

# How to Install Slate Tiles

*Tips and Tricks for Natural Tile Installation at Home*



## **PROJECT OVERVIEW**

**WORKING TIME:** 2 - 3 days

**TOTAL TIME:** 6 days - 1 wk

**SKILL LEVEL:** Intermediate

A slate tile floor is a beautiful feature that can add character and value to various interior and exterior spaces. Slate is a metamorphic rock forming the belly of mountains. These distinct pieces offer one-of-a-kind features in every tile that can lend visual interest and appeal.

A common problem with slate floors is that it is a softer stone, so it scratches relatively easily. But it's still great to use in kitchens and bathrooms. Avoid using it for floors that get heavy abuse, such as a garage or warehouse. Another common problem with slate is it is relatively expensive to source, and it's twice as expensive as other floorings when

installed professionally. The sticker shock can make you seriously consider learning how to install slate and doing it on your own.

However, undertaking the task yourself can be a physically daunting challenge. It requires skill, strength, and back-breaking effort to move, set, and appropriately place each piece. Think carefully about the time and patience you have for this project. Be realistic about your skill set, keeping in mind you'll have to use a wet saw and other tools that might have a learning curve.

## **Before You Begin**

Make sure that the subfloor surface is perfectly smooth and flat. Any defects, even small ones, can become weak points in the installation later down the line and lead to tiles chipping or cracking underfoot.

If you install slate tile on a plywood subfloor, the surface should be sanded thoroughly to create a smooth, even face. With concrete, you can use filler to fix any dips or depressions. Wait for any liquid agents to dry thoroughly, then clean the area.

The materials and layers needed for laying and bonding slate flooring include cement board, mortar adhesive, sealant, and grout. Cement board is used to protect the subflooring against moisture seepage. Plywood can expand and contract with moisture changes, potentially leading to cracks in the tile or grout. Mortar is a cement-based tile adhesive.

Since slate is a porous stone, use a sealant after you lay the tile. Sealing the slate helps to protect the natural finish of the stone from damage. You can add sealant on the tile before laying it, but it is unnecessary. Instead, use one coat of below-surface sealant and then add a coat of above-surface sealant once the tile is laid.

Use a cement-based grout (sanded or unsanded) or an epoxy-based grout to fill the spaces between slate tiles. Epoxy is the best of the bunch since it's waterproof and a fantastic choice for bathrooms and kitchens, but it is also the most expensive option. Grout bonds the tiles together, preventing tile edges from chipping and cracking.

**Tip:** When purchasing slate tile flooring, ensure you get 10% to 15% extra to account for breakage and cuts. You also want to hold on to at least one extra box after the work is complete, as that will give you a set of matching materials that can be used for repairs down the line.

## **What You'll Need**

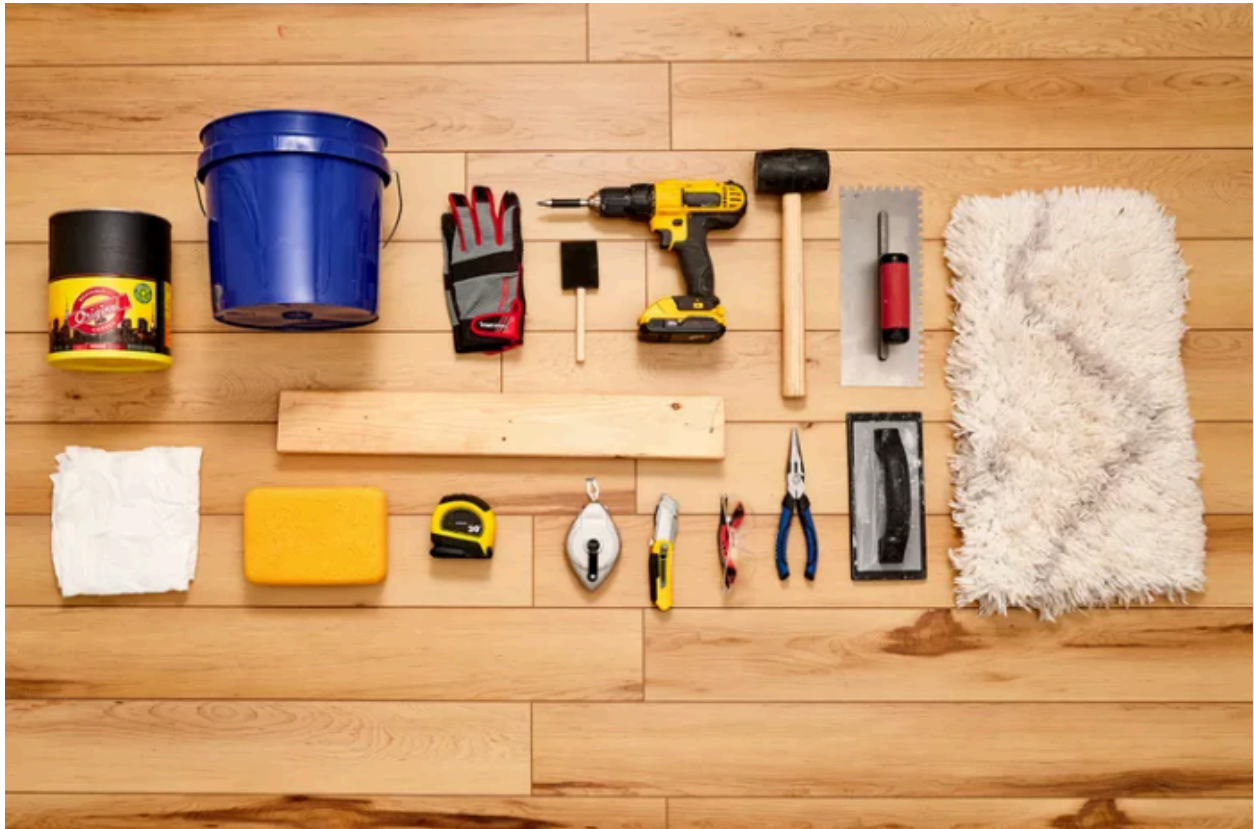
## **Equipment/Tools**

- Line chalk
- Notched trowel
- Tape measure
- T square
- 2x4 wood piece
- Rubber mallet
- Grout float
- Foam brush
- Work gloves
- Wet saw
- Goggles
- Drill
- Needlenose pliers
- Utility knife
- Sponge
- Carpet remnant
- Damp rags
- Old coffee can (or similar vessel)
- 2 Plastic buckets

## **Materials**

- Slate tile
- Cement board
- 1 1/4 inch cement board screws
- Mortar
- Tile spacers
- Stone sealant (above-surface and below-surface)
- Grout

## **Instructions**



## How to Install Slate Tiles

### 01. Prepare the Subfloor

Cement board sheets installed over the subfloor provide a layer of protection for lower surfaces. These waterproof materials will also prevent moisture from seeping down between tiles, causing damage to lower portions of the structure.

The cement board sheets should be placed side by side, running from one end of the room to the other. A shop knife can be used to cut smaller pieces to fill uneven spaces reaching to adjacent walls. Secure the pieces to the plywood using 1 1/4-inch screws spaced evenly down the lines between individual pieces. If installing over concrete, a thin-set mortar can be spread evenly to create adhesion.

As you work, leave 1/8-inch gaps in between the individual sheets, and 1/4-inch gaps between the cement board pieces and the walls, to account for expansion during warmer weather periods.



**Tip:** When dealing with concrete subfloors, you may want to opt for the application of a waterproofing membrane as an alternative to the cement board. This self-leveling substance will create a clear, impervious coat, and eliminate the need to adhere to the sheets using screws.

## **02. Establish Reference Lines**

To get reference lines, use a tape measure, find the exact center of the longest wall in the room. This can be marked near the floor using a shop pencil. Then go to the adjacent wall and do the same. Then, with the two marks as your guide, snap a chalk line between them, creating a temporary path that should completely bisect the room.

Repeat this process with the other two adjacent walls in the room, measuring to the exact center of each, and then creating a line chalk snap between them. This should divide the space into 4 even quadrants with a cross in the exact center.

To make sure that the two lines are perfectly perpendicular, you can use a T square to measure the angle. Alternatively, you can use the 3, 4, 5 method: To do this, measure

the two lines to 3 inches and 4 inches out from the middle, then make sure the third line measures 5 inches in length.



### **03. Lay Out Tiles in a Dry Run**

Slate is a unique material, and it can sometimes be tricky. This is especially true when using multi-color options. Before you go any further, it will be useful to lay out the tiles in the room and arrange them so that the colors and patterns that emerge all work together to create an attractive whole. This gives you the chance to fit everything together like a master puzzle before committing to a look with mortar and adhesive.

When you are satisfied, stack the tiles up in distinct piles that will maintain the order in which they were laid. Stack them face to face and back to back, doing your best to avoid any scratches that can come from them rubbing against one another.



#### **04. Spread the Mortar**

When you're ready to begin, mix the mortar in a plastic bucket, using the water to material proportions as stated on the manufacturer's packaging. A wooden paint stick can be used to stir the ingredients until they have a consistent feel. Be careful not to mix more than you will need for about 20-30 minutes' worth of work, as too much mortar can start to dry out and harden before you get a chance to use it.

Using the flat end of the notched trowel, scoop some of the mortar up and begin spreading it onto the cement board, starting at the center of the cross point chalk line you created, and moving out across a single quadrant. Only apply enough to cover a little more than what a single tile will need.

Then run the notched edge of the trowel through the mix to make grooves, which will create a more powerful hold when the slate tile is put in place.



**Tip:** This can be a messy process. Wear work gloves and consider knee pads to protect yourself from long periods of bending over.

## **05. Set the Tiles**

Once you have enough mortar spread, take the first tile and place it firmly into the adhesive bed. The corner of this first tile should line up with two of the chalk lines at the center of the first quadrant that you divided the room into.

Use enough force that you collapse the notched lines you created earlier, but not so much that you drop down to the cement board below. Twist the tile slightly to give it a firmer grip. You can also lightly tap the piece with a rubber mallet if you feel that more pressure is needed.

Be careful not to get any of the mortar on the surface of the piece. If you do, wipe it away immediately with a damp cloth.





**Tip:** Use strategy when laying tiles. You should walk as little as possible on the finished floor until it dries, so try to establish a plan that places you in a position to escape to the next quadrant, and eventually from the entire room when done.

## **06. Insert Tile Spacers**

Once a piece is in place, put tile spacers around all four corners. This will create consistent gaps between the tiles, which will later turn into straight and even grout lines.

Spread more mortar, trailing down the line of chalk, and place a second tile next to the first. Surround the open edges of this piece with more tile spacers. This process continues in a straight row until you reach the far wall.



## 07. Level the Tiles

Once you have three or more tiles placed, you can even them dimensionally by laying a piece of 2 x 4 wood, covered in a carpet remnant, across their surface. Tap this lightly with a rubber mallet to ensure that no piece is any higher than another.

If you are using a particularly dimensional slate with lots of peaks and gaps, you may want to avoid this step. The irregularities in the material may lead to inconsistencies in height. In that case, do your best to eyeball the relative depth of each piece.



## 08. Cut Edge and Corner Tiles

Once the first row of slate tiles reaches the wall, you will often end up with a gap. Measure the distance from the tile spacer on the last piece to the end of the room. Then employ a wet saw to cut a tile down to the dimensions necessary to fill that area in. Place the specially-sized piece into the space to complete your first line.

This entire process can be repeated, starting at the first tile placed, with a second being installed into mortar right next to it. Continue using tile spacers to ensure even grout lines, and work your way down with the first row acting as a guide.



**Warning:** Be very careful when using a wet saw. Always wear eye protection and consider wearing earplugs to protect yourself from the loud sounds that these machines can make.

### **09. Remove the Spacers and Excess Mortar**

Once you have the first quadrant complete, use a pair of needlenose pliers to pull the spacers up out from between the tiles so that they don't end up getting into the mortar as it dries. If any adhesive seeped up into the spaces between individual pieces, employ a shop knife to remove it.

Move on to the next quadrant, laying your first tile in the center space bordered by two lines of the chalk cross that you created. Continue to place spacers between individual pieces, and work in rows following the already installed slate as a guide to ensure that everything comes out straight, even, and consistent. Don't forget to level the pieces with every third tile.



## **10. Allow the Mortar to Dry**

Once your tiles are set, give the mortar adhesive at least 40 hours to dry. Keeping the space well-ventilated with fans and open windows can help to speed up this process. In some cases, the manufacturer's packaging will indicate that it requires a longer period to fully set. Always follow their instructions, and do not allow anyone to step on the floor until it has hardened into a solid installation.



## 11. Seal the Tile

Slate is a naturally porous material that requires a good sealant. Once the mortar has dried, wipe away any excess that may have gotten on the surface. Then seal the entire installation to clog the pores and create an invisible protective barrier.

First apply a below-surface sealing agent, which will go down into the tiny holes in the stone and clog them. This can be poured into an old coffee can and spread across the tiles with a small foam brush, using very thin, even strokes. Do not allow it to bubble up or accumulate into puddles. If this occurs, then use a dry foam brush to smooth the puddles out.

Allow this to dry for a few minutes, and then apply a coat of above-surface sealant. This will create an invisible but powerful barrier over the top of the stone, giving it further protection.

Give the sealant about one to two hours to fully dry and set into the stone before proceeding to the next step.



## 12. Lay the Grout

Mix a small amount of grout in a plastic bucket, following the water to material proportions as stated in the manufacturer's packaging and instructions. You want to make sure that the mix has a nice consistency that isn't too soupy or too thick.

Scoop a small amount of the grout up using your grout float, and then apply it directly to the line gaps that you created with the spacers in between the tiles. Start at one of the far walls and work your way down each line, holding the float at a 60-degree angle, gently pushing as much of the material into the gaps as possible.



**Tip:** Don't worry about making this entirely neat. It's inevitable that some grout will get on the tiles during this process. Luckily the sealant you applied will protect the slate from permanent damage, and you will be able to remove it during the next step.

### **13. Remove Excess Grout**

Use a large sponge, damp but not saturated, and run it along the surface of the slate floor to wipe away any excess grout that may have accumulated. Make sure not to get the installation too wet, as excess moisture can seep into the grout in the gaps, creating a muddy mess.

Allow the grout a solid four hours to completely dry. Then repeat the process with a clean sponge, wiping any haze that might be left behind from your work. A soft cloth can help with the cleansing process, while also wiping up excess liquids that can accumulate.





#### **14. Seal the Grout Lines**

Once the grout has had a chance to dry and is hard to the touch, it needs to be sealed to protect it from stains and water penetration. A below-surface sealant should be poured into a can and then spread along the lines using a clean foam brush. Work methodically down each portion of the floor so that you don't miss anything. Be careful not to apply too much sealant as that can cause the grout to become muddy again.

Apply a second coat if desired. This will better protect the tiles against future damage.

Wait an hour or two before walking on your new slate floor.

