

ADHESIVE ATTACHMENT OVER GYPSUM BOARD OR COMPOSITION BOARD

INSTALLATION MATERIALS

- Miracle brand DS-80, Contech PL 400, Contech PL Plus or Liquid Nails panel adhesive
- Glazier's horseshoe shaped shims 1/16 inch, 1/8 inch & 1/4 inch thickness
- Clean water for cleaning
- Clean, absorbent, dry, lint-free cloth
- Double faced (double stick) semi rigid mounting tape
- Screws - long enough to screw through joints into backup

RECOMMENDED TOOLS

- Screw Gun(s)
- Flat scraper
- 48" Level & 24" Level
- Dead Blow Hammer
- Circular Saw with dry cut diamond tipped blade
- Screw Drivers (to pry panels when shimming)

FRAMING CONSTRUCTION

Steel stud or furring framing must be designed and installed for maximum deflection limited to $L/240$, and to not exceed allowable stresses. Lateral support and bridging members must be installed. This system does not provide lateral support for stud framing.

Framing must be erected plumb and true. The maximum variation from a true plane should not exceed 1/8 inch in 10 feet. Defects must be corrected prior to proceeding with

panel installation.

Framing members must be located according to shop drawings prepared or approved by the stone panel installing contractor. These drawings must account for panel joint locations in order to provide adequate attachment for each panel. The maximum variation from shop drawing dimensions should not exceed 1/8 inch in 10 feet.

JOBSITE STORAGE

Panels must be stored in a clean dry area, free from contamination. When removed from the packaging crate, they must be placed on a shock absorbent support such as expanded polystyrene for edge protection.

It is recommended that panels be placed so that identification numbers are easily readable when they are removed from the crates. This will minimize the amount of time required to search for panels as they are needed for installing. Reduced handling will also reduce labor cost and the possibility of edge damage caused by bumping and dropping panels.

StoneLite™ Stone Panels are durable and impact resistant. However, the natural stone facing is easily chipped at edges and the face surfaces of softer stones can be marred. Softer stones including limestones and marbles can be stained by dirt, mud and other contaminants.

STAGING

Material handling labor is a very important factor for the installer to consider. The majority of installation labor is used for moving panels from the delivered pallet/crate to the final location on the building.

It is strongly recommended that panels should be staged in advance and moved to their appropriate locations to minimize labor during installation. The first panel needed should be located on the outside of an upright sloping rack. All panels should be arranged in the order needed for installing.

CLEANING

Both back-up board and the panels must be cleaned before adhesive is applied. Non-oily dirt on the back of the stone panel honeycomb skin can be removed with a cleaner such as a 50% solution of isopropyl alcohol and water. Stone panels are normally clean except for dust, and can be removed by wiping with a clean, dry, lint-free cloth.

LAYOUT OF ATTACHMENT USING PANEL ADHESIVE ONLY

The pattern for positioning of adhesive beads shall be such that beads are always located near the corners of each panel and spaced intermittently throughout the panel area.

Beads shall be located within 3" of the edges. The perimeter spacing shall not be more than 16" on center. Within the field of the panel, beads shall be distributed over the entire area of each panel with the maximum distance both vertically and horizontally between beads being no greater than 16" on center. The positioning of the beads shall also achieve an approximate symmetrical pattern about the horizontal and vertical axis.

The bond contact area of adhesive should be a minimum of 1 square inch on the board and on the panel.

TEMPORARY SUPPORT

StoneLite™ Stone Panels may be temporarily held in place using double stick cellular foam tape. Norton V-2200 or V-2800 Series Termalbond, manufactured by Norton Company, Granville, NY 12832, (518-641-2200), is suggested for this application.

This tape has a short term design strength of 5 psi, and can be used to hold the panel until the adhesive cures. Various thicknesses of tape, ranging from 1/16" to 1/4" may be needed to compensate for variations in stone thickness. A 1/16" minimum thickness controls adhesive depth.

After panels have been cleaned, measure the panel thickness. Attach 1/16" thick tape at 1" panel thickness locations. Attach a greater thickness of tape where panel thickness is less than 1".

Attach 3/4" wide x 2" long pieces of tape at each panel corner and approximately 24" o.c. in each direction. Apply the tape directly from the roll to the panel. Do not handle the exposed adhesive surface or remove the liner from the other side until just before the panel is ready to set in place.

After panels are positioned, it is necessary to provide gravity support by placing shim material at the bottom of each panel to hold it up in place.

As an alternative to double stick tape, panels can be temporarily held in place by screws with a large washer or shim driven through the panel joints. The large washer draws adjacent panel edges into alignment to eliminate "lippage". This temporary fastener must remain in place for 3 days or until the adhesive is fully cured.

APPLICATION OF PANEL ADHESIVE

Apply adhesive to one panel at a time, just before the panel will be set. Make certain that the bearing surfaces are clean and dry. Prepare the nozzle to extrude a 3/8" diameter bead of adhesive onto the surfaces, adjacent to temporary double faced holding tape.

When the panel is pressed into place, the adhesive is squeezed to its final 1/16" to 1/4" thickness (varies depending on stone panel thickness and adhesive manufacturer recommendations). Beads of adhesive smaller than 3/8" diameter should not be used and the beads must not be stretched out during application. Beads larger than 1/2" diameter are desirable if the space between panel and backup is consistently 1/4".

INSTALLATION

NOTE: The following suggested instructions are intended for vertical wall panels only. If a horizontal soffit or sill is included, modifications to these instructions will be necessary.

1. Following the shop drawings, measure the wall to determine exact panel locations and mark the positions of panel edges at the base of the wall.

Use a laser or level to establish a fixed elevation for the total construction area. From that elevation, mark on the framing, or existing wall, the exact location of all bottom panel lower edges.

Using a transit or laser, check the elevation for alignment to find the most outward point(s). This will determine the installing "plane" and the amount of shimming required. Drop a string line (piano wire is recommended for this) from the top of the elevation to the bottom of the elevation. This string line should be set at least 1 1/2" from the most outward point of the elevation. This will be your reference line from where you will measure back from to establish the plane for all of the panel faces.

2. After the adhesive has been applied, the panel must be set within 10 minutes or less.
3. It is usually best to start with the bottom row of panels and progress up the wall. First place spacer shims below the panel to be installed for the purpose of providing the desired joint dimension and support gravity loads.
4. Panels should be lifted into place, positioned, and pushed against the wall to engage the double stick tape. Exercise care with the double stick tape as once it adheres to the backup surface it will be difficult to move the panel or adjust its location. On polished or honed stones, suction cups are very helpful in handling the panels. The panel should then be checked to make sure that it is plumb and on the vertical plane set by the string line previously set.

5. After setting each panel, check for "lippage", a condition where one edge or corner of a panel protrudes out further than an adjacent panel, giving the finished surface a non-level or non-flush appearance. If lippage is apparent, drive a small anchor with a large washer through the panel joint in order to draw adjacent panels into alignment. If the panel has a slight amount of bow, it will be necessary to set shims into the adhesive at the back of the panel to "pack out" the center of the panel and then use a fastener through the joint to pull down the edges of the panel. These temporary fasteners must remain in place a minimum of three days or until the adhesive has cured.
6. Installation may progress horizontally or vertically depending on how the panels have been staged. Careful attention should be paid to aligning panel joints as the panels are installed. It is usually best to put a shim, the thickness of the joint width, along the edge of the adjoining panel and push the next panel up to the shim to set the proper joint width.

CAULKING INTERIOR JOINTS

NOTE: It is recommended that testing should be conducted by the sealant manufacturer for assurance that neither sealant nor primer will "bleed" into the stone and cause staining. Allow 8 to 12 weeks for this testing.

1. Joints between stone panels are usually caulked using one of the many types of available sealants. If the caulking is not required to seal or prevent passage of moisture, the type of material used may not be of great concern; although the sealant used should be tested to be sure it will not stain the stone.
2. Some sealant cannot be completely removed from some stones. It may be necessary for adjacent surfaces to be carefully masked or taped to prevent sealant from getting on the surface.
3. Masking or taping must be removed within ten minutes after tooling. If a solvent will be used for cleaning, consult Stone Panels, Inc. for recommendations to avoid staining the stone surface and/or adversely affecting the sealant.

FIELD CUTTING STONELITE™ STONE PANELS

RECOMMENDED TOOLS & MATERIALS

- Circular Saw with dry cut diamond tipped blade
- Masking Tape
- Straight Edge
- Angle Grinder with 4 1/2" dry cut diamond tipped blade
- Jig Saw

Note: Dry cut diamond tipped blades are available at most hardware or masonry supply stores. It might be necessary to get an adapter to make a dry cut diamond tipped blade fit a 4 1/2" angle grinder depending on brand.

STRAIGHT CUTS

With proper care, field cutting StoneLite™ Stone Panels is no more difficult than cutting a sheet of plywood. The main concern while cutting a panel is to protect the stone from being scratched. The line to be cut and any area in contact with the saw should be covered with masking tape prior to cutting. It may also be helpful to mask or otherwise cover the bottom of the saw to prevent scratching.

Once the area to be cut has been properly covered with masking tape, the lines to be cut can be marked on the masking tape. Marks should never be made directly on the stone as some inks may bleed or otherwise stain the stone. When making long straight cuts, it is often helpful to clamp a straight edge such as an angle to the panel to act as a guide for the saw. Again masking tape should be placed under the straight edge to prevent scratching. All marks for cutting should be double checked as it is very expensive to replace a panel once it has been cut incorrectly. Care should be taken to note on which side of the line the saw blade will be traveling so the panel is not cut too small.

The panel is now ready to be cut. Place the circular saw with a dry cut diamond tipped blade against the straight edge, if used, and proceed slowly along the previously marked line. On certain stones, especially marbles, a fast cutting rate will chip the edges of the panels. If excessive chipping occurs try slowing down the rate at which you push the saw blade through the panel. Once finished with the cut, remove all masking tape from the face of the stone. Remove any glue residue by lightly rubbing the panel with a soft cotton cloth soaked with MEK (Methyl Ethyl Ketone) available at most hardware stores. A razor blade can also be helpful when removing glue residue as long as care is taken not to scratch the stone.

CUT-OUTS & IRREGULAR SHAPES

Cut-outs such as for electrical outlets are best done with a 4 1/2" dry cut diamond tipped blade on an angle grinder. The panel should be masked and marked as noted above. To start a cut at the middle of the panel, start the angle grinder/saw at the center of the cut-out and push the saw blade straight down along the line just through the stone. Now proceed cutting down the line to the stopping point, reverse directions cutting down to the stopping point at the other end of the line. Repeat for the other three sides of the cut out.

Once the face stone has been cut, a jig saw can be used to cut the back skin of the panel. From the stone side of the panel, force the jigsaw blade through the cut in the stone penetrating the back skin. It may be necessary to start the jig saw while the blade is through the stone against the back skin to get it to penetrate the back skin. Now cut the back skin and remove the cut-out portion of panel. Remove the masking tape as noted above.

If a jig saw is not available to cut the back skin of the panel, the angle grinder with the diamond tipped blade can be used to cut the back skin. After cutting the face of the stone, turn the back of the panel over. The outline of the cut on the other side should show through the skin. Cut the skin around the outline and then punch out the cut-out from the front side. The honeycomb will tear very easily once the stone and skin on the front and the skin on the back are cut.

Irregular shapes and curves can also be easily cut with a 4 1/2" dry cut diamond tipped blade on an angle grinder. Mask and mark the panel as noted previously. Carefully layout the shape and cut with the diamond tipped blade in an angle grinder. Cut the back skin as noted previously. If the edges are left ragged or chipped, they may be smoothed with a belt sander with a medium to coarse grit sanding belt. Since most marbles and limestones are very soft, care should be taken not to remove too much material with the belt sander.