



- GENERAL INSTALLATION GUIDE -

update January 2010

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This text is designed to offer professional methods and standards for achieving excellent results when installing Dreamwalls Color Glass. Although there are many alternative methods that may be used, the authors of this text present within methods that have been proven safe and successful. The descriptions within focus primarily on backsplash applications, but apply to any wall installation. It is intended for use by professional installers and glaziers.

The information in this manual is, to the best knowledge of Gardner Glass Products, Inc., factual and accurate. Since actual application of principles established herein are beyond the company's control to supervise, the company disclaims any liability for loss or damage suffered from the use of this data.

Chapter 1: GENERAL INFORMATION

Dreamwalls® Color Glass is manufactured by Gardner Glass Products Inc. using a proprietary paint technology developed specifically for superior adhesion to glass. The color coating is applied to the “second surface”, or non-contact surface, of the glass. After installation, the color coating is not subject to degradation over time.

Extensive testing has been conducted on this coating to verify its reliability. It has shown superior resistance to color fading by UV light, non-yellowing properties, excellent resistance to a wide range of chemicals, cleaners, and moisture and humidity.

Colors are developed using a computerized intermix system with a database of over 25,000 colors. Virtually any color can be produced with extremely accurate and repeatable results.

Dreamwalls® Color Glass is manufactured using 1/4” (6mm) Starphire Ultra Clear Glass by PPG Industries. This low-iron glass allows the color to be perfect without any greenish tint found in standard glass. This is particularly important for true reds, true whites, pastels and creams to keep colors warm and true.

Approximate weight for 1/4” thickness (6mm): 3.2lbs per square foot

Chapter 2: INTRODUCTION

Initial Inspection:

Dreamwalls® Color Glass Storage is similar to that of mirrors or fabricated stone. When a case arrives, inspect for any external damage or rattles which could indicate breakage. If damage is apparent, note visual damage on the bill of lading and have both you and the driver initial the items in question that could be concealed damage. Follow the Interstate Commerce Commission procedure for filing a freight claim if necessary.

Storage:

Store Dreamwalls® Color Glass vertically on flat, stable surfaces. Do not store flat. Glass exhibits more strength when stored upright. Glass may be stored in the case, but do not pull from the end of the case.

Do not store Dreamwalls® Color Glass outdoors or in unheated areas, which could lead to excessive expansion and contraction caused by cyclic temperatures. Block color glass cases off of floors and allow for proper ventilation and away from any water damage.

Transportation:

Be sure that handling equipment (forklifts, cranes) are strong enough to handle the weight of glass. For a reference, 1/4” glass has an average weight of 3.2 lbs per square foot.

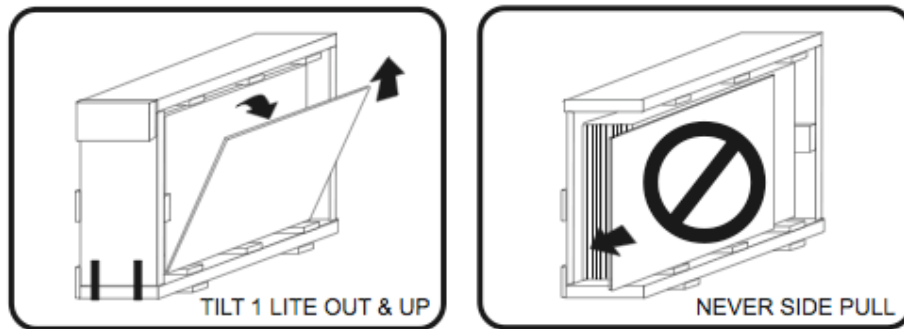
Dreamwalls® Color Glass comes packed in wooden cases from the manufacturer. Each piece has a non-reactive paper divider to prevent scratching with the adjacent piece.

Do not ship partially unpacked cases without proper repacking to prevent movement and damage.

Transportation of individual lite (or glass piece) via truck should be done on a rubber padded rack either in an enclosed box truck, or on an open air rack truck which is strapped securely. If on an open air rack, please turn the piece of glass so the painted side is facing out to reduce the likelihood of a glare to other drivers. Keep in mind that road salt, gravel, and other road hazards could scratch the back of the glass and care should be taken to protect it from such events.

Handling:

Glass should be handled carefully. Remove a lite of Dreamwalls Color Glass from a case as shown below:



Annealed (untempered) glass can be broken by a shock in temperature change, or by a firm strike to any portion of the glass. This is why it is important to have more than 1 employee handle long expanses of glass that could strike doorframes or the edge of counter tops.

Tempered (heat-strengthened) glass is much stronger than annealed glass. It has gone through a heating process which aligns the molecules of the glass itself to make it stronger and more resistant to breakage. However, it can still be broken. It is most susceptible to damage at the edge or via a sharp, pointed strike to the surface. The biggest drawback to tempered glass is that it **CAN NOT** be fabricated, cut, or altered in any way in the field. It must be cut and fabricated before the tempering process – which must also take place before the paint is applied. It must be fabricated exactly by the manufacturer.

Care should always be taken to avoid scratching the surface of the glass. Stains can be scraped off the front surface using a single sided razor blade at an angle. Use a new blade and travel only in one direction. No filler or resin is possible to repair a gouged surface.

When working, it's always important to have a clean, padded surface with which to place the glass to prevent scratches during handling. Vacuum cups are extremely helpful when handling and installing Dreamwalls® Color Glass.

CHAPTER 3: AT THE JOB SITE

Measuring:

A good installation requires a full 'read' of the wall. You must determine the high and low areas of the wall surface. It is also useful to make sure the surrounding cabinets are level or plumb. A 4 or 6ft. level and straightedge will be best for this task.

Find the highest point (and widest point) of the installation wall by measuring every 6-8" in each direction. Create a diagram of the job, and note the low spots in the surface that might need to be built out using silicone or mastic for proper back support.

Walls are seldom square. The fact that Dreamwalls® Color Glass can be fabricated at the jobsite in one large piece can create a beautiful look even if walls are out of square. No unsightly tile piecing is necessary.

The ideal way to cut a perfect piece of glass is through scribing a template for the area. Some shops use a plywood template, others may use mapping software.

Whatever method you choose, make sure you have taken into account the following deductions to your measurements to account for mirror clearance and movement before making your final cuts:

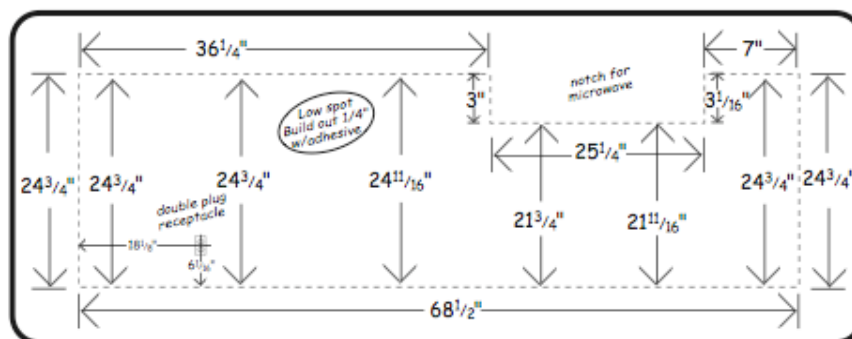
1/8" to 3/16" overall to allow for expansion in every direction

1/32" for any butt joint

Note: If using j-channel at the top and the bottom, deduct 1/4" from the overall height)

Measuring for receptacles must be done at this time and they are always to the center of the outlet. Note at this time whether the receptacle is a switch, double plug, Decora switch, cable jack, air vent, etc. and measure it as well to be sure it adheres to the industry standards. For instance, a normal double plug receptacle is 2-1/8" x 4-3/16", however always measure and don't assume all receptacles are standard.

Note that the receptacles will have to be built out to bring them flush to the new surface after the installation is complete.



- GENERAL GUIDE TO ADHESIVES -

Surface Preparation:

Dreamwalls® Color Glass can be mounted to any number of surfaces. The biggest determining factor is be sure the substrate is prepared adequately for the adhesive you plan to use for installation. Always be sure that the adhesive is applied according to directions and is the substrate is sealed properly according to the manufacturer's instructions.

Adhesives:

Below are adhesives that have been used successfully with Dreamwalls® Color Glass. Always follow the adhesive manufacturer's instructions regardless of the installation method you choose. Please note that Gardner Glass can only recommend these adhesives based upon our testing experience. They have shown excellent adhesion, non-corrosive properties, and no bleed-through or shadowing. Gardner always recommends using a mechanical fastener in conjunction with any adhesive to support the weight of the glass.

BRAND/ DESCRIPTION	bare sheet rock	sheet rock w/ primer	sheet rock with latex paint
Palmer Mirror Mastic NOTE: longer curing times are necessary for mastics	Y	Y	Y
Dow Corning 795 Silicone Building Sealant	Y	Y	Y
Dow Corning 995 Silicone Structural Sealant	Y	Y	Y
DAP 100% silicone rubber sealant (clear)	Y	Y	Y
3M 1/16" 4466W rubber double-sided tape	Y	Y	Y
3M 3/32" 4462W rubber double-sided tape	Y	Y	Y

The information above is offered in good faith, and is believed to be accurate and up-to-date. However, because products made by other manufacturers are beyond our control, this information should not be used in substitution for customer's tests to ensure that the installation is safe, effective, and fully satisfactory for the intended end use.

Gardner Glass Products, Inc. disclaims any implied warranty of fitness for a particular purpose or merchantability of the above products. Gardner Glass Products disclaims liability for any incidental or consequential damages resulting from use of any of the above mentioned products.

Chapter 4: FABRICATION

Overview of Tools Needed for General Fabrication & Installation:

[NOTE: most supplies listed here can be found at CR Laurence Co., Inc.]

Safety Equipment:

Steel Toe shoes – protect your feet from dropped glass

Apron – for safety

Dust Mask – for protection during drilling or edging

Wrist Protectors/Gauntlets – for protection of wrists and arms from abrasions or cuts

Goggles/Facemask – to prevent damage from glass particles

Fabrication Equipment:

Cutting Table – clean, carpeted or felt work platform for cutting and fabrication

Rubbing Brick – a sanding block covered with diamond paper to sand and swipe edges.

Drills with Diamond Drill bits – for receptacle hole drilling

China Markers – For marking the surface of the glass

Glass Cutter – with a small diamond wheel for cutting glass

Glass Pliers – for ‘snapping’ off excess glass after scoring with glass cutter

Installation Equipment:

Caulking Gun – for application of silicone or mastic

J-Channel – for common support of base or ceiling. 1/4” tall is used at the bottom,
1/2” tall is used at the top.

Scraper – to remove old wall substrates or cleanup

Clips – for common support at base or ceiling

Drop Cloths – for protecting floor or furniture at the worksite

Black masking tape – reduces the sight of minute gaps behind joints

Single-sided razor blade – for cleaning glass surfaces

Resting Blocks – blocks of wood covered in carpet to rest glass during transit or installation

Vacuum Cups – useful tools for installing and transporting heavy expanses of glass

Hacksaw – for cutting aluminum j-channel

4’ or 6’ Level – for determining plumb characteristics of the wall

Tape Measure – for determining accurate wall measurements

Cordless Vacuum – for clean up

Clean rags – for clean up

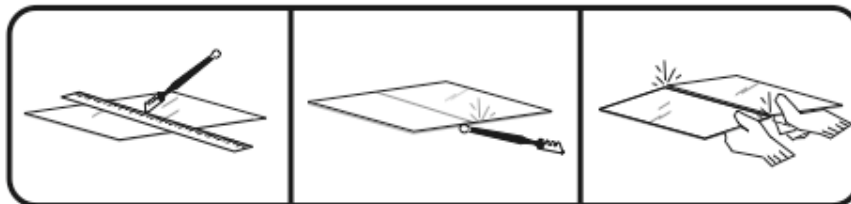
Cutting Procedure

Dreamwalls® Color Glass can be cut and fabricated using much of the same equipment used to fabricate mirror, stone or marble. The diamond head cutting wheels and polishers are perfect for giving the backsplash or other glass installation a professional look. For best results, always face the painted side face down on the cutting table or machine, so the wheels come in contact with the glass side first. [REMEMBER: after glass is tempered, it cannot be fabricated further. These instructions only apply to annealed Dreamwalls® Color Glass.]

If you're cutting the glass by hand, first be certain your cutting table is free of **all** particles that could scratch the paint. Lay the mirror on the surface with the paint side on the table. Always wear your safety equipment (boots, goggles, wrist protectors, etc.) before any fabricating procedure. Remember, Dreamwalls® Color Glass should be scored on the glass (unpainted) surface.

To make a straight cut by hand:

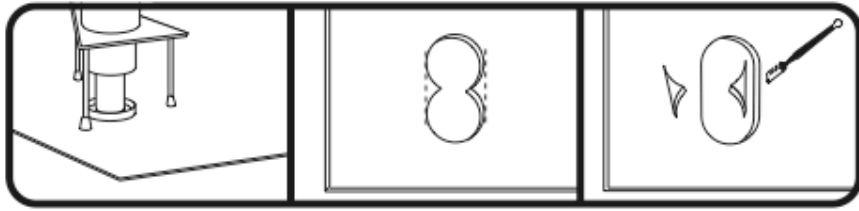
Mark the desired cut line with a grease pencil or china marker. Lay a straight edge firmly along the surface and use a lightweight household oil (kerosene or WD-40 also works well) to lightly lubricate the cutting wheel. With one continuous motion, firmly score the surface of the glass with the cutter. Do not rescore the surface. Tap along the backside of the score with the ball end of the cutter to allow the score to travel deeper into the glass. Then firmly grasp on either side of the score and snap the glass free. Use glass pliers to snap off smaller or thinner pieces.



Hole Drilling Procedure:

To make a receptacle cut-out, use a tripod fitted with a steel tube drill head. These drills work with abrasive grain to “drill” a hole in the glass by rotational abrasion. A drill coolant or water is mixed with an abrasive silicon carbide grain to create a wet paste that is retained at the site through a drilling ring. For a standard plug receptacle, we recommend using a 2” diameter tube drill.

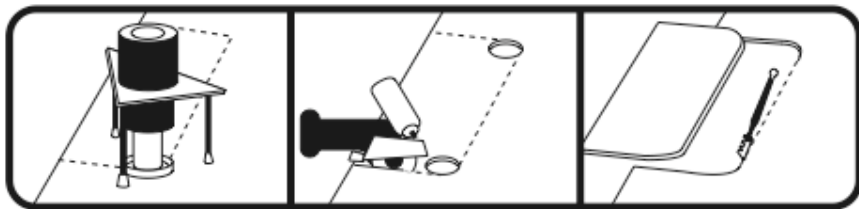
First, make your two holes using the tripod tube drill as shown. Then follow with a hand cutter and cut the excess two points free. You'll end up with a racetrack shape rather than a true rectangle. Remember, after installation, you'll have to build out your plug so that it's flush with the new wall surface.



Notching Procedure:

If you find you need to make a cut in notch to account for windows, appliances, etc. in the field, that can be accomplished on-site as well, but this is definitely a more advanced skill. You'll find that you'll need to use your straight-cut skills, hole-drilling skills as well as skill with a glass/tile diamond saw. Note that using this method, the corners will not be exact 90-degrees. For exact fabrication, CNC equipment must be used.

First, you use smaller drill bits for the corners, to set your perimeter. Then, go back with your glass/tile saw and cut in from the edge to the hole. Then do the same thing from the other edge to the other hole. Lastly, use the glass cutter to cut from hole to hole and snap off the excess glass.



Grinding & Polishing Procedure:

After a cut is made, the edge is quite sharp. We recommend you "seam" all exposed edges to prevent the likelihood of any accidents.

Use a rubbing block with diamond paper to seam the edge. First, swipe the rubbing block in a single direction along the edge of the 'first surface' - the one without the paint layer - at a 45-degree angle. Then go back and swipe the rubbing block in a single direction along the flat edge of the side. Repeat as necessary until the desired smoothness is achieved.



Chapter 5: INSTALLATION

Installation Methods:

The weight of the glass should always be supported at the bottom by some mechanical device. It can be clips & screws, j-channel, or a man-made ledge of tile or molding. The back can be supported through adhesive or silicone, and the top should be supported with additional j-channels or clips and screws.

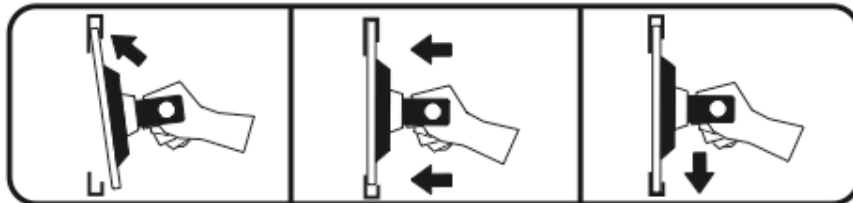
Regardless of the method you choose, the weight should be supported at the bottom, the wall behind should be completely dry and sealed, and care should be taken to use compatible adhesives to ensure a long, productive life for the glass installation.

J-Channel:

Install 1/4" j-channel in a level line along the bottom edge of the countertop. Install 1/2" j-channel along the top edge. It must be able to accommodate 1/4" thickness of glass. Remember when using this method of installation, the glass must be cut 1/4" shorter to account for the installation into the channels. This method prevents glass to stone contact, as well as proper ventilation of the glass after exposure to moisture. Be sure the screws or nails used to install the j-channel are flush with the surface, so that they do not scratch the painted side of the glass when installing.

Install the adhesive of choice to the wall, paying special attention to fill in any low spots in the wall with adhesive to support the glass. See Table 1A for a list of properly tested adhesives. Apply the adhesive to the wall according to the manufacturers directions. Please note that many of these adhesives have toxic fumes and should be applied while wearing a vapor mask and in well-ventilated areas.

When you are ready to install the glass panel, use your vacuum cups to lift the top edge up and into the top j-channel so that the bottom channel is cleared, then ease the glass down into the bottom channel. Firmly push the glass against the adhesive to make sure maximum contact is achieved, but don't push so hard that the glass could crack or that the adhesive is squeezed too thin.

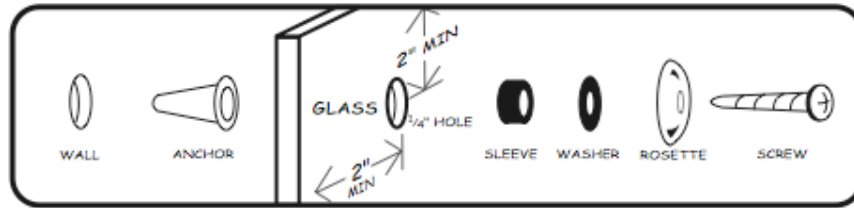


Screw or Rosette Method:

Some customers like this application best because it is a non-permanent solution to the backsplash. The glass isn't attached with an adhesive or silicone, so it can be removed and changed out in the future. Some customers like the industrial look of the screw holding the glass in place. Screws should be installed at each corner, at least 2" in from the corners and additional screws should be used every 6' span of glass.

However, there are some important things to remember with this method of installation. There should **never** be any screw to glass contact. Screws and anchors should be used and attached into the stud of the wall whenever possible. No. 6 screws fit most standard rosettes. Felt or plastic washers should be used behind the glass, and a

vinyl sleeve should go through the hole of the glass itself to prevent any metal to glass contact. Another washer should be used in front of the glass the same size as the metal rosette collar that finishes the look. See illustration below. Be extra careful not to over-tighten the screws. It could cause the glass to crack or break.



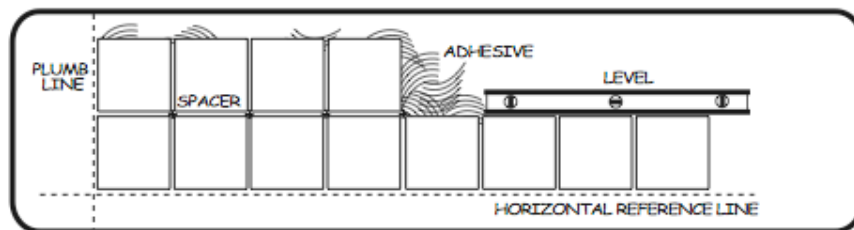
Tile Adhesive:

Some customers like the lined look of tile. It adds an additional graphic element to the room that can be very interesting. One of the advantages of Dreamwalls® Color Glass, is that it is large pieces of glass, so it can be used to create large tile sizes that most readily available glass tiles aren't able to achieve. 12 x 12, 16 x 16 and even 24 x 24 are tile sizes that can create quite an impact on any wall. Another benefit, is that Dreamwalls® Color Glass is impervious to moisture, which makes Color Glass a perfect tile choice for backsplashes.

Be sure to follow the tile adhesive and grout manufacturer instructions for the proper depth of application, trowel notch, consistency and cure time. Below is just a general overview of tips to keep in mind.

You can use practically any thinset adhesive recommended for glass tiles, applied using a 3/16" x 3/16" square notch trowel. Choose based on the substrate to which you'll adhere the tiles. Dreamwalls® Color Glass is opaque, so no trowel marks show through from the back side after installation.

We recommend that you use a grout with latex or acrylic additives, and that it ideally be non-sanded grout to keep the surface scratch-free. Keep the joints at 1/8" to keep the beauty of the glass intact. Note that grout often takes longer to set with glass than with more porous tile.



Chapter 6: ADDITIONAL TIPS

Expansion Gaps:

Expansion gaps allow for the wall to expand and contract as a house settles or shifts over time and temperatures. Expansion gaps should be no larger than 1/32” at any butt joint, but should be a minimum of the thickness of a business card. Black tape is often applied to the wall behind these joints to disguise their prominence in case the distance widens a slight bit over time. The black tape reads merely as a shadow by the naked eye.

Sealing:

Sealing the seams and at the bottom j-channel is recommended if the environment will be exposed to moisture at any time. Use a clear silicone that stays flexible to allow for expansion. Run a bead of silicone along the seam and quickly follow up with a wet finger or tool that wipes away the excess and leaves a clean, flush, application.

Cleaning:

Dreamwalls® Color Glass is very easy to clean and maintain. Its non-porous surface never needs to be sealed and makes it a wonderful option for kitchens, laboratories, hospitals, or any environment where hygiene is important.

Clean the surface with any non-abrasive cleanser or chemicals, such as ammonia or vinegar, which could be corrosive over time. Spray your cleaner first on a clean rag, and then wipe the surface. Follow by wiping with a clean, drying cloth. Never allow any cleanser to drip to the edge of the glass.

For stubborn, dried on materials, use a new single-sided razor blade at an angle and scrape the surface clean. Be careful not to gouge the surface of the glass and leave a scratch. This will work for dried paint, day-old spaghetti sauce, unwanted adhesive, or any other offending material.

Care:

Care for your Dreamwalls® Color Glass is simple. Follow the cleaning instructions above and avoid any abrasive cleansers. Avoid any sudden strikes to the surface, and avoid any extreme temperature changes that could cause it to crack. Make sure moisture is sealed out and can't get behind the glass to weaken the adhesive surface.