

CORIAN® ENDURA™

INTERIOR VERTICAL APPLICATIONS

Introduction

This fabrication bulletin addresses design and installation for vertical applications of Corian® Endura™ high performance porcelain.

“Vertical” is a broad category. This bulletin focus on larger installations of dry and wet interior wall cladding attached by full coverage adhesive using techniques typical for tile installation. Full height backsplashes fall under this guidance.

Due to the weight of Corian® Endura™ the use of 6 or 12-mm thick slabs is recommended for most vertical applications. Exception are standard height backsplashes and the vertical portion of waterfall countertops where the vertical section is coordinated with the horizontal section.

Exceptions to these techniques would be standard height backsplashes and waterfall countertop edges.

- Typical backsplashes of less than 150 mm (6") are installed using the typical techniques for solid surface or quartz; with hot melt bonding the backsplash to the wall, 100% silicone adhesive/sealant between the countertop and the backsplash, and then finished with a bead of 100% silicone adhesive/sealant at the edges of the backsplash to the wall.
- Waterfall countertop edges are typically installed with cleats or other mechanical support and are suitable for 12- and 20-mm thicknesses.

Mechanical hanging systems for dry interior panels do exist, for these follow the guidance provided by the manufacturer of the hanging system.

A. Safety

Corian® Endura™ can be installed in a vertical position if expertly installed. Installations should only be designed and installed by individuals with demonstrated skills in large format porcelain slab installation. Due to the nature of the porcelain material and its weight (up to 337 lbs. (153 kg) for a 12 mm slab), there are technical and safety challenges to be considered when installing this type of material vertically, including – but not limited to – the below points:

- The structural strength of the wall/building should be checked to make sure it can withstand the structural load from the weight of the material,
- Appropriate know how, techniques and tools are required to safely secure pieces of porcelain material on a wall; these can include, but are not limited to, the use of specific adhesives and/or mortars, mechanical fasteners, anchoring systems, rail systems, etc.

- Installers should always use safe methods to handle, move and position the material on the wall. Working with smaller pieces of material is one way to mitigate the risks associated with lifting and hanging heavy materials.
- Silica safety precautions should be followed at all times.

B. Job Preplanning

Confirm there are sufficient clearances along the route to the installation for the largest slab installed along with transportation method. In particular, residential wet wall remodels may have restricted access to the installation location.

Review instructions for adhesives, grouts, substrates and water management systems (where used) and understand how long each product takes to cure before next step can begin. Cementitious substrates can take an extended time to fully cure and become stable, refer to manufacturer’s guidance. Verify compatibility of products used, while tile system components are generally compatible, it should be confirmed.

C. Slab Preparation

General cutting guidelines, guidance for cutouts and edge profile guidance generally apply. These are covered in *Corian® Endura™ Design* (K-30200) and *Corian® Endura™ Cutting and Polishing* (K-30202).

Edges that will be grouted do not require the full 3 mm bevel or radius. These may be smoothed quickly with sandpaper or a diamond pad sold for this purpose. Note that these edges will be more susceptible to damage during transport and installation. Make sure edge are protected during storage and handling.

Any edges that will be exposed in the final installation do require a 3 mm bevel or radius to increase impact resistance.

D. Design

There are both mechanical and adhesive methods of attaching slabs to a wall structure. Adhesive methods may require safety anchoring systems. The design must comply with any local building codes, which may require anchoring systems and may provide specific guidance for wet applications.

D.1. LAYOUT

Aesthetically only colors with a book-match option can extend a pattern. All other colors will have identical slabs and form a repeat pattern when installed. Either vertical or horizontal installation may be selected. This choice may be driven by aesthetics or yield. Openings such as doors and windows may also influence the choice of orientation. For installations greater than one slab in height, installing horizontally is recommended to facilitate the use of mechanical safety anchors.

Non-book-match colors

As each slab will have the same pattern, installation will typically have all slabs with the same orientation to retain pattern orientation.

Figure B-1: Pattern Alignment, Vertical Orientation

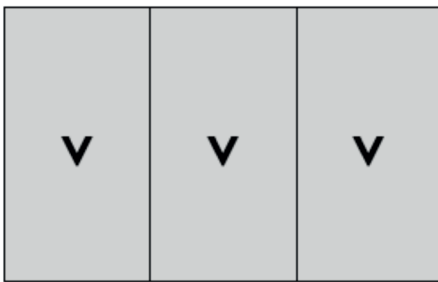
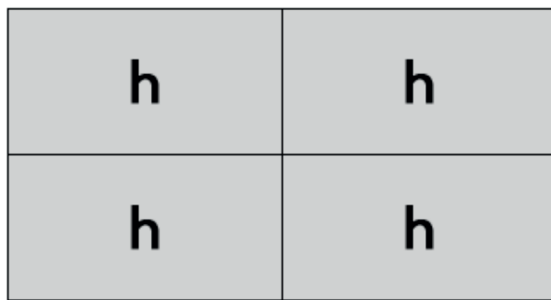
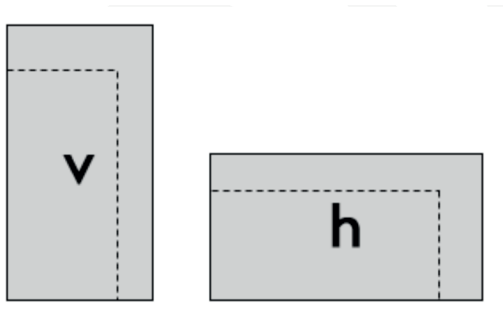


Figure B-2: Pattern Alignment, Horizontal Orientation



For aesthetic purposes it may be desirable to trim slabs so that each section installed is the same size. For example, using identical sized smaller sections versus two and a half full size sections. To maintain the pattern make sure each slab is cut the same way.

Figure B-3: Trimming, Trim Each Slab Identically



Book-matched colors

Book-match colors have an A and a B pattern. The B pattern is a mirror image of the A pattern. By combining A & B slabs along with rotating every other set of slabs the pattern can be extended indefinitely. As an example, for a horizontal slab 2x2 configuration the top left slab would be A, bottom left B, top right is B rotated 180° and bottom right A rotated 180°. It can be seen from the example for Cool Marble below this set of 4 slabs will then mirror another set of 4 slabs placed along any of the four sides.

Figure B-4: Book-match 2x2 layout

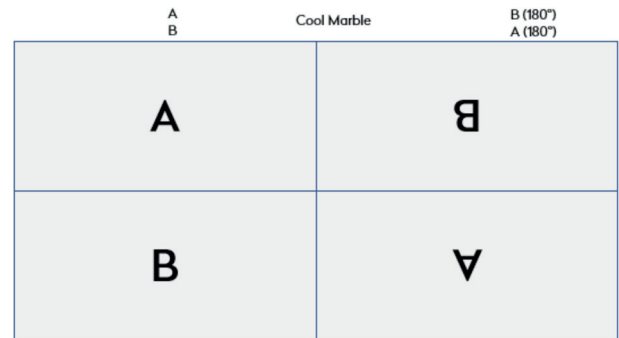
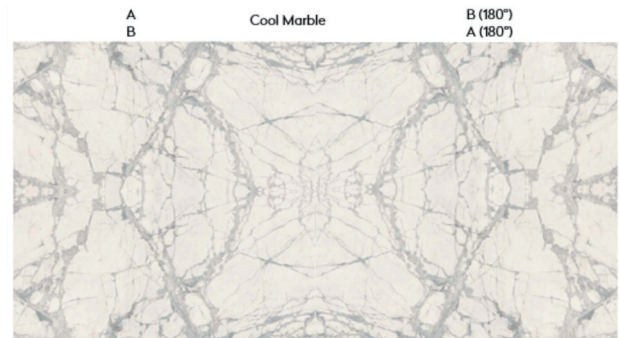


Figure B-5: Book-match 2x2 layout in Cool Marble



Reduction of slab size to avoid having a partial segment in the installation is possible with book-match colors, albeit more complicated. Equal amounts should be removed from the adjoining sides to maintain symmetry. Photo layout software will help in placing cuts.

D.2. SEAMS

There should be a minimum 2 mm (³/₃₂") gap between slabs for interior vertical application. Fill this gap with grout suitable for porcelain and the application. Additional seams may be required. Slabs may be cut to smaller sizes to reduce weight or to address restricted access to the installation site. Avoid having large sections of slab on both sides of a cutout such as doors or windows, adding seams if necessary. If radius guidelines cannot be followed, a seam may be indicated to avoid a sharp inside corner.

D.3. INSIDE CORNERS AND CUTOUTS

Inside corners and cutouts should follow the guidance provided in *Corian® Endura™ Design* (K-30200).

E. Tools

Some of the tools used in installation are best sourced through sources that service the tile industry.

E.1. HANDLING

Handling large panels of thin, large format porcelain should be done with equipment to avoid flexing or twisting the panel. A rigid frame with parallel and transverse guides with suction cups will help prevent damage. This frame should be sized for maximum size panel used, up to full slab dimensions. Lifting a full panel should be done by four people.

pattern can be extended indefinitely. As an example, for a horizontal slab 2x2 configuration the top left slab would be A, bottom left B, top right is B rotated 180° and bottom right A B rotated 180°. It can be seen from the example for Cool Marble below this set of 4 slabs will then mirror another set of 4 slabs placed along any of the four sides.

A reinforced cart for vertical transport should provide adequate support for the panels.

E.2. INSTALLATION

- 3 mm tile trowel (for application of adhesive to slab)
- 10-mm V-notch or 15-mm U-notch trowel (for application of adhesive to substrate)
- Rubber trowel (to tamp panel and remove air)
- Vacuum clamps (pull slabs into place)
- Tile spacing and leveling system (wedges/screw)

F. Wall Substrates

Use substrates specified for tile installation. Examples include cement board, cinder block, or foam tile substrates. The substrate and wall structure need to be able to accommodate the weight of the slab(s). There may be additional requirements (performance or building code) for wet applications. The substrate should be flat within 1 mm per 2 m length ($1/16$ " per 10 ft.). Address any protrusions or holes prior to slab installation. Make sure the substrate is clean and dry before installation.

G. Adhesives and Grouts

Use adhesives designed for bonding to tile substrates (horizontal or vertical). These must meet ANSI A118.15HE or ISO 13007 C2TE S1, standards for large, heavy slabs. Consult with the adhesive manufacturer if adhesive does not list standards compliance. Some adhesive vendors may recommend that a primer be applied to mesh reinforced slabs.

Choose grouts specified for porcelain and suitable for intended application. Some grouts may require sealing.

H. Mechanical Support & Safety Attachments for Adhesive Attached Slabs

Installation of slabs in vertical applications must meet any local codes. Safety anchors are recommended for sizes over 60 cm (2 ft.) on longest side.

“Safety anchors”, “anchoring systems” or “safety withholding hooks” are safety features that restrain slab if adhesive bond fails. The manufacturer of these anchors will provide specific guidance for number and spacing of anchors as well as installation of the anchor into the slab. They also sell equipment to aid in installation.

A support in an edge slot in the bottom of a slab may be used to support the bottom of smaller sections (i.e. a countertop waterfall).

I. Installation

Verify vertical substrate

Verify the wall substrate is an appropriate material, meets flatness criteria, is clean and dry, has no cracks. If applicable, substrate must be fully cured.

Install Safety Anchors into Slab if Used

When using safety anchors, they should be attached to the slabs according to the safety manufacturer’s instructions and the adhesive fully cured.

Clean and Dry Slab Back

Makes sure the slab back is clean and dry.

Prepare Adhesive

Prepare adhesive according to adhesive manufacturer’s instructions.

Apply Adhesive

Adhesive application is with a 3-mm tile trowel on the slab, and a 10-mm V-notch or 15-mm U-notch trowel on the substrate. Apply in a single and identical direction for both the slab and the substrate parallel to the short edge. This will aid in air removal when bringing the slab and substrate together.

Place Slab on Wall

Using frame with suction cups, place the slab onto the wall. Check alignment and correct if necessary. Tap slab with rubber trowel, starting at center, moving to edges to remove air. Attach safety anchors to wall when using.

Spacing and Leveling Systems

If installing adjacent slabs, install spacers to maintain gaps that are a minimum of 2 mm ($3/32$ "). Use a minimum of one every 1 m (3 ft.) or a minimum of two per edge.

Vacuum clamp to bring together

When multiple slabs are installed vacuum clamps can be used to bring them together, using the spacers to help maintain a gap.

Leveling

Leveling the slab with wedges or screw depending on system used to prevent lippage, use a minimum of one every 1 m (3 ft.) or a minimum of two per edge.

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Barricade Area for Safety

Barricade the installation area while the adhesive sets. Follow adhesive manufacturer's guidance on cure time.

Grout Seams

Prepare grout and install according to manufacturer's instructions. Seal if grout type requires.

J. Interior Wet Wall

While the slab is impervious to water, grout is not and for these application methods there is a separate water barrier used. This may be a liquid applied membrane, sheet membrane or one of several commercial water management systems combining sheet, tape and preforms. These are generally designed to work with tile adhesives, but compatibility should be verified. The choice of water management method lies with the specifier or installer. Water barrier installation should follow manufacturer's guidelines.

This guidance applies to shower/bath applications. Use of Corian® Endura™ for steam rooms or steam showers is not endorsed.

K. Waterfall Countertops – Vertical Sections

The vertical portions of waterfall countertops edges may be installed using the adhesive techniques above. They are also commonly installed using mechanical support such as a-bracket. Installation with mechanical techniques is an exception to the general limitation to 12 mm or thinner slabs, 20 mm thick slabs can be installed for waterfall countertops using mechanical techniques.

Secure the slab by cutting a kerf in the bottom edge and securing with metal brackets. The mechanical support must be able to support the weight of the slab and is the primary load support. Use 100% silicone to bond the slab to the cabinet. The silicone is not intended to be weight bearing, but to prevent the slab from separating from the cabinet should the miter seam fail.

The miter should be seamed with Corian® Joint Adhesive or an adhesive designed for seaming porcelain. The slab should be secured and area barricaded until the miter seam is fully cured. Note that silicone may take over a week to fully cure.

L. Additional Resources

For additional research on this mechanical hanging systems, please review guidance from the Natural Stone Institute *Dimension Stone Design Manual - Chapter 15 Vertical Surfaces*. <http://pubs.naturalstoneinstitute.org/pub/2de67591-e0d4-196e-0566-f134cca32b13> This document is designed for stone, but many mechanical anchoring systems are similar.

Another resource for adhesive bonding of slabs is ANSI A108.19-2017 *American National Standard Specification for Interior Installation of Gauged Porcelain Tile Panels/Slabs by the Thin-bed Method Bonded with Dry Set Cement Mortar of Improved Modified Dry-Set Mortar*.

Equipment manufacturers for mechanical hanging systems and safety anchors also offer tools, anchors and guidance on use. Suppliers of adhesives and water management systems also provide guidance on use of their products. The generic term for this category of product is "large format tile".

M. Referenced Documents

Corian® Endura™ Design (K-30200)

Corian® Endura™ Cutting and Polishing (K-30202)

Natural Stone Institute *Dimension Stone Design Manual - Chapter 15 Vertical Surfaces*

ANSI A108.19-2017 *American National Standard Specification for Interior Installation of Gauged Porcelain Tile Panels/Slabs by the Thin-bed Method Bonded with Dry Set Cement Mortar of Improved Modified Dry-Set Mortar*

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