

***Z-1, Manufacturing and Installation Requirements
for DuPont ZODIAQ® Quartz Surfaces***

Z-2006-002

This technical bulletin covers the quality standards that must be adhered to when manufacturing and/or installing DuPont Zodiaq® quartz surfaces. Adherence to the requirements contained in this bulletin is required under the terms of the applicable agreement entered into between DuPont and your firm and is the basis upon which DuPont offers a limited installed warranty to residential customers of DuPont Zodiaq®.

Definition of Terms & Measurements

Manufacturer – Any company engaging in the fabrication or conversion of Zodiaq® slabs into finished goods.

Common Metric Measurements into SAE Units

1.5 mm = 1/16 inch	12 mm = ½ inch
3 mm = 1/8 inch	2 cm = ¾ inch
6 mm = ¼ inch	3 cm = 1-1/8 inch

Manufacturing Requirements

- The manufacturer must check the sheet for defects before manufacturing.
- The manufacturer must check the color match on sheets to be used on the same job before manufacturing.
- Cut to size, shape and polish Zodiaq® with the appropriate diamond tooling.
- Join lamination seams with 2-part polyester, epoxy, or acrylic adhesives.
 - Note: Traditionally, lamination seams have been joined using color matched 2 part epoxy adhesives due to their strength and UV stability.
- Inside Corner Radius Criteria:
 - One section (e.g., L, U, etc.) shaped pieces to minimum of ¼ inch (6 mm) to reduce corner stresses.
 - Multiple section (e.g., two piece L and 3 piece U) shaped pieces with seams in the corners (i.e., full 45° miter or mason’s miter) do not need to have a radius in the corner.
- Break all top and bottom edges of straight edge profiles to a minimum of 1/16-inch (1.5 mm) radius or chamfer.
- Radius all outside corners of straight edge profiles to a minimum of 1/8-inch (3 mm) radius.
- Never hone Zodiaq® quartz surfaces.

Cutout Requirements

- Radius corners are recommended on all cutouts. However, square corners are permitted on cooktop and sink cutouts as long as they are square and the cut does not extend past the cutout perimeter into the material including the topside and backside of the slab. (Note: The larger the radius, the less likely the corner will fail.)

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- Cutouts in backsplashes (e.g., electrical outlets) that extend past the cutout perimeter must be filled with 2-part epoxy adhesive and a flexible adhesive must be used around the entire cutout to secure the backsplash to the wall.
- Leave at least 1/8-inch clearance space on all sides to allow cooktops/sink expansion.
- Support cutouts on all sides within 3 inches (7.6 cm) of the edge of the cutout.
- Support undermount sinks with brackets.
 - Stainless steel and lavatory undermount sinks must be attached with clips attached to the underside of the countertop or with cradles attached to the outer perimeter or cabinet.
 - All others sink types must be supported with cradles attached to the outer perimeter or cabinet.

Installation General Requirements

- Zodiaq® is not recommended for exterior applications. DuPont excludes from warranty coverage any exterior applications.
- The tops of the cabinets must be flat and in the same plane within 1/8-inch of a flat surface over a 118-inch (3 m) length.
- A minimum 1/16-inch gap is recommended between Zodiaq® and a wall.
- Seal and secure the front top edge of the cabinet to the underside of the Zodiaq® top with a 1/16 to 1/8-inch diameter bead of flexible adhesive around the perimeter.
- Use only flexible adhesive to adhere Zodiaq® to wood, steel, ceramic, tile, etc. Do not rigidly adhere Zodiaq® to other products.
- Apply backsplashes (maximum 6" strips) of Zodiaq® to the deck using flexible adhesive.
- Apply Zodiaq® tiles (pieces smaller than 24 inch x 24 inch) using tile adhesive. Maximum gauge for all vertical tiles shall be 3/4 inch (2 cm) or less.
- Never install mechanical fasteners (screws, nails, etc.) directly into Zodiaq®. Inserts may be used with Zodiaq®. If inserts are used, slip fit and glue inserts are required rather than pressure fit inserts.
- Do not install Zodiaq® over old countertops.
- In wet wall installations, Zodiaq® must be applied using traditional mud wall installation techniques or adhered to cement board screwed to the stud. Zodiaq® must be applied to the cement board with thin set structural adhesive as approved by the Marble Institute of America.

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Installation Support Requirements

- For structures with support on 4 sides and depths:
 - <26 (66 cm) inches, outer perimeter support is sufficient (Maximum length is 118" or 300 cm)
 - >26 inches (66 cm), additional front to back support is required every 36" (90 cm) in addition to the outer perimeter support.

- For structures with support on 3 sides (e.g., dishwashers, desks, and frameless cabinets) the following is required:
 - 2 cm thick slabs <26inches (66 cm) deep, additional support is required at widths > 24 inches (60 cm).
 - 3 cm thick slabs and<26" (66 cm) deep, additional support is required at widths > 36 inches (90 cm).
 - 2 and 3 cm thick slabs and >26" (66 cm) deep, additional support is required at widths > 24 inches (60 cm).

- For 2 cm Zodiaq®, Provide additional support for cabinet overhangs exceeding 12 inches (30 cm) as follows:
 - Overhangs 12-18 inches (30-45 cm) use solid substrate and corbels evenly spaced at no greater than 36 inch (90 cm) intervals
 - Overhangs >18 inches (>45 cm) use solid substrate along with a leg or column(s)

- For 3 cm Zodiaq®, Provide additional support for cabinet overhangs exceeding 15 inches (40 cm) as follows:
 - Overhangs 15-24 inches (40-60 cm) use corbels evenly spaced at no greater than 36 inch (90 cm) intervals
 - Overhangs >24 inches (>60 cm) use a leg or column(s).

- Half wall (AKA: knee wall, pony wall) overhang support requirements for both 2 cm and 3 cm slabs:
 - Overhangs <1/3 the depth of the top. [i.e., support wall is 4" (10 cm), total top is 6" (15 cm), overhang 2" (5 cm)] no additional support required. (Figure 1)
 - For all other half wall overhangs, corbels are required to support the overhang where the bracket depth is 3/4 of the overhang depth and spacing is a maximum of 36 inches. Corbels should be placed at wall studs. (Figure 1)

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- Acceptable support materials are MDF board, plywood, structural steel, and wood. **Particleboard is not an acceptable support material.**

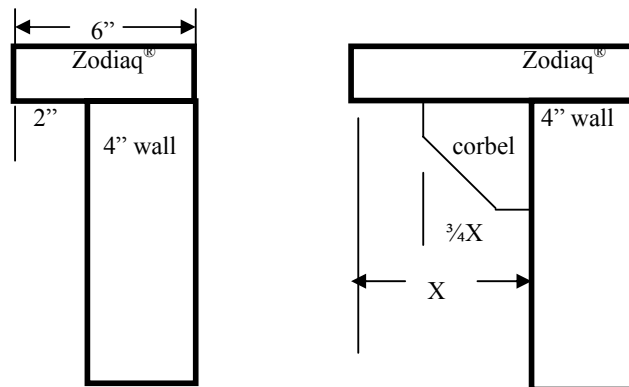


Figure 1
Half Wall Support Requirements

Installation Seam Requirements

- All deck seams must be filled with an approved DuPont designated color matched adhesive.
- Field seams must be filled through the entire seam thickness.
- At a minimum field seams must be supported on both sides of the seam in the front and back. In addition, any seams that extend into an overhang should be supported. Wherever possible, seam support on both sides of the seam is recommended.
 - Recommended seam width is < 1/16-inch (1.5mm)
 - Recommended height mismatch is < 1/64-inch (0.4mm)

If you have any questions after reading this Bulletin, contact DuPont at 1-877-229-3935 or www.zodiaq.com

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Zodiaq® Tooling Requirements

Z-2002-040

DuPont has compiled a tool list focused on the installation and repair of Zodiaq® Quartz Surfaces. This list is based on consultations with various resources in the Stone industry as well as successful manufacturers and installers of Zodiaq® to understand the minimum tool requirements for basic installations and repairs. DuPont requires that all AM/Is and AZIs, and Customer Service Specialists (formerly Service Agents) have a set of these tools to maintain their agreements. This requirement allows the DuPont Enterprise to “raise the bar” on the level of quality needed in the marketplace.

It is important to use the proper tools when performing quality installation and repairs on Zodiaq® in the field. Having and using the proper tools helps everyone follow safe working practices and increase productivity, which positively effects a business’s bottomline. Should there be any questions, please contact your distributor Fabrication Segment Manger (FSM). Your FSM works with DuPont regularly to identify the best ways of solving problems encountered with Zodiaq®.

Six (6) vendors from the stone industry have worked closely with DuPont to provide a nation-wide offer of proper tooling for Zodiaq®. These vendors are as follows:

COMPANY	CONTACT	CITY/STATE	PHONE #
Braxton Bragg	John Thomas Steve Bussell	Knoxville, TN	800-575-4401
Stone BOSS Industries, Inc.	Anthony Banchitta	Woodside (Queens), NY	888-868-2677
Gran Quartz	Ronnie Benton Peter deKok	Tucker, GA	800-458-6222
Eastern Marble & Granite	Tom Donatelli Rosalie Donatelli	Scotch Plains, NJ	800-643-8818
Hard Rock Tool, Inc.	Patrick O'Keefe	Anaheim, CA	714-772-2490
Regent Stone Products	Paul Whitfield	Virginia Beach, VA	800-624-8210

DuPont is providing this list of Suppliers and tools for your information; not as an endorsement of, nor a requirement to work with the Suppliers listed. These tools have been of help to DuPont and may be for you. Please note that DuPont will not be involved in any arrangement between you and the Suppliers listed.

Each vendor’s quote will not be an “apples-to-apples” comparison. Tool styles and the manufacturers will vary and some vendors may not carry various items. Also, current quoted prices are relative and subject to change. As an estimate, a set of tools for Zodiaq® installation and repair will cost on the order of \$4,000 - \$5,000.

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Zodiaq[®] Tooling Requirements

Z-2002-040

Please be advised, the only adhesive covered by the warranty for creating deck seams is the Akemi Color-matched, knife-grade polyester. However, the clear polyester Akemi is allowed for the new 2002 colors until a color-matched version becomes available for them.

Safety Equipment

- Safety glasses, safety shoes and gloves
- Dust masks (for use in an outdoor, well ventilated environment)
- Earmuffs or plugs
- Steel toed, water-proof boots
- Ground Fault Circuit Interrupt (GFCI)
- Water-proof apron
- Nitrile gloves (more durable and solvent resistant than latex)
- Leather gloves for handling sharp pieces of Zodiaq[®].

Material Handling Equipment

- A-Frame with padded wood supports and straps or clamps as necessary
- Crank straps
- Sawhorses
- Clamps, C-clamps, Quick grips, and Spring style
- Stone clamp panel carrier
- Cutout support for sinks, cooktops, etc.
- Slab carry clamps
- Slab dolly
- Hand held vacuum cups (8" suction cups (2))
- 2"x4"x8' support rails

Sawing, Grinding, Drilling, and Seaming Equipment

- 5" diameter disc, variable speed grinder
- Segmented diamond blade (fast cutting, releases fines and allows for cooling)
- Continuous rim fine cut diamond blade (clean cutting blade)
- Continuous rim turbo diamond blade (used for rough cutting)
- Contour (curved) diamond blade
- Continuous rim coarse cup wheel
- Dremel or Die grinding tool (with variable speed control)
- Diamond burring bits with various geometries
- Drill & Drill press stand
- Tile saw
- Set of diamond core bits (1 1/4, 1 3/8, 1 1/2")
- Seam setting devices
- Precision cut length of Zodiaq[®] (1" x 2" x 18") for scribing edges.
- Circular saw
- Screw gun and screws

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Zodiaq[®] Tooling Requirements

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Polishing Equipment

- Wet polisher (2000 – 3000 rpm with center water feed)
- Water connection kit
- Flexible backer pad
- Rigid backer pad
- Diamond/resin polishing pad set (50, 100, 200, 500, 800, 1000, 2000, 3000 grits)
- Velcro backed felt buffing pad (white & black)
- Hand rectifying pads (foam, from 50 to 3000 grit)
- Squeege

Consumable Items

- Polyester knife grade 2 part adhesive (Color Matched and clear Akemi)
- Polyester flowing 2 part adhesive
- Polyester color match kit
- Super Penetrating Acrylic resin.
- Cream hardener for above adhesives
- Mixing Cups (e.g., Dixie[®] cups)
- Mixing Sticks (tongue depressor & toothpicks)
- Single edge razor blades
- Cotton Swabs (e.g., Q-tips[®])
- 2" Low-tack painter's tape
- Sink undermounting devices
- Acetone
- Lacquer Thinner
- Glass Cleaner
- Comet[®] cleanser (or comparable)
- Graffiti Remover
- Steel Wool (000, 0000)
- White Scotch-Brite[®] or comparable
- Sealer, Cleaner, Polish
- Caulk (white and clear)
- Silicone sealant
- Crayons, china marker, paint marker
- Shop Towels

Hardware

- Extension cords (25 & 50 ft.)
- Horse shoe shims (1/16", 1/8", 1/4")
- Lights (flashlight, trouble light, construction style on a tripod)
- Wood core bits (1 1/4", 1 3/8" 1 1/2")
- 2', 4', 6' long levels
- Regular carpenter tools, including: square, hammer, nails, file, scribe, compass, tape measure,
- Wood pieces to help in placing the Zodiaq[®] on floor
- Wooden bracing strips and shim material

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Zodiaq[®] Tooling Requirements

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- Wedges for stone
- Garden Sprayer for water when working with dry cutting/grinding equipment.
- Screw gun
- Screws
- Files
- Chisels
- Pliers
- Wrenches (adjustable, box, etc.)
- Jig saw
- Shop Vac
- Caulk gun
- Taper gauge (to measure warp)
- MDF or Plywood (used to support sinks)
- 2"x 4" x 8' lumber
- Putty knives
- (2) 2"x12"x14' lumber planks for ramps
- Wood blocks to support ramps on stairs as necessary
- Polyethylene sheets for drop cloths and dust control
- Material to cover the countertop after it is installed

Miscellaneous

- Care and Use Instructions
- Warranty Information
- Warranty card

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