

# A New Way to Repair Old Plaster

If cracks and crumbling plaster have you down, here's a remedy that uses basic methods and materials, and that requires no sanding

by Mario Rodriguez

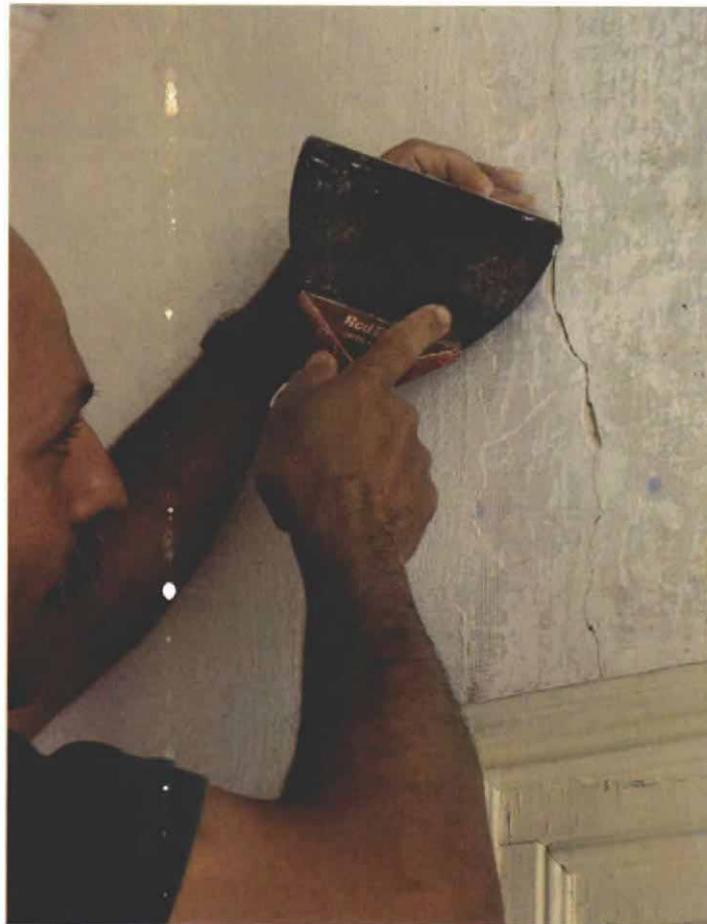
**W**hen my wife and I were hunting for an old house to restore, I was never put off by sagging floors, old kitchens or even leaky plumbing. But every time I confronted ugly, cracked plaster walls and ceilings, I was stopped cold.

Dealing with deteriorating plaster can be one of the most perplexing problems in the restoration of an old house. The usual choice is tearing everything out and starting from scratch, which generates tons of debris and clouds of plaster dust that linger for many months after the job is finished.

There's also the option of a tedious, expensive multiple-step restoration process that involves cleaning out and filling every little plaster crack with the scratch coat, the rough brown plaster base, and then applying several coats of smooth plaster. But if you can't afford to have a complete restoration project done and if you don't enjoy the taste of plaster dust, there is an alternative.

**Fiberglass mesh and fortified joint compound provide the base**—The method I use starts with woven-fiberglass mesh (top photo, facing page), a wider version of dry-

wall seam tape, made by Perma Glas-Mesh (P. O. Box 220, Dover, Ohio 44622; 800-762-6694). The mesh is applied over the existing plaster walls and ceilings and provides a stable, flexible ground that spans small cracks and imperfections in the old plaster surface. The mesh also re-



**Cracks in the old plaster are opened.** Loose plaster around cracks can be dug out with a tapping knife. The fiberglass mesh stretches across these cracks, which are then filled with fortified joint compound.

inforces the layers of compound that are applied on top.

The rolls of fiberglass mesh are 36 in. wide and 75 ft. long. I found a local building-supply store that stocks the product for around \$24 per roll. But any store that sells fiberglass seam tape

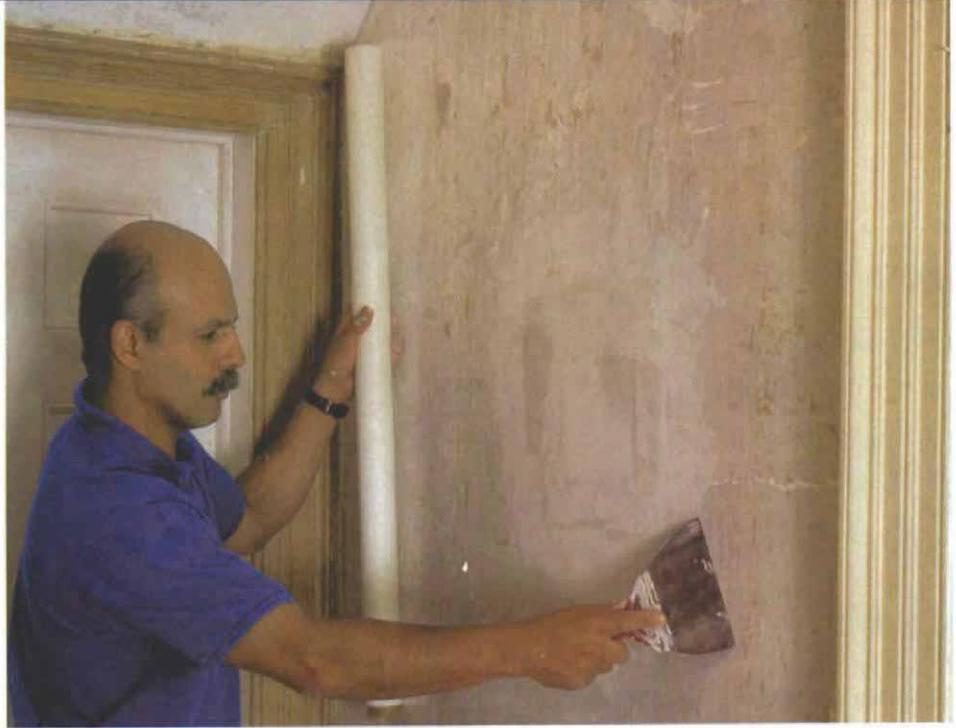
should be able to order the mesh for you.

The second key to my method is applying a thin layer of ready-mixed joint compound fortified with #00 mason's sand over the mesh as a base coat. Mason's sand has a fine, uniform grain with no pebbles and can be purchased at any masonry supplier. If mason's sand is unavailable, I reluctantly substitute builder's sand, which is sold by the bag at most building-supply stores. Bagged sand should be sifted to remove pebbles before it is mixed into the compound. After the fortified layer is applied, several thin layers of regular joint compound finish the process with no sanding between coats.

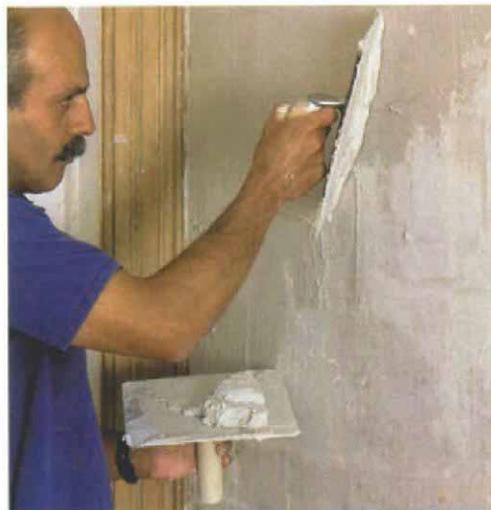
Using joint compound instead of plaster has several advantages, the first being that a single product is used for all stages of the process. Another advantage is that joint compound is available at any lumberyard or building-supply store. Joint compound also has a longer working time and shelf life than mixed plaster, remaining workable for weeks if kept in a closed bucket. Also, joint compound is ready to use out of the can, and its homogeneous texture and working charac-

teristics are familiar to almost anyone who's ever worked with drywall.

**No special tools are required**—The tools needed for my plaster-repair technique are available at most hardware stores, and many are



**Fiberglass mesh stretches across cracks and imperfections.** A taping knife is used to smooth 3-ft. wide fiberglass mesh that acts as reinforcement for the joint compound applied on top.



**Fortified compound makes defects disappear.** Joint compound fortified with mason's sand makes up the base coat. Here a drywall patch in the old wall disappears under a layer of fortified compound.

**No sanding required.** After the fortified compound dries, lumps and ridges can be scraped off with a taping knife, and successive coats of compound fill in the voids left in the previous layer.



probably in your tool arsenal already. I like to use a flat metal hawk, which is handled like a painter's palette, to hold the compound in preparation for its application to the wall or ceiling. The hawk also serves as a repository for excess compound.

My next plaster-repair tool is a concrete/plaster trowel, which is a flat, rectangular metal trowel with four smooth, sharp edges. The trowel is the best tool for spreading joint compound as well as for scraping compound off other tools. The square corners of the trowel make it easy to work into the room's corners and to pick out unwanted lumps in the compound. The trowel's large handle lets you apply a lot of pressure, and its wide blade can disburse a lot of mud.

I also use a 4-in. drywall taping knife for getting mud out of the bucket and for smoothing the mesh. The taping knife is also great for removing excess dried compound from walls and ceilings between coats. Other tools that come in handy are a utility knife for cutting the mesh and drywall and a 4-in. paintbrush or large sponge for applying water to surfaces before final polishing. A rubber-edged grout float is the best tool for polishing the surface.

#### **Existing plaster must be clean and sound—**

Old plaster walls usually started with small wooden strips called lath, which were nailed to the studs or joists. A rough base coat of plaster was applied over the lath, and where it squeezed through the gaps between the lath and hardened, the plaster was keyed onto the wall. If the plaster was not keyed in properly or if the keys on the backside of the lath have broken away, the plaster may be loose and must be removed before repairs can be done.

I begin prepping my walls by stripping off old wallpaper with my taping knife. Cracks in the



**Cleaning out the corners.** Running the corner of a trowel along the intersection of the wall and ceiling dislodges the excess compound from the ceiling.

**The final layer of compound goes on.** The last layer of regular joint compound fills the remaining rough areas. The final coat should be so thin that it dries almost instantly.

**A rubber grout trowel polishes the wall.** As a final step, the compound is softened with a damp sponge, and the slurry created by the grout trowel leaves a shiny finish on the wall when it dries.



plaster are cut back until I hit solid plaster (photo p. 90); areas of loose plaster should be pried free from the lath, especially on ceilings. You can test for loose plaster by pressing lightly on the wall. If the surface feels springy, chances are it has come loose from the lath and has to be removed. If I have doubts, I try removing the plaster in a few small areas to test for soundness.

Small holes and cracks in the plaster will be filled with the fortified compound, but larger holes may have to be repaired with blowout patches (sidebar facing page). Areas measuring more than 8 in. square are best repaired with drywall, cut to size and screwed to the wall studs or lath. Old plaster finished with a gloss paint should be roughed up with 80-grit sandpaper. Finally, I coat the existing plaster with a mixture of 1 part Well-Bond cement (Frank T. Ross and Sons Ltd., 6550 Lawrence Ave. E., Scarborough, Ont., Canada M1C 4A7) to 3 parts water and allow to dry as insurance that further treatments will adhere. Another product I've used with good results is Elmer's Concrete Bonder (Borden Corp., Elmer Products Inc., P. O. Box 16700, Columbus, Ohio 43216; 800-426-7336).

**Applying the mesh is easier with two people**—After the wall is prepped, the next step is applying the fiberglass mesh. The mesh is strong and should be cut with a knife or with scissors.

Because the mesh is coated with a strong adhesive, getting it off the roll can be tricky. I stick the end of the roll to a 2x4 or a broom handle, and then pull away from the roll. Two people make this step go a lot quicker, one pulling the roll and the other holding the 2x4, which keeps the mesh flat and avoids sags, distortions or tears that will complicate its application.

The mesh either can be pre-cut to length for easier handling, or it can be applied to the wall directly from the roll and cut in place. Once the mesh is on the wall, I smooth it out with my taping knife. Perma Glas recommends butting seams, but with my technique, I overlap seams and corners about 1 in. for added strength. When covered with the heavy base coat of fortified compound, the overlapped seams don't telegraph through to the finished surface.

**Fortified compound fills gaps and sticks tenaciously**—To create space in the bucket for mixing the mason's sand and joint compound, I first remove about one-quarter of the compound from a 5-gal. tub. I add five 1-lb. coffee cans of sand to the three-quarters-full bucket of compound, stirring each canful of sand slowly and carefully into the compound.

The best and quickest way to blend the sand into the compound is with a mixing paddle and

a powerful drill. But be careful. The heavy mix can bog down or even burn out an underpowered drill. A heavy stick and lots of elbow grease will work just as well to achieve a good mix, and because of the long pot life of the compound, you can take your time getting the mixture just right.

Once mixed, the fortified compound is gritty and abrasive, and it doesn't come off tools easily. And if you're not careful, fortified compound can leave your hands raw. The good news is that the fortified compound won't slide off the hawk as easily as ordinary joint compound, and it adheres well to the old plaster and the mesh.

I dig a portion of fortified compound from the bucket with my 4-in. taping knife and deposit it on the hawk. Then, one wall at a time, I apply the compound using one of two methods. If I'm applying compound to a relatively small area, I pick up a small amount on the edge of my trowel and spread it on the wall. If I'm covering a large area, I push the compound off the hawk with the trowel, which gets more mud onto the wall faster.

Once the compound is on the wall, I spread it with the mason's trowel, using steady, even pressure in broad strokes until the layer is thin and uniform with the mesh just barely showing through (center photo, p. 91). I don't try to build up any thickness with this first layer, leaving it as thin as possible. I also try not to overwork the surface to keep the mesh from breaking down along the edges and seams.

The layer of fortified mix should fill in the most serious cracks and surface defects, and it should cover the mesh seams. Drywall patches under the mesh should disappear. At this point the surface should be slightly rough-textured but even. I wait 24 hours, or until the layer is dry, and then I apply a second coat of the mix to any uneven or hollow areas. I work the fortified compound into the corners, but I don't try to work the adjoining wall.

In some instances, old plaster walls may be in good enough shape that I can skip the fortified mix and apply the straight compound over the mesh. If you decide to go this route and aren't happy with the results, just go back and apply the fortified compound over the bad areas. Then you can proceed to the next step.

## Patching holes with drywall

As a young apprentice doing punch lists for a drywall contractor, I had to repair the damage done to finished drywall by the other trades. One of the tricks I learned was the blowout patch.—M. R.



**A square hole is easier to patch.** The first step is squaring up the hole that will be patched, making it easier to measure and fit the patch.



**The drywall for the patch is oversize.** Then it's scored on the back, and the gypsum is peeled away, leaving the patch with a paper border.



**Paper border acts like seam tape.** With joint compound on the back of the patch, the border spans the gap around the patch.



**Disappearing patch.** With the excess compound removed the paper border is smoothed out and fully adhered to the old plaster.

**Layers of straight compound are applied over the base coat**—After the layers of fortified compound have dried completely, I use the taping knife to clean off lumps and ridges left on the wall by the trowel (bottom photo, p. 91). The knife or trowel can also be used to remove any dried excess material in the corners (top photo, facing page).

The straight compound is applied in basically the same manner as the base coat. However, because the straight compound is thinner and because I'm only filling in and leveling the base coat, the whole process should go a lot quicker. Again, I don't try to build up any thickness. I leave just enough of the compound on the wall to fill in the textured surface that is left by the fortified compound.

After the first coat of straight compound, the surface should be nearly smooth with some mild texture and scattered rough areas (center photo, facing page). Particles of sand from the base coat will still be visible in places. The layers of straight compound dry quickly because of

the small amount being left on the surface, so once a thin, even coat has been applied, leave it alone. Going back over an area again and again can disturb the compound and interfere with its adhesion to the lower layers.

Additional coats of straight compound fill in remaining rough spots, level out ridges and dress the corners. These coats leave so little compound on the surface that one end of a wall will be dry by the time you get to the other end. More coats are applied until any remaining rough texture has been filled and the surface is smooth to your satisfaction. Occasionally, small, stubborn trouble spots will require extra attention; I go over these spots with a small amount of compound as often as it takes to fill them and to level them.

**Adding the shine**—I love the subtle imperfections and the gentle undulations of an old plaster wall. Real plaster has an irresistible marblelike smoothness that is almost cool to the touch, and it has an earthiness that fuses together the natural, rough-hewn materials found in an old house. A final polishing will blend a renewed wall into your restoration job perfectly.

After the last coat of joint compound, I wet down the wall with a 4-in. paintbrush or a large sponge and wait a moment for the water to soften the compound slightly. Then I go over the wall with a rubber-edged trowel, or ceramic-tile grout float, in large, sweeping strokes (bottom photo, facing page). The water creates a slurry of compound that is pushed over the wall or ceiling surface, filling in any remaining holes, ridges or scratches.

If you have trouble using the metal trowel without leaving dings and scratches, the soft, rounded edges and corners of a rubber trowel make it the perfect tool for achieving a smooth, polished surface without taking chances on ruining the surface. The sole of the rubber trowel may drag a bit, so keep the wall damp and use a light touch on the trowel. □

*When he's not teaching woodworking, building furniture or fulfilling his duties as a contributing editor of Fine Woodworking, Mario Rodriguez spends his time restoring his 18th-century house in Warwick, N. Y. Photos by Roe A. Osborn.*