer against the distributor or the factory.
- It is required that the distributor verify the shipment's condition to the factory within 10 days from receiving the material.
 - It is suggested that the distributor require the end-user to verify the material condition upon receipt of goods.
- b. For all aluminum or steel framed storage racks, inside the shop or outside, use high-density rubber on top of wood to avoid any contact between **glass²** and the metal. The slabs must be set into the storage racks with the long side down at an angle between 5 degrees to 11 degrees from vertical. Be 100% sure that the table frames are flat and that the **glass²** contacts all points equally before clamping. If fabrication tables are metal, there must be wood or high-density rubber between the frame and the **glass²** material.
- c. When moving slabs, take great care to avoid any contact with any object to maintain the **glass²** integrity. The proper method of moving **glass²** is via nylon web slings and not "pinch type" clamps.
- d. At the installation site, should the cabinets be made of aluminum or steel, these too should have a "high- density rubber" or wood surface barrier.
- e. Prior to loading a fabricated piece, clean the **glass²** slab's finished surface thoroughly to ensure that there are no bits of glass, stone, dust, dirt or other debris on the surface. During the loading and transportation and unloading, extra caution should be used to prevent any type debris from getting in between the slabs or from coming into contact with the slabs.
- f. Since **glass²** has very little flexibility, unlike marble or granite, it is very important to protect against any kind of bending, tension, and stress during the clamping and/or strapping for transportation. Best to insure that **glass²** rests against another flat surface (such as a granite slab).
- g. **Glass²** may never be carried nor transported "flat" on any type vehicle; moving **glass²** either vertical or near vertical is the only accepted position (7 degrees is optimum angle and the accepted range is between 5 degrees to 11 degrees).
- h. Anytime a hole is to be cut that leaves the minimum allowable stock (4") of **glass²**, be it a kitchen sink hole or a vanity bowl hole or stove top cut out, the cut is ideally to be done at the job site with the **glass²** placed inn proper position, secured to the countertop, with the corner holes already drilled to correct size. Extra care must be taken to support the entire circumference of any hole that is cut into **glass²**. The hole remnant is not allowed to be dropped away upon completion of the cut.

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- i. Sink supports are required for **glass²** installations; these are not optional, even for lightweight under mount sinks such as stainless steel and copper. Heavy-duty sink supports are required for heavy type under mount and top mount sinks such as cast iron, porcelain, and composite stone types.
- j. **Glass²** should be kept in a dry and ventilated place. Use spacers between each piece in order to allow moisture to escape as this eliminates mold and mildew in a high humidity environment. If **glass²** is to be stored outside, then cover with either an awning or a waterproof cloth; be sure to remove the waterproof cloth after the rain which will allow the excessive humidity to escape.

10. Installation

Adhesives

- Silicone is primary adhesive product used with **glass²** and polyester resin is also acceptable
- There are 2 types of silicone
 - Seam Sealer
 - Setting Compound
- Applications for silicone and polyester resin are listed below

Countertops

- **Glass²** is currently produced in two types of coloring patterns: dark opaque and semi-translucent.
- For dark colors, only “clear” Silicone Sealer is used as the bonding agent (polyester resin is not required) and installation is performed by leveling the **glass²** pieces from the bottom side with either wood or composite shims; suction-type leveling devices may be used to “pull” the pieces together.
- For semi-translucent colors, use only “water clear” Silicone Sealer. It is very important because other types of silicone will tend to magnify the seams when back lighting or under lighting is utilized.
- **Glass²** cannot be leveled like other solid surfaces because it needs to expand and contract slightly with changes in surface temperature.
- It is important to remember that **glass²** is not very flexible, much less than natural stones or man-made solid surfaces. Therefore, with regards to leveling, pressing down one side or edge or corner to achieve a level on the opposite side or edge or corner is never allowed and must be avoided.
- Allow for a minimum 3mm gap for all seams and between the wall and the **glass²** material. This will provide space for **glass²** to expand and contract.
- Silicone Seam Sealer is authorized for use not only as a “seam filler” but also as a contact substance for attaching to the cabinet.
- Silicone may be used to fill the gap next to the wall but this is usually not necessary since coverage normally will be provided by the backsplash.
- **Glass²** does not require an underlayment, such as plywood, but the maximum width of any unsupported area is 24” in any direction with ¾” wide cabinet material.
- If cabinets are metal, a strip of high-density rubber at a minimum ¼” thick must be applied between the cabinet and the **glass²**.

Laminated Edges

- For widths 9cm or smaller can be attached with polyester resin, regardless if the thickness is 16mm, 20mm or 30mm, paint on resin of the entire thickness (edge) to be attached.
- For widths larger than 9cm, both polyester resin and silicone are required, to be used in conjunction with each other, both the resin and the silicone must be used on the mating

surfaces with each covering 50% of the width for the entire length of the laminated piece. Use a small bristled brush to paint on the resin and run an 1/8" bead to apply the silicone.

Wall Cladding

- **Glass²** can be used whether interior or exterior, also could be used in wall cladding
- Kerf cuts can be produced at the factory, upon request and appropriate, approved drawings.
- Wall retaining clips and anchors can be provided upon request.

Flooring

- Standard tiles must be laid with Silicone Setting Compound only
- thinset, mastic, or cement are never allowed in the use of glass².
- If utilizing **glass²** in an elevated state, for the purpose of lighting or insulation, requires either clear glass laminated to the backside to be integrated into glass², which may only be produced at the **glass²** factory.

Undermount Sinks

- installations must not utilize under mount sink clips that require drilling into the **glass²** material.
- Silicone is the only adhesive approved to attach an under mount sink rim to the **glass²** bottom side.
- Heavy sinks made from such materials as porcelain covered cast iron, granite, or marble and even stainless steel with a garbage disposal attached must be supported from the bottom side via a cabinet bracket or a frame that rests on the cabinet's bottom shelf.
- It is acceptable to put polyester resin on a wood or composite shim, then to place the resin at each corner and at mid-points of the longest sections of the under mount sink for added security.
- When attaching the faucet fixtures, extra care must be taken to not over tighten any of the parts that come in contact with glass².

Other applications

- When **glass²** is to be utilized in pools, spas, and other applications there may be size restrictions, such as increased seam width requirements, or the exposure to a wider range of sunlight, air and water temperatures, and weighted pressures may require additional special attention and consideration. Therefore, consult the factory for design, fabrication, handling, and installation guidance.
- **REMEMBER**
 - Silicone is the only approved seaming and setting material.
 - Thinset, mastic, or cement are never allowed in the use of glass².
 - Go to this web site to get aid in specifying the proper silicone
<http://www.crlaurence.com/datasheets/pdfs/Sealant%20Requirement%20Estimator%20Chart%205-16-02.pdf>

11. End User Guidelines

When **glass²** is being used as a countertop, it must not come into direct contact with any object that has a temperature in excess of 205 degrees Celsius (400 degrees Fahrenheit). Temperatures up to 90 degrees Celsius (195 degrees Fahrenheit) may stay on the surface of **glass²** for ten (10) minutes or less. **glass²** has great transparent effect but do not use any large "heat producing" type lighting when establishing a light source to make **glass²** looks transparent.

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- Examples
 - Incandescent lamps need to be 200 watts or less and placed a minimum of 150mm (5.9") from the glass².
 - "Cold" light sources (fiber optic, neon, and some LED's) and energy conservation light sources (60 watts or less) cannot be glued or otherwise attached to glass². There must be a minimum distance of 100mm (3.9") between the light source and the **glass²** material.
 - Ribbon and Strip lights made of LED's that are encased in silicone to provide a waterproof medium is an option for attaching a light directly to the back of glass²
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 - Most light sources must have a heat dissipation space to keep the temperature below 90 degrees Celsius (195 degrees Fahrenheit). Only testing of the specific light being used can determine the "reality" of the heat being generated as manufacturing processes may produce the same amount of light that is generated (and regulated) but not the amount of heat that is dissipated.
 - Any light source not listed specifically in Section 13 must be submitted to the factory for investigation and approval.
 - Once installed, **glass²** will be very strong but excessive heat, weight, and high impact must be avoided.
 - Due to its non-porous nature, sealing or waxing is not required.

12. Repairs

Glass² is a very durable produce yet scratches or chipping may occur during fabrication, transportation, or installation. Both scratches and chips can be repaired by the following method:

a. Scratches

Surface can be renewed via glass specific pads ... See Section 13 below.

- The BEST way to learn how to repair **glass²** is to have a professional glass technician train shop personnel on the required tools, supplies, and techniques.
- Deep scratches require a re-polishing system that includes special sandpaper and cerium oxide (a standard powder utilized in glass industry).
- Light scratches, smudges, and smears may be treated with cerium oxide only. Should this be the case, mix the cerium oxide with water to form a thin paste, apply generously to the scratch, and buff it out using a high-density cotton buffing wheel at 2,000 rpm's or less.

b. Chips

Whenever the surface or an edge has chips, it can be filled with clear liquid polyester resin or clear knife grade polyester resin.

- If a color tinted resin is desired for the damaged edge or surface, applying the resin is done in the same manner as natural stone or a manmade solid surface (such as quartzite).
- Chips on a polished surface are more difficult to repair than edge chips. Water Clear polyester resin MUST be properly mixed and applied according to the manufacturer's instructions; once completely cured, razor off any excess and buff out using cerium oxide and a high-density cotton buffing wheel.

c. Damage

If **glass²** takes an impact from a heavy item (such as large steel cooking pot or an iron skillet), the **glass²** material may not shatter but, depending on the impact, could crack.

- Cracks that extend and are noticeable, are best left "as is" if there is no movement in the countertop

unless aesthetically a customer wants the top replaced.

- There is no ways of repairing a crack, the only solution is replacement of the damaged piece by a professional fabricator/installer.

d. **WARINING**

Any material (natural stone, man-made solid surface that imitates stone, or glass²) can be severely damaged or destroyed, including a shattering effect, if a large enough force is applied to it at a speed high enough to surpass the elongation properties of the piece being affected.

13. Tooling and Supply List of Commercially Available Items

- a. Item ... Bridge Saw Blade, continuous rim, porcelain type
Purpose ... Heavy duty cutting
Brand ... Alpha
Name ... Silencer III, SLW1410P 14"
Web site ... <http://www.toolbarn.com/alpha-slw1410p.html>
- b. Item ... Saw Blade, 4" up to 10", continuous rim
Purpose ... Light duty cutting
Brand ... Alpha
Name ... Vetro Glass
Web site ... <http://www.contractorsdirect.com/Concrete-Saw-Tile-Saw/Alpha-Diamond-Blades>
- c. Item ... Cup Wheel, continuous rim with aluminum backing - 4", medium diamond grit
Purpose ... Edge and corner shaping
Brand ... Diarex
Name ... Legend
Web site ... To be updated
- d. Item ... Drum Wheel (Zero Tolerance), brazed diamond, continuous rim
Purpose ... Sink and corner shaping
Brand ...
Name ... Cannot be lower than 150 grit
Web site ...
- e. Item ... Drill Bit, diameter as per job requirements, continuous rim, medium diamond grit
Purpose ... Faucet holes and sink holes (sink cut-out)
Brand ... Diarex
Name ... Pro Series Thin Wall
Web site ...
- f. Item ... Router Bit (Hand Held or CNC)
Purpose ... Edge profiling
Brand ... Non-specific
Name ... Position #2 or higher (cannot be lower than 150 grit)
Web site ...
- g. Item ... Polishing Pads, 4", #50 - #3000
Purpose ... Edge polishing
Brand ... Alpha

Name ... Ceramica Resin
<http://www.toolocity.com/CeramicaResinPads.aspx>

- h. Item ... Glass Specific Sandpaper Pads , #1 to #8
Purpose ... Surface scratch repair and edge polishing
Brand ... Renu
Name ... Professional Grade Glass Renewal System
<http://www.glassrenu.com/products.htm>
- i. Item ... Cerium Oxide
Purpose ... Final polish for surfaces and edges
Brand ... C R Laurence
Name ... C0301
<http://www.crlaurence.com/crlapps/showline/offerpage.aspx?Productid=12781&GroupID=12939&History=39324:111:6463:6513&ModelID=12939>
- j. Item ... Silicone Seam Sealer, 100% high VOC
Purpose ... Bonding and sealing seams and sinks
Brand ... C R Laurence
Name ... WCS1 (water clear) and WCS5 (clear)
<http://www.crlaurence.com/apps/sitesearch/search.aspx?query=Clear%20Silicone%20Sealant>
- k. Item ... Silicone Setting Compound, 100% high VOC
Purpose ... Bonding and sealing seams and sinks
Brand ... Dow-Corning
Name ... 795
Web site ... <http://www.dowcorning.com/applications/search/default.aspx?R=264EN>
- l. Item ... Polyester resin, flowing clear
Purpose ... Hole and chip repair for surfaces, edges, and seams
Brand ... Touchstone and Tenax
Name ...
Web site ...
- m. Item ... Polyester resin, knifegrade clear
Purpose ... Bonding sinks and hangars to the bottom surface
Brand ... Touchstone and Tenax
Name ...
Web site ...
- n. Item ... Fire brick, ceramic
Purpose ... Cleaning (sharpening) diamonds in tooling
Brand ... Rutland
Name ... #604
Web site ... <http://www.rutland.com/productinfo/fire-bricks.html>
- o. Item ... High-density Polystyrene
Purpose ... provide a flat, clean, and vibration dampening surface
Brand ... Owens-Corning
Name ... Foamular 150
Web site ... <http://commercial.owenscorning.com/products/foam/foamular-150/>

14. Notes

- The use of any technique, procedure, or item not specified within these instructions is done at the user's risk and **glass²** shall not be responsible for any damage that may occur or undesirable results that may be obtained.
- **Glass²** has developed its own proprietary brand of tooling and supplies which are available upon request. These are used exclusively at the **glass²** factory for all cut-to-size projects and are proven to perform to the highest standards. These items are available upon request and are much less expensive than those similar items available on the open market.
- **Glass²** can be fabricated without incidence if this instruction is followed in every aspect.

GLASS² INC.

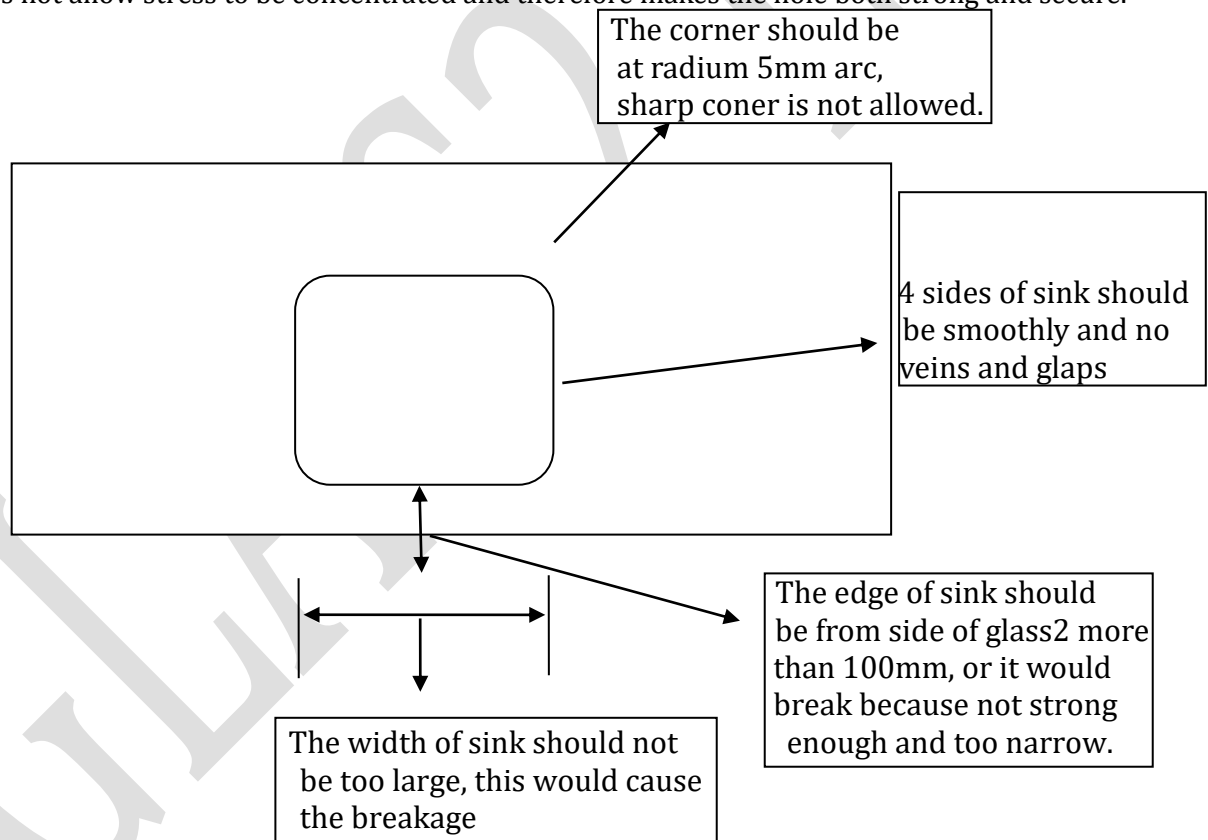
Additional instruction

Processing:

Due to **glass²** is made of glass and fragile, we could not process it as stone, we should take notice as following:

1) Sink processing and edge processing:

glass² can be cut on a bridge saw, CNC, or by hand but these require more time than cutting natural stone. It is paramount that a plenty of water is used to keep the glass² cool and to never allow the diamond tooling to overheat. Any cut that is made in glass² must be on a FLAT surface and an shock absorbent surface. This is why we recommend to cut on either plywood or high density foam. Once the hole is cut or drilled, you **MUST** polish the edge and this means creating a minimum 2mm bevel on the top and bottom edges of the cut surface. Be absolutely sure that there are no chips or fissures where the cut was performed. When cutting the corners, the cut **MUST** transition with circular arc, commonly referred to as a radius (described earlier in this document. The radius does not allow stress to be concentrated and therefore makes the hole both strong and secure.



Diagram

- The corner RADIUS should the same or more than the thickness of the material
- All finished sides and corners of the sink or stove hole must be polished with 2mm beveled & polished edges top and bottom
- Minimum width of the glass² between the sink or stove hole and the cut edge is 3-1/4"
- The width of the sink cannot be too large. **REMOVE THIS (it means nothing unless you give dimensions)**

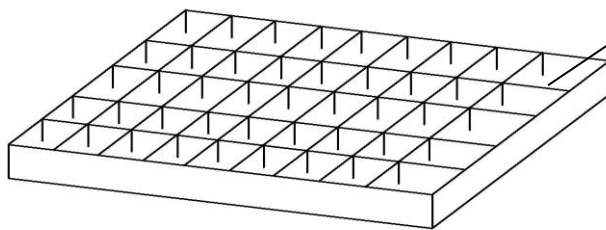
2) L shape countertop:



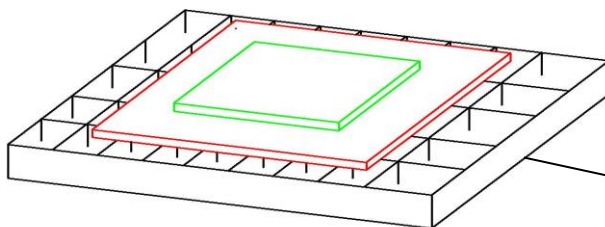
Diagram

An outside corner can be cut at 90 degrees and then rounded to have the minimum radius requirement as mentioned earlier in this document. Again, any cut surface **MUST** be polished and the minimum 2mm bevel is required on the top and bottom edges. Inside corners have the same requirements as cutting holes .

3) Water cutting:



Water cutting working table is usually welding stainless steel, and net structure. Put the glass2 directly, the stress is not equality , then glass2 may break when vibrated by water power or bearing uneven.



Put glass2 on a wood board or soft rubber mat on the working table before cutting. Then glass2 would not easy to break when cutting. Cause the wood board or rubber mat would equality the stress.

Diagram

- a. The metal grate of a waterjet table can be unlevel and it is too rigid to cut glass2 directly on top of it. Never cut glass2 directly on either a waterjet table or a bridgesaw table or any metal or concrete surface.
- b. Put a barrier between the glass2 and the cutting surface. Acceptable barriers at ½” thick are: plywood, high density foam, and rubber.

The only sure way to cut any size hole (sink, stove, or faucet) is with a water jet that is properly set up for glass using the correct pressure and aggregate. A “bed liner” is required, not optional, for any cut being made on a waterjet. All the same rules apply for cutting, meaning you must have plenty of water, holes and inside corners require radius cuts, and the top and bottom edges of all cut surfaces must have a minimum 2mm bevel that is polished.

4) glass2 should have reinforcements at each sink or stove hole. Granite fabricators often cut groves into the backside of the granite and then embed a square metal rod and fill it with epoxy to strengthen (reinforce) the material for practical use after installation. Glass2 also should be reinforced but we recommend only using aluminum channel or tubing to epoxy to the backside for added strength because we believe in keeping full integrity of the glass2 material intact.

Glass2 International Inc.