

STUCCO PATCHES



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Stucco, when applied correctly in the first place, will not one day decide to fail of its own volition. Still, it's likely that all stucco homes will eventually require patching for one reason or another, whether to cover holes bored by blown insulation installers, or to repair heavy-handed demolition work done by carpenters adding onto the house.

The primary aim when patching stucco is to restore the integrity of the exterior cladding system — but that's the easy part. The challenge is to have the patch blend in well, rather than stick out like a sore thumb. It's a rare situation where you can make the patch truly invisible.

Novice attempts by homeowners or handymen to patch stucco are not only ugly to look at, but often compromise the structure's weather-resistance. In my work, I've seen patches done with everything from spackle and paint to Thorite, which has a compressive strength approaching that of stainless steel. I've seen cracks around windows filled in with what must have been dozens of tubes of caulk. These "bubblegum patches" look abysmal and have to be removed for a professional job to be done.

What follows is a description of how to patch the stucco in a wall where a window or door has been removed.

Preparing The Substrate

After adding the necessary studs, install new sheathing flush with the plane of the old sheathing. Carefully remove a swath of the existing stucco around the infill area, leaving at least 6 inches of the existing wire and paper intact. Saw cuts are not encouraged because they cut the wire, as well as leave a sharp edge that is difficult to transition into. A jagged stucco edge is best (see illustration, next page).

Building paper. Next, cut a piece of asphaltic sheathing paper — Class D or better — that's slightly larger than the patch area. Carefully slip it behind the existing paper by at least one inch at the top and sides, and let it extend over the old paper at the bottom of the patched area. Remember that this paper protects the wall from the weather; lap it accordingly. Where the existing paper edges are destroyed, you can use duct tape to seal old to new. All stucco patches develop hairline shrinkage cracks around the perimeter, so great pains should be taken to ensure the paper is lapped adequately.

Lath. Cut the lath to completely fill the area to be patched. Remember that stucco requires a means of attachment to stay in place, and the grip the scratch coat gets on the lath is critical to a durable patch job. Use staples or galvanized roofing nails of sufficient length to get a good "bite" into the plywood or OSB sheathing. If you're

installing the lath over foam sheathing, use longer nails and make sure you hit the studs.

The Mix

I can speak only for our company, but here in central Ohio, we use white waterproof cement, lime, bagged silica sand, and water. For our finish, we add iron-oxide pigment to achieve colors. We use bagged silica to ensure that there are no iron particles mixed in (from being loaded by a front loader which has been parked in the rain for three days), or rivets and nail heads found in the less expensive "yard sand" available locally. We use the more expensive pigments because they won't fade in a couple of years like the cheaper pigments.

The American Society of Testing and Materials (ASTM) has published guidelines on what mixtures to use for various applications. This is a generic menu that will perform well in most situations. They also offer specific direction on lathing and its attachment, control joint placement, and other aspects of stucco work. This advice — however accurate or well intentioned — is routinely overridden at the field level because local contractors know what works best in their area. Stucco work routinely performed on the West Coast, for instance, has to stand up to seismic activity and therefore is different from work performed here in the Midwest.

The Scratch Coat

The first coat of "mud" is called the scratch coat, characterized by the marks left by the square-tooth trowel when it's applied. The scratch coat should be approximately $\frac{3}{8}$ inch thick. Its job is to get a grip on the wire.

The scratch coat is composed of cement, lime, and washed mason's sand. The thickness of the mud should just cover the wire. Stucco (like concrete) derives its strength as a result of two factors: the relative strength of the mix and its drying time. A wet mixture will result in excessive shrinkage (often called checking), and a dry mixture or a stucco patch completed in very hot weather will dry rapidly and create a weak bond. If it's hot or the wind is blowing, you should lightly mist the walls a few times to retard the drying and produce a stronger first coat. If possible, avoid doing your work in direct sunlight.

The Brown Coat

The following coat, which is called a brown coat for some unknown reason, is applied the day after the scratch coat. The brown coat is actually gray in color, but is composed of slightly more sand than the scratch coat mixture and is therefore a more manageable but a slightly weaker mix. It should be applied $\frac{3}{8}$ inch thick, and if space permits, straight-edged and floated to ensure a flat plane held

FOR A SUCCESSFUL PATCHING JOB,
PREPARE THE SUBSTRATE WELL AND
PLAN TO PAINT THE FINISHED WALL

approximately 1/8 inch below the finished surface of the adjacent stucco. A pointer trowel should be used to work the stucco into the cracks where the new stucco meets the existing. You can lay a 2x4 or other straight edge across the patch (resting it on the existing wall surface) to measure the required thickness of the finish coat.

It's important that the brown coat be both flat and uniformly depressed below the level of the surrounding finish coat. An uneven brown coat will lead to an inconsistent thickness in the finish coat that will cause some areas of the finish coat to dry before other areas. If this happens, the finish coat will have color variations and excessive cracking. The result, if the finish coat is applied with pigment, will be splotchy or "mottled." If the finish coat is to be painted, there might be cracks that won't paint over easily.

The Finish Coat

How successfully the finish coat matches the existing depends largely upon the quality of the brown coat. Matching texture, and in the case of a pigmented finish coat, matching the color, are very difficult to accomplish. The mixture, drying conditions, and application method of the existing finish coat are all unknown. In the field you're left to your best judgment, but you'll almost never produce a perfect match.

The final coat is usually floated on, except in the case of machine-textured finishes. Most small patch jobs don't warrant the cost of bringing a hoppergun and compressor onto the job site, when a skilled worker can apply a machinelike texture with a hand-thrown dash.

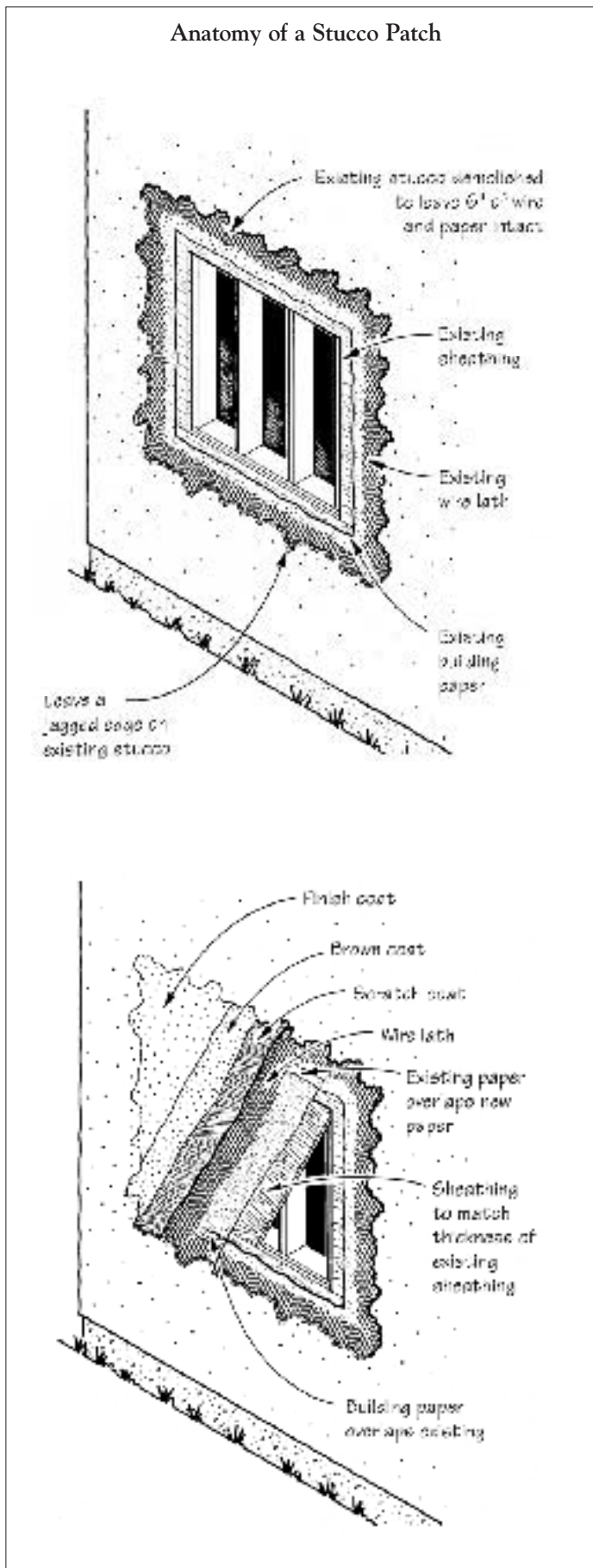
Sometimes a paint brush dipped in water is used to smooth the transition between a patch and the existing stucco. This helps to eliminate the sharp line between the two different textures. When painted, the seam between the new and existing is less noticeable.

There are products available for the purpose of strengthening the bond between the new and used stucco. These syruplike, brightly colored materials are expensive, and in our experience have done little to prevent cracking between the new and existing stucco. If the substrate is installed correctly, this will help keep cracking to a minimum. If the substrate isn't installed correctly, the movement in the wall will not be held back by a stucco bonding agent.

One-Coat Stucco

When a stucco patch is small and the homeowner wants to avoid the labor costs of three trips, a one-coat stucco material can be used. One-coat stucco, like standard stucco, is applied over paper and wire. These mixes are quite a bit more expensive, so they aren't cost-effective on larger jobs. We use Parex's *Monocouche* and Grey-

Anatomy of a Stucco Patch



When patching stucco, leave at least 6 inches of the existing lath and building paper exposed around the edge of the patch (top). The existing stucco should have a jagged edge, to create a less noticeable transition to the new stucco. Match the thickness of the existing sheathing (above), and make sure to lap the new building paper correctly — this guarantees a waterproof patch.

FILLING STUCCO CRACKS

When asked to patch cracks in stucco, I often advise the homeowner to do the work himself using caulking, not stucco.

Houses are built primarily of wood. Wood is subject to expansion, contraction, racking, shifting, etc. The bulk of this movement occurs during the first couple of years after construction, as the house attempts to reach some kind of equilibrium.

Cement is intolerant of movement, which results in cracks. These cracks, ranging from hairline to $\frac{3}{16}$ inch wide, are usually cosmetic only. If the building paper has been installed correctly, the house is protected from water damage.

If stucco is used to fill these cracks, not only will you be left with an expensive paint job, but the material will most likely crumble out as the building continues to shift.

For cracks $\frac{1}{16}$ to $\frac{3}{16}$ inch wide (leave hairline cracks alone), filling the crack with a caulk that matches the color of the wall is the best solution. Ohio Sealants Inc. (7405 Production Dr., Mentor, OH 44060; 216/255-8900), among others, makes a surprisingly wide palette of caulking colors. Have the homeowner determine which color most closely matches their stucco.

Don't use silicone-based caulk, which will not hold paint.

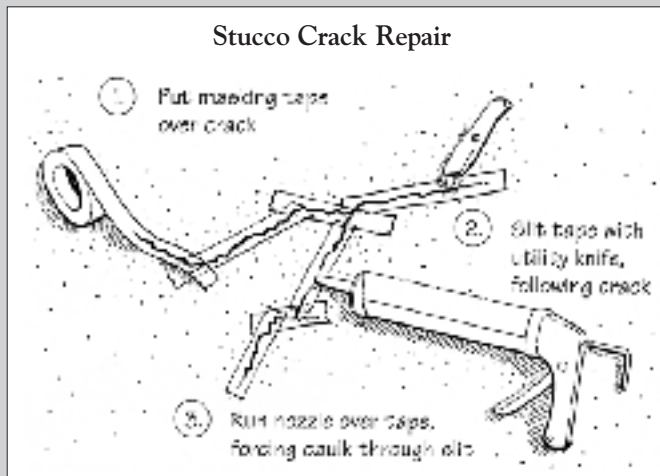
Don't open up or expand the width of the crack. Place masking tape over the length of the crack, then use a utility knife or razor blade to slit the tape, following the crack. Apply the caulk by running the nozzle over the slit, forcing the caulk through the tape into the crack. Finally, strip the tape before the caulk sets up. This approach keeps most of the caul-

ing where you want it.

We've had good results with this technique. It makes a successful seal because the inherent flexibility of the caulking is able to tolerate later movement of the building. The customers make the decision on color, and their investment is minimal. They end up thinking we're heroes for giving them good advice and helping them to save money.

— S.T.

Stucco Crack Repair



To fill a stucco crack with color-matching caulk, first cover the crack with masking tape, then slit the tape with a utility knife. Apply the caulk through the slit and remove the tape before the caulk sets up.

couche products (Parex Inc., P.O. Box 189, Redan, GA 30074; 800/537-2739), which are applied up to a $\frac{7}{8}$ -inch thickness according to manufacturer's instructions. Monocouche is white cement-based, and may be tinted using the same iron oxides used for stucco. Less expensive is the Grey-couche, which is gray in color and suitable for patchwork if you're confident the area will eventually receive paint.

Besides the advantage of the single trip application, this "just-add-water" one-coat stucco shrinks less than standard stucco. But adhere to the manufacturer's temperature warnings when using these products.

Painting Stucco

When faced with a large patch like a patio door infill in a two-story, 40-foot-long wall, you have a problem: If the existing wall is composed of pigmented stucco, chances are very high that both the color and texture of the new stucco will not match. Regrettably, this patch occurs at eye level. One solution might be to rebrown and refinish the entire wall plane, which will render the patch invisible, but the job then lurches from a 42-square-foot patch to a 720-square-foot job requiring scaffolding, a lot more cement, lime, sand, etc. Plus,

you'll need a mixer instead of a wheelbarrow.

My recommendation is to paint. Painting stucco is not only possible, but often advantageous to assure uniformity of color. It focuses the stucco worker on the goal of tying together the texture and plane of the new and the existing, and it's very likely that the paint will make the wall uniform in color.

Here are three tips on painting stucco:

- Newly applied stucco should be allowed about 30 days to cure, depending on the weather conditions.
- Existing stucco surfaces should be power-washed and allowed to thoroughly dry before painting. Do not use a water blaster, as its excessive pressure can do severe damage to the stucco.
- Stucco should only be painted with acrylic-based paints with adequate vapor transmission characteristics, so as not to create new moisture-related problems within the house. Oil-based, rubber-based, and latex paints all have their places, but none of them were intended for exterior stucco.

Client Expectations

When writing a quote for stucco work involving patching, I typical-

ly use phrases like: "In spite of our best efforts, this area will likely appear patched," or "Due to weathering of adjacent stucco surfaces, precise color and texture matching may not be achievable." These phrases are not meant to serve as escape clauses to condone bad work, but rather to alert the homeowner or contractor to the realities of stucco patchwork. We do occasionally hit it right on the head and achieve a perfect color and texture match, but this is the exception, not the rule.

The man who does our patch work (jobs less than 100 square feet) has been with us for 17 years. His dad worked here for 40 years. He still "misses" hitting a perfect match in most cases. One way I convey to clients the difficulty of the task at hand is with a clothing analogy: Imagine cutting a 4-inch-square patch out of one of your favorite shirts and then sewing it back in place. While it's exactly the same fabric filling in the exact hole from which it was cut, it will still be apparent as a patch, and not part of the undisturbed cloth surrounding it. The same is true of stucco patching. ■

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