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 Date: Thu, 29 Dec
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Posted on: 07/20/2005

One Step at a Time: A Brief Guide to Stair Tread Installation

Christopher Capobianco



Rubber treads with carpeted risers (photo by C. Capobianco)

Stair treads have been around for a long time, and are a tough, durable and safe covering for stairs from heavy duty to light usage. There are two types (rubber and vinyl), two shapes (round nose or square nose), two different constructions (one piece tread and riser or separate tread and riser), and a variety of surface textures (diamond, ribbed, circular, smooth, etc.). Rubber treads are the most widely used, and are most often seen commercially. Vinyl treads tend to be for light duty use such as residential basement stairs or lightly used hotel stairways. Stair tread installation, although different from installing tile or sheet goods, is not that difficult.

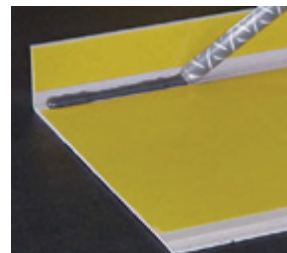


Photo 1: Epoxy nose filler applied using a two-tube caulking gun is easier and less wasteful than mixing by hand. This photo also shows the tape adhesive system used on many

However, care needs to be taken to do the job [treads today](#).

correctly because the last thing anyone wants is to be responsible for someone who trips down the stairs because of a loose tread. There are some variations in instructions among the different manufacturers, so check their book before you start.

Conditions

Handling of treads before and during installation needs to be done very carefully.

Make sure the treads are stored flat to prevent any distortion of the tread itself. If the treads are bent or folded, they can become wavy and will not lay flat. All materials and adhesive should be delivered to the job site two days in advance so they can acclimate to job site conditions, which should be 65 to 80 degrees Fahrenheit, just like any other resilient flooring material. In the winter, make it three days just to be sure. The steps must be clean and smooth. Clean off any paint, spackle, dirt or other material that can interfere with adhesive bond. Any high spots should be carefully ground down - be sure to wear a mask to avoid breathing in the dust. For wood steps, countersink any nails and re-nail or replace any loose boards. Any low or rough spots need to be filled with a high quality patching compound that is made for heavy duty traffic. Don't scrimp on this part of the job because the steps will take a pounding like no other floor covering. Follow the mix ratio of water to powder to the letter so the patch dries hard and is not too porous or dusty. On metal stairs, clean the surface by wire brush, sandblasting, or other mechanical methods, and then prime with the recommended primer, per the stair tread manufacturer. For ceramic or terrazzo stairs, sand thoroughly to remove any glazing and then fill grout with a heavy duty patching compound. As far as going over existing resilient flooring on steps, the word is Don't. None of the manufacturers I checked with recommend this application.



Photo 2: [One-piece tread and riser combination](#)

The most important part of the preparation of a step is the nose itself – the very edge of the step where feet hit as people are walking up. If this edge is damaged or wavy, this will be a point of weakness that will cause the tread to crack and might cause someone to trip. Epoxy nose filler can be used to take care of minor irregularities, but any major damage needs to be fixed before the treads are installed. If the tread cannot be installed with a relatively tight fit at the nose, don't proceed with the installation.



Photo 3: [When using the tape system, first remove the release paper from the nose of the step and set the tread against the step edge.](#)

Adhesive

Because there are different formulations of stair treads, compatibility of the tread material and the adhesive is best assured by using only the adhesive that is specified by the manufacturer. Depending on the use, the adhesive will be either a contact type that is applied with a brush, or a trowel applied acrylic type adhesive. When applying adhesive, do no more than five steps at a time so the adhesive will still be "alive" when you lay the treads in. Open time can be as short as about 45 minutes, so this is important.

Another option available today is a tape system that many manufacturers are now using. This is not just any double faced tape, but is a special fabric

reinforced adhesive tape for fast and permanent adhesion of stair treads, risers, and stringers. This method is easier and faster than traditional adhesives, has no odor, and allows for almost immediate traffic on the steps.

Whether the tape system or a standard adhesive system is used, this application needs to be “by the book” because different products are used in different ways. Before even ordering the job, check with the manufacturer to decide which system is right for you and for the job.

Epoxy

One of the unique parts of stair tread installation is the use of epoxy nose filler, also called nose caulk. This is not an epoxy adhesive that is used to adhere the treads, but is filler used at the nose of the step to fill in any voids between the edge of the step and the nose of the tread. Epoxy will prevent movement and flexing of treads and nosings by providing a strong bonding support under the nose. By preventing this movement, the chance of the tread cracking at the nose is virtually eliminated. The epoxy can be applied in either of two methods. One is to hand mix in the can, like any other epoxy, and knife the mix into the nose of the step just before setting it into the adhesive. The key to this method is not to mix more than you can use before the epoxy “kicks” or gets hard in the can. For this reason, I recommend working with quart units rather than gallons so there is less waste.

An easier method than mixing in cans is to use epoxy in a dual cartridge caulking gun. Using this method, as you can see in Photo 1, is fast, easy, and a lot less wasteful than mixing by hand.

There are some stair tread manufacturers who have such confidence in their products that they are sold as not needing epoxy at the nose. This is a real time savings for the installer, but make sure that step is in good condition so you have a tight fit. However, I feel better knowing that bead of epoxy is there so that the installation is solid as a rock. Call me old fashioned. When in doubt, use it.



Photo 4: Then, gently fold the tread back and remove the release paper from the back of the tread.

Fitting

Once all the details of job site conditions, product handling, adhesive and epoxy nose filler are worked out, it's time to install the treads. The treads can either be the traditional tread, with a separate riser, or the one piece tread and riser, as shown in Photo 2. The one piece is best installed with a “cove stick” at the back of the step where the tread meets the riser.

Every tread needs to be cut to size before the adhesive is spread. You can't assume that every step in the flight is the same size, so measure each step individually. Many treads come in wide widths up to nine feet, so most steps can be installed seamless. However, if this is not the case and the tread will have a seam, make sure the job was ordered this way, with a left half and a right half so the pattern will match.

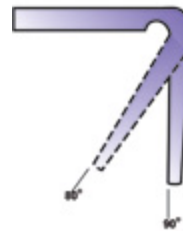


Figure 1: Some treads have a notch cut in the back so the treads can be bent to follow angled risers.

To fit the job, take careful measurements of each step at the nosing and at the back of the step where it meets the riser. If you are using the one piece tread/riser, measure the riser also. If the sides are not straight, scribe the step in using dividers, or make a pattern. For cutting, a linoleum knife works well, although on large installations, the use of a saw may make this process easier. After cutting, mark each tread so you know which tread goes on which step.

Adhering

Once all of the treads are cut, apply the adhesive or the tape according to manufacturer's instructions. Just prior to setting the tread, apply the epoxy nose filler. Hold the tread up, set the nose first, then work your way back. If using the tape system, apply the epoxy nose filler, remove the release paper from the nosing, as shown in Photo 3, and set the tread against the step edge. Then fold the tread back carefully and remove the release paper from the back of the tread, as in Photo 4. After the paper is removed, work from the front of the tread to the back and press the tread onto the step. Whether you use tape or adhesive, a hand roller will make sure the tread makes contact with the adhesive.

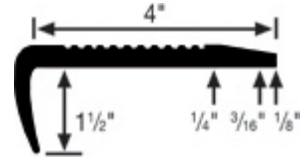


Figure 2: A nosing such as this will butt to a 1/8-inch VCT at the top step, or can be trimmed back to butt to thicker flooring materials.

Newer stairwells are designed with the riser at a slight angle back, for less of a tripping hazard. These are sometimes called "ADA" steps, for the Americans with Disabilities Act. Many treads for this type of step are either manufactured with a slight angle to the nose, or they have a slight notch at the nose, as shown in Figure 1. If this is not the case, the installer will have to cut a notch using a cove base groover so that the nose will bend. After setting the tread, it's a good idea to tape the nose of the tread using a heavy duty masking tape so that it stays in place until the epoxy has cured. The tape can be removed the next day. Risers are installed in much the same way as cove base – but the adhesive selection will depend on whether the riser is porous or non porous so pay attention to this detail before ordering.

Finishing

At the top step, careful attention needs to be paid to what the floor covering will be on the landing or corridor that the stairway leads to. Don't assume the top step will be just another stair tread. Sometimes it is better to use a heavy duty rubber nosing on that top step, like if it will meet a VCT floor. The type of nosing shown in Figure 2 will butt to a 1/8-inch flooring material, or can be trimmed back for thicker floor coverings. This way it looks aesthetically better and is a smooth transition with less of a trip hazard. If the landing and the treads will be matching, like in the case of circular design treads, then the top tread must be trimmed correctly so as to match up with the landing. The back section of a raised design tread is often smooth. For example, you'll have the nose, five rows of circles, and then the smooth section that meets the riser. On a landing, the smooth section needs to be cut off to match the pattern with the landing tile. The circles on the tread may not necessarily line up perfectly with the landing tile, but it looks better than leaving that smooth section on. Some treads, as in Figure 3, have a trim mark on the back so the installer can make this cut easily.

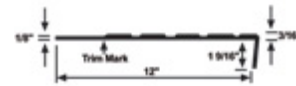


Figure 3: When meeting a landing, trim the smooth section off of the front of the tread so that the pattern will match up. Some treads have a trim mark to make this easier.

Stringers are sometimes used on stair tread installations for a matching look on the side of the steps. This takes careful trimming, and is best done by making a pattern of cardboard that can then be transferred onto the stringer material. Some manufacturers have a matching color acrylic caulk available that can be a nice way to fill any gaps in a stair tread installation.

Clean up any adhesive residue right away before it has a chance to dry. This is especially important with epoxy, which cannot be removed once it cures.

After installation, it's important to keep traffic off the stairwell for the recommended time period. If the job was done with adhesive, the treads can shift if someone starts walking on the steps too soon after installation.

Although stair tread installation has a lot of detail work, it's not that difficult once you get the hang of it, and as more and more treads are being sold now for safety and aesthetic reasons, it pays an installer to learn how to install these products.

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