

1. Measure, Choose Slate Steps, and Calculate Quantity

YOU WILL NEED:

2. Prepare the Concrete Staircase

Slate steps and risers →

3. Cutting Steps and Risers

- Tape measure, scribing tool, hammer, and chisel
- Brush, sponge, and bucket
- Drill with mixing paddle
- Primer/repair mortar, trowel, float (if needed for repairing the concrete staircase)
- Waterproofing membrane and 6 mm notched trowel
- Slate adhesive and 10–12 mm notched trowel
- Spacers for risers (e.g., wooden strips)
- Grout and joint trowel
- Flexible sealant and caulk gun
- Sealer (optional)

4. Glue Steps and Risers

5. Grouting

6. Sealing (Optional)

1. Measure, Choose Slate Steps, and Calculate Quantity

The first step is to choose your desired slate format and calculate the quantity needed.

Measure the staircase — both the tread and riser.

Many find it aesthetically pleasing to have an overhang on the tread; if so, remember to include approximately 2 cm extra for this.

Risers can be installed over the tread and should have about 1 cm clearance at both the top and bottom. You must take this into account when calculating the height of the riser.

Also, note where visible edges will be, as we deliver visible edges hand-chiseled by our stonemasons. This provides a perfectly straight right-angle edge with a natural texture that complements the slate's surface, emphasizing that it is a genuine, handcrafted natural material.

You're now ready to order slate cut to your exact measurements.

If your staircase is particularly long or if you desire a continuous, seamless visual expression, you can order slate steps in random lengths. In that case, order an extra 5–10% to account for cuts during the fitting process.

In this description, we will guide you through gluing steps in random lengths and how to adjust them.

2. Prepare the Concrete Staircase

After ordering the slate, it's time to prepare the staircase.

Cleaning

Remove dust, dirt, and loose particles.

If the staircase is heavily covered in moss or dirt, grind the surface with a diamond grinder to expose "fresh" concrete. This opens the concrete's pores, creating a good bond.

Repair

Any cracks or damage in the concrete should be repaired to create a smooth surface:

Use epoxy to ensure a good bond for the repair mortar. Mix the components for at least 3 minutes with a slow-speed drill and paddle until a homogeneous mixture is achieved.

Apply the product with a brush. Important: the repair mortar must be applied while the epoxy is still wet, so immediately proceed to the next step.

Mix the repair mortar, adding more water for the desired consistency, but no more than 4 dl extra.

Apply with a trowel and float to the damaged area, smoothing to the correct level.

Membrane

The final step in preparation is applying a membrane to prevent water ingress, which can cause efflorescence and discolor the grout and slate.

Thoroughly pre-water the staircase, making sure it's well-moistened but free of surface water. This prevents the membrane from drying too quickly and forming air pockets that

compromise its effectiveness.

Mix the two-component membrane with a drill and paddle until smooth.

Apply the membrane with a 6 mm notched trowel, then smooth it out with the flat side.

Let it dry for 4–5 hours before applying an additional coat if needed. The total thickness of the membrane should be approximately 2 mm.

Let it dry for 24 hours.

3. Cutting Steps and Risers

Once the staircase is ready and the slate has been delivered, you can start adjusting it. If you've ordered steps cut to exact measurements, you can skip this step and proceed to gluing.

Lay out the lengths you have and plan the arrangement.

The goal is to achieve a spread in the joints and make the best use of the material. Remember to account for the space needed for grout when adjusting the lengths.

Light Oppdal slate can be easily cut to length with simple manual tools. We recommend not using an angle grinder for a cleaner result and to avoid dust and noise!

Measure the length and score a 1–2 mm deep line with a scribing tool.

Mark the back where the score is, then tap along the line with a chisel until the slate breaks.

4. Glue Steps and Risers

Once the steps and risers are cut to the correct size, it's time to start gluing.

Mix the Adhesive

Start by mixing the adhesive. It's important to use an adhesive specifically designed for natural stone.

We use a fast-drying, two-component adhesive mixed with a drill

and paddle until smooth. The advantage of a two-component adhesive is that it ensures optimal bonding between the substrate and the slate.

Glue the Treads

Start by gluing all the treads from top to bottom:

Clean dust from the underside of the slate.

Apply adhesive with a 10–12 mm notched trowel to the concrete substrate. Don't cover too large an area at once, as the adhesive sets in just 25 minutes.

Always double-adhere the slate, meaning you apply adhesive to both the substrate and the back of the slate to ensure 100% coverage. This prevents air pockets that could fill with water and cause frost damage.

Make sure to position the slate with the hand-chiseled edge facing outward. Any sawed edges should be placed at the back where they are not visible.

Lay the slate down and ensure a tight bond by gently moving it.

Test for full adhesion by lifting up a tile you just laid.

Wipe away excess adhesive immediately.

During curing, it's wise to cover the area as it should not be exposed to rain for the first 3–4 hours or strong sunlight for the first 12 hours.

Glue the Risers

Now, it's time for the risers, glued in the same way.

The riser should not rest on the tread but have a 10 mm gap at both the top and bottom.

Use spacers under the riser. Make sure the spacers stick out enough for easy removal after curing.

Once everything is glued and cured, all that's left is the final finish: grouting and optional sealing.

5. Grouting

Mix the grout to a damp consistency.

Fill the joints and compress the grout with a joint trowel slightly

narrower than the joint.

Immediately wipe the slate edges with a clean, damp sponge.

In the transition between the staircase and building, it's best to apply a flexible sealant. Avoid regular silicone, which can stain the slate with permanent grease marks.

Apply the sealant with a caulk gun, then smooth with a joint tool.

Let everything cure for 24 hours.

6. Sealing (Optional)

One of the great properties of slate is that it's self-cleaning with help from the elements. However, if you want, you can seal it to provide extra protection against stains.

We recommend using an invisible sealer designed for slate and natural stone, like Akemi Anti-Stain.

Be aware that some products may enhance the color and alter the natural look of the slate.

[See how to seal slate here.](#)