

HOW-TO BUILD

NATURAL STONE AND PORCELAIN TILE OVERLAY



HOW-TO BUILD

PORCH AND STEP OVERLAY

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HOW-TO BUILD

PORCH AND STEP OVERLAY

Tools and Equipment



Rubber Mallet



Tape Measure



Square and Level



Caulking Gun



Fluorescent String Line



Mortar Mixing Paddle



Concrete Mixer



5 Gallon Bucket



2 Gallon Bucket



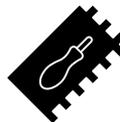
Hose and Water



Masonry Brush



Masonry Trowel



1/2" x 1/2" Notched Trowel



Pointing tools



Masonry/Tile Saw



Wheelbarrow

HOW-TO BUILD

PORCH AND STEP OVERLAY

Construction Supplies



Unilock Natural Stone or Porcelain



Concrete Adhesive (in situations where mortar will not be strong enough)



Horizontal concrete crack repair compound such as ARDEX ARDIFIX™



ARDEX™ SX Silicone Joint caulking



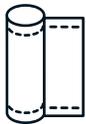
Modified mortar such as ARDEX X32™ or x 90™ mortar



Flexible Sanded Grout - ARDEX FL™ Rapid Set Grout



2 x 6 Framing Lumber and stakes (maybe required for shoring)



Moisture barrier such as ARDEX SK 175™ or equivalent



Duct Tape (for temporary reinforcement of small pieces)

HOW-TO BUILD

PORCH AND STEP OVERLAY

Before Starting

Concrete porch overlays are the best way to beautify old concrete stoops, porches and steps. In many cases you can address problems such as slope, elevations and awkward tread sizing by doing an overlay. Unilock Natural Stone or Unilock Porcelain tile is ideal because it is beautiful, strong and only $\frac{7}{8}$ " (22 mm) thick making it ideal for overlays.

CHECKLIST

- Is the existing porch and step concrete structurally sound? Is the surface crumbling?
- Does the porch slope away from the house?
- Is there enough height clearance between the concrete and the door tread to accommodate the mortar bed as well as the thickness of the slab or tile?
- Is the area below the porch a root cellar? If so, waterproofing is required.
- Does the existing concrete have any coatings or stains that will interfere with mortar bonding?

NOTE: If the above criteria cannot be met, then you must plan a concrete remediation strategy with a knowledgeable concrete professional.

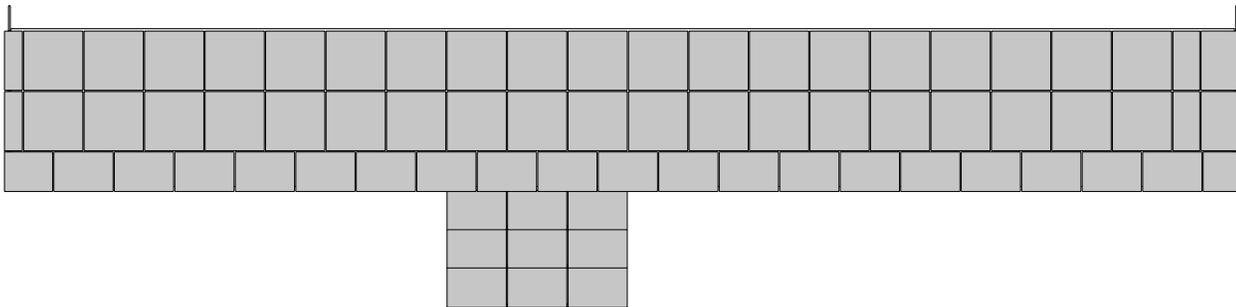


HOW-TO BUILD

PORCH AND STEP OVERLAY

Planning

- Select a slip resistant natural stone slab or porcelain tile.
- Confirm product dimensions for layout and planning.
- Layout the area in cad software or on graph paper. (Allow $\frac{1}{4}$ " to $\frac{3}{8}$ " (9.5mm) joint spacing for natural stone and $\frac{3}{16}$ " (4mm) joint spacing for porcelain tile.
- Test your layout with a few actual units.
- Your layout should avoid making cuts less than 8" (200mm) wide.
- If your layout results in a piece that is less than 8" wide, consider using two larger units which have been cut down to make up the difference.



TIP: Use the main focal point such as a front entrance as the starting point and then work towards each end from there.



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PORCH AND STEP OVERLAY

Preparation

STEP 01

Remove any loose pieces of concrete from the surface using a chisel.

STEP 02

Remove wood trim around posts etc. and reinstate later after slabs or tiles have been installed .

STEP 03

Remove oil or grease stains with solvents if not too deep. Use grinder to cut through deeper stains.

STEP 04

Use a pressure washer to remove any final debris, dust or other stains. The concrete does not need to be completely dry before mortaring slabs into place.

STEP 05

Fill any cracks using ARDEX ARDIFIX or equivalent.



Use ARDEX ARDIFIX or equivalent for horizontal crack repair.

HOW-TO BUILD

PORCH AND STEP OVERLAY

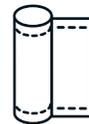
Waterproofing the Surface

➤ **IMPORTANT:** Waterproofing prevents water penetration through the surface into the space below such as a root cellar. It also minimizes the wicking of potential efflorescence to the surface.

Physical membranes such as ARDEX SK 175 (or equivalent) are commonly used for waterproofing.

Paintable vapor barriers such as LATICRETE HYDRO-BARRIER can also be used.

NOTE: Always follow manufacturer's application instructions.



Typical
moisture barrier
application

IMPORTANT: Only use vapor barriers that meet or exceed ANSI A118.10.

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PORCH AND STEP OVERLAY

Starting the Installation



STEP 01

Dry lay the first row with spacing at the front edge. Natural Stone Joint spacing = $\frac{1}{4}$ " (6.5mm) to $\frac{3}{8}$ " (9.5mm) Porcelain Tile Spacing = $\frac{3}{16}$ " (4mm).

STEP 02

Align joints with front door for best appearance. Position starting point to prevent awkward cuts at the ends.



STEP 03

Overhang the slabs or tiles approximately $\frac{3}{4}$ " (19mm) past the final front face of the porch.



HOW-TO BUILD

PORCH AND STEP OVERLAY

Installing the Slabs or Tiles

STEP 01

Use pre-mixed modified mortar product such as ARDEX X32 or x90 mortar to adhere units to the concrete surface.

STEP 02

If no waterproofing is required, pre-wet the concrete and adhere units to concrete using a slightly wetter mix of mortar.



NOTE: Always follow manufacturer's instructions for best results.



STEP 03

Prepare enough mortar for approx 1/2" (25mm) mortar bed.
Mix in bucket or mixer.
Working time: 30 to 40 min.



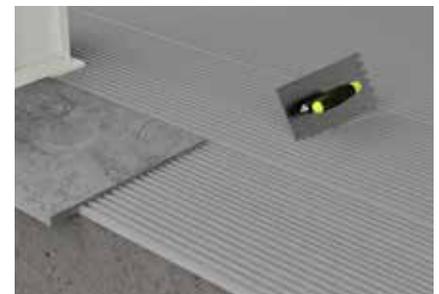
Modified mortar
such as ARDEX
X32 or X90

STEP 04

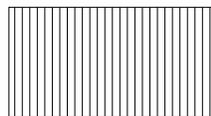
Mix a batch of "slurry coat" (cement/water mix) and brush on to the back of each slab or tile before placing down on the mortar bed.

STEP 05

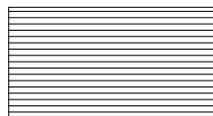
Use a 1/2 x 1/2" (25 x 25mm) square notched trowel to apply a layer of the modified mortar on the back of each unit as well as on the surface where the slab or tile will be laid. It's important to get 95% coverage once the unit is pressed into place.



TILE ORIENTATION



CORRECT



INCORRECT

IMPORTANT: Mortar trowel lines must always be perpendicular to longest side of the tile or slab. It does not matter which way they go for square tile or slabs, just be consistent.

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HOW-TO BUILD

PORCH AND STEP OVERLAY

Leveling and Alignment

Installing the ends first will help you align and “anchor” your start and finish points. Then install from one installed end to the opposite installed end. Always start the front edge and work towards the house where cuts will not be as noticeable (if cuts are required).

Use string lines to maintain alignment.



STEP 01

Press units into mortar bed until full contact is made and positioned at the correct height. Check from time to time to ensure that you are getting 95% mortar coverage.



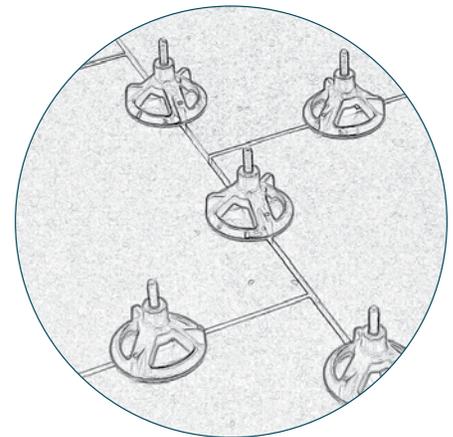
STEP 02

Use plastic joint spacers to maintain spacing. Natural Stone Joint = 3/8" (9.5mm) Porcelain Tile Joint = 3/16" (4mm) Use a level to check for slope and "lippage" between units.



STEP 03

Use tile levelers to ensure edge and surface alignment. **Important:** Never over - adjust which results in a void below the slab or tile. (1/8" Max.)



HOW-TO BUILD

PORCH AND STEP OVERLAY

Cladding the Porch Face

STEP 01

Construct temporary ledge at the correct height to support the units while the mortar cures.

STEP 02

Plan, measure and cut any necessary pieces to fit in advance.

STEP 03

Adhere each unit to the face of the concrete porch using the same modified mortar mix as used for the porch overlay but with a slightly drier mix. Use the same spacing between units as the porch top.



NOTE: Make sure top surface has cured before cladding the face.

HOW-TO BUILD

PORCH AND STEP OVERLAY

Cladding Steps

IMPORTANT: Complete the porch surface and front face before cladding steps.

STEP 01

Install the front faces before installing tread. Work from top step down to bottom. **TIP:** Measure and cut pieces to fit the face of each step in advance.

STEP 02

A tile wet saw is recommended for cutting.



Modified mortar
such as ARDEX
X32 or X90



STEP 03

Use the same modified mortar as used for the porch. Use a $\frac{1}{2} \times \frac{1}{2}$ " (25 x 25mm) notched trowel to spread the mortar.

TIP: Use duct tape to temporarily secure vertical tile or slab units where necessary. (Stack some blocks on top of the tape to hold it if necessary.)

STEP 04

Press in and secure each unit. Use a long level and/or straight edge to help in alignment.

JOINT SPACING

Natural Stone Joints = $\frac{3}{8}$ " (9.5mm)

Porcelain Tile Joints = $\frac{3}{16}$ " (4mm)



IMPORTANT: Sponge off all excess mortar from the surfaces as you go. Wait 2 to 4 hours before adhering the step treads.

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PORCH AND STEP OVERLAY

Cladding the Step Tread



STEP 01

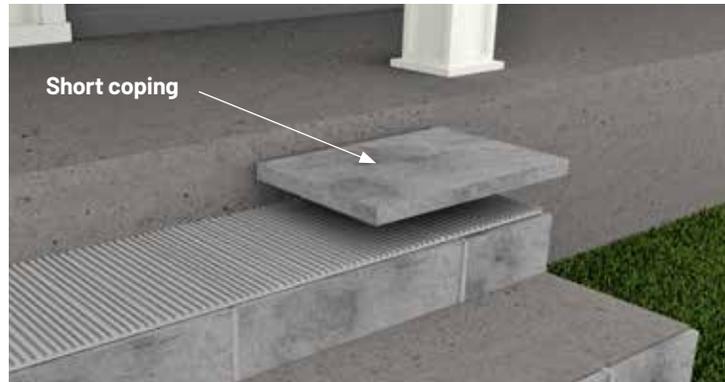
Using a $\frac{1}{2} \times \frac{1}{2}$ " (25 x 25mm) square notched trowel, apply a layer of the modified mortar onto the top tread.

Apply the same amount to the back of each coping unit. Firmly press each slab/tile into position. You must achieve 95% mortar connection.

STEP 02

When installing short Coping, leave approximately $\frac{3}{16}$ " (4mm) between porcelain tiles and $\frac{3}{8}$ " (9.5mm) between natural stone units. Use plastic spacers to maintain even spacing.

Wait 2 to 4 hours before grouting.



➤ **Tip:** Whenever possible install full length pieces for the tread. Short coping units must have grouted joints. Grouted joints on stairs have a limited life before they need repair.

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PORCH AND STEP OVERLAY

Grouting the Joints

➤ Wait 2 to 4 hours for the mortar between the tile/slab and the existing concrete to harden before applying grout in the joints.

OPTION 1

Grout the joints with a flexible sanded grout such as **ARDEX FL Rapid Set** or similar.



OPTION 2

ARDEX SX Silicone
(ideal for vertical joints).



IMPORTANT: Always sponge off all excess mortar from the surfaces as you go.

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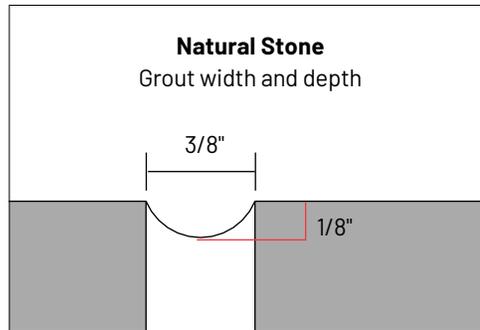
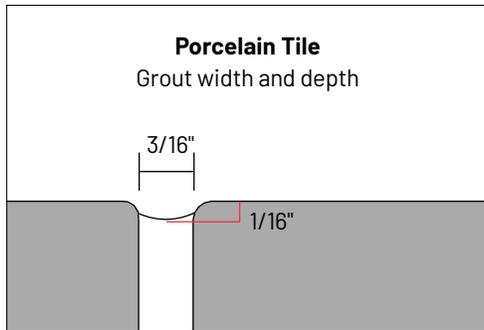
PORCH AND STEP OVERLAY

Grouting the Joints

➤ Ensure that the full depth of the joint contains grout compound. Use appropriate pointing tool to dress mortar joint with a slight concave recess between units. See diagram. For narrow joints, use your caulking gun tip and/or finger when smoothing silicone caulk.

MAXIMUM depression for $\frac{3}{16}$ " (9.5mm) wide joint = $\frac{1}{8}$ " (3.2mm)

MAXIMUM depression for $\frac{3}{16}$ " (4.8mm) wide joint = $\frac{1}{16}$ " (1.6mm)



IMPORTANT: Always clean as you go with a sponge and water. Residue that cures and hardens on the surface is difficult to remove.

HOW-TO **BUILD**

PORCH AND STEP OVERLAY

Congratulations - your porch overlay is complete!

For more help designing and constructing natural stone or porcelain tile projects, contact your local Unilock Territory Manager (1-800-UNILOCK) to arrange a phone consultation or site visit.



Completed Porch Overlay with Natural Stone or Porcelain Tile

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