

Our glass tile is manufactured by fusing clear glass with ceramic glazes at a high temperature. Glass tiles may be installed on interior or exterior wall areas, in wet or dry locations (including in hot or cold environments). Since these tiles differ from ceramic products, attention must be given to these special glass tile installation instructions to ensure a good installation. Do not use standard ceramic tile installation methods as these may result in a finished installation with appearance and/or durability problems.

SUBSTRATE PREPARATION

Since any crack in a glass tile is very visible, the use of a crack isolation membrane (ANSI A118.12) over the entire surface is strongly advised. Many substrates such as mortar beds may continue to cure and shrink over a period of months, and a crack isolation membrane prevents shrinkage or movement of the substrate from transferring through to the tile. If a crack isolation membrane is not used, neither the distributor nor the manufacturer will accept any responsibility for cracking. Install only over well-cured, stable substrates. Substrates should be levelled prior to the installation of the crack isolation membrane. Do not use thin-set to level the substrate under glass tile.

Allow for a control joint wherever substrates change and as prescribed in section EJ171 of TCNA's Handbook for Ceramic, Glass and Stone Tile Installation (www.tcnatile.com).

CUTTING

Recommended Tools:

- Wet saw with glass tile blade and/or hand scoring tools
- Safety glasses, gloves

If you've never cut glass or you're unconfident in your abilities, there is good news. With proper cutting tools and techniques, even beginners can learn how to produce clean, accurate glass shapes. New generation cutting tools now make sizing and shaping of glass tiles accurate and efficient with a minimal amount of breakage.

Here are a few points to ensure success as you prepare your glass tiles:

1. Ensure you have a clean work surface to protect the glass from scratches.
2. Have the appropriate tools. Glass can be cut in straight lines, gentle curves, compound cuts. It can have both large and small holes bored into it depending on the requirements of the job. There are a range of tools from hand held scoring tools and breaking pliers up to water jet cutters. Montolit makes a wide range of tile tools for scoring, saw cutting and boring as do other companies.
3. Ensure your glass is at an optimal temperature. When glass is cold, it can become more difficult to cut. Comfortable room temperature conditions are favorable.
4. Wet saw cutting instructions:
 - Orient the tile so that the blade rotates into the glazed side first to minimize chipping. Cut half way through, then flip the tile over and cut the other half.
 - Go slow to keep the glass from overheating and chipping. It takes twice as long, but it works. Use plenty of water or lubricant to keep the blade or the boring tool as well as the glass tile cool. Overheating will cause thermal shock and break the tile.
 - Sand cut edges and place cuts against corners where they can be covered and hidden.

Accuracy

One of the most frustrating problems can be inaccurate cutting. Here are a few tips that may help:

- Square cut outs may break, for instance around electrical boxes. Drill a hole in the corner of the cut to relieve the stress on the glass. For drilling use a core bit made for glass. Use a guide. Use plenty of water for cooling of the glass. Difficult cuts can be made with a water jet.
- Mark where you are going to cut with a Sharpie® type marker, and making sure your cutting wheel is right on the mark.
- Put cork backing on your straightedge tool to prevent slippage. Cork-backed rulers, or cork tape is available at glass supply stores
- The Morton System consists of a line of tools that help with cutting precise angles – and some people find this very helpful.

Safety Issues

- You should always use eye protection when dealing with glass. Do not touch or rub your eyes while working with glass.
- Never hold glass by the cut edge – but rather by holding the flat surfaces.
- Always be aware of what will happen to the glass after it is cut – and if it is going to fall – let it, rather than trying to catch it.
- Always wear shoes with covered toes when working with glass.
- When we cut glass we want a squared off edge – but often there is an area where the glass breaks in a sharp bevel, much like the edge of a razor blade. These can be extremely sharp – and should be ground off immediately or you risk cutting yourself. If you have a triangular scrap with a very sharp point, you should grind or break that point off – or you risk stabbing yourself.

WARNING: Dry cutting and grinding of glass tile can lead to silica dust exposure, known to the State of California to cause cancer and birth defects or other reproductive harm. To reduce exposure to silica dust, only use a wet saw when cutting any tile.

DRILLING

Recommended Tools:

- Drill or coring bit specifically for glass
- Safety glasses, gloves
- Drilling a hole requires the use of a drill bit or coring bit designed specifically for glass. Ensure that sufficient cooling water or liquid lubricant is used. If the drill and glass tile cannot be securely clamped in place, use a guide to assist alignment of the bit. A temporary guide can be made out of a scrap piece of plywood drilled with a hole slightly larger than the coring bit. Holding the guide over the desired location of the hole in the tile, slowly start drilling from the back of the tile, then complete the hole from the face of the tile to prevent glass from chipping off on the exit side of the hole.

INSTALLATION**Recommended Tools:**

- **Notched trowel, plastic spacers, shims, laser level, construction level, chalk line, tape measure, pencil**
- Confirm color, size and mounting (back or face mounted, and appropriate layout) of the entire batch of tiles before installation. Verify that sufficient tile has been ordered to complete the installation (including extra tile to make up for losses due to cutting, breakage and waste) as color matching of different batches of tile is not possible. To enhance the color of the tile, use a white thin-set mortar (ISO C2FS2P2 or 2-component, flexible, rapid cure, acrylic modified thin-set mortar system. Many adhesive manufacturers such as Mapei) have tested specific products for use with glass tile (Grani Rapid and Adesilex P10). Please refer to your preferred adhesive manufacturer's documentation for an adhesive specifically formulated for interior and exterior wall installations of glass tile. For pools and areas with frequent immersion, confirm suitability of the moisture barrier and adhesive with the thin-set manufacturer.
- Spread the adhesive with a notched trowel following the manufacturer's recommendations (in many cases a 3/16" V-notch trowel works well). Use the flat side of the trowel to flatten the ridges without removing thin-set. This step is very important to prevent trowel marks from mirroring to the surface. Use the thin-set manufacturer's minimum recommended thickness of thin-set. **Important: do not over-build the adhesive, as it may shrink and add stress or crack the glass.** Spread only as much adhesive as will be covered with the tile within 15 minutes.
- Thin skim coat Mosaics and other meshed assemblies may be installed directly to the thin-set adhesive. Apply the adhesive with a notched trowel and strike down the notches with the flat side of the trowel before applying the mosaic. Larger format tiles should have a thin skim coat of thin-set applied to the back of the tile to reduce voids and improve adhesion. Firmly press the glass tile against the surface to eliminate voids in the adhesive that may show through the glass tile.
- Install glass tile on the wall leaving even spacing between tiles of at least 1/16" (1.5mm). Use plastic spacers whenever possible. Install control joints where the tile abuts restraining surfaces and around the perimeter of the tile work as per TCNA guidelines.

GROUT**Recommended Tools:**

- **Rubber gloves, grout sponges, clean rags, two buckets of clean water, soft grout float, safety glasses**
- **Grout Release can help ease the cleaning of matte finished glass tiles during grouting. Please test before using.**
- Use a grout recommended for glass tile. Follow all manufacturers recommendations.
- Non-sanded Urethane grouts are recommended. Cement and Epoxy grouts may be used if recommended by their manufacturer, test before using.
- Sanded grout may scratch the surface, test before using.
- Glass tile does not need to be sealed. It is impervious.
- Gloss and Matte glass tiles can be scratched. Please be careful in handling and installing.

CARE**Recommended Tools:**

- **Microfiber towels.**
- For routine cleaning use non-abrasive glass cleaners.

COMMON FAILURES

1. Not following cutting instructions which can cause the color layer to chip, or the surface to the glass tile to chip. Use a glass cutting specific wet saw tile blade.
2. Improper substrate preparation. Level substrate, then use a crack suppression membrane. Do not build up the thin set under the glass tile to level.
3. Not smoothing down trowel marks which shows shadowing behind the glass tile. Knock down notches from the trowel. Back butter larger tiles.
4. Submerged installations (i.e., pools or fountains) must use face mounted mosaics.