

This technique lets you create the look of stucco on a wood frame structure

Step-by-step: Using synthetic stucco

by Jim Schmidt

For a long time, I have been interested in the masonry look that I saw on both frame homes and commercial buildings around town. Getting that look without the expense of a concrete footing made me think this system would be ideal for sign bases and structures for freestanding signs.

This synthetic stucco system is called EIFS (exterior insulation and finish systems) construction. It uses two layers—a base coat then a finish coat of synthetic stucco, an acrylic product—that are applied over foam insulation board. I learned about it by stopping at job sites where it was being used, discussing it with a few of our commercial customers, read-

ing construction magazines, talking to suppliers of the materials, and calling the technical department of the product I decided to use.

Being in construction for 25 years with my father, I knew that building freestanding signs like this was something I could handle. Lois, my wife, has been in the sign business for about the same number of years that I have been in construction, so her design skills and my carpentry background works out swell.

If you're leery of tackling a project like this, subcontract the construction work and do the sign work yourself. Find an experienced contractor to build the

wood frame structure, then contact a plasterer to do the synthetic stucco. (In some states, you have to be licensed to fabricate structures like these, so you may want to contact your local building department for building code requirements.) I subbed out our first such project, but I missed the "hands-on" satisfaction of the construction process, so I now build such signs myself. Over the past four years, we've done several signs like the one shown here, with no problems to date.

Tools and materials

The first thing you need is tools (Figure 1). Nothing too sophisticated here—a few buckets, sawing tools, trowels, scissors, a drill with a mixer bit and a hock. The hock is a square board with a handle on the bottom. It holds the stucco so you can pick it up with the trowel while plastering.

I used the Dryvit® system for the finish, though there are other manufacturers. My materials—base coat, finish coat, and 9½-in.-wide rolls of plastic mesh—came from a local drywall supplier (Figure 2). The base coat is Dryvit's® 'Primus DM'. Just add water and plaster it on. You can buy a base coat that you mix with sand and water, but since a sign like this requires only two 50-pound bags of Primus DM, I went for convenience rather than economy.

The Dryvit finish I chose is called 'Quartz Putz'. It's ready-to-use—no need to add water. The finish is premixed in the color you chose. It has some coarse grit which is carried around during



Figure 1. The tools for the task



Figure 2. Materials are available from a drywall supplier

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troweling to give a “wormy” texture. It is available in a smooth finish, too.

The 1-in. insulation board I used for this project is Quick-R® by Celotex®. You may have seen the white beaded foam insulation,

sometimes called “bead board”, used for this. I prefer Quick-R because it is a stronger board. With its fiber-like surface, I don’t have to put mesh over the whole surface like you do when using bead board. If you do use bead

board, it must be a treated board for exterior use—not just the standard board you find at the lumber yard.

The insulation board is secured to the plywood or stud frame with ceramic-coated screws and plastic washers. There is also an adhesive sold for this purpose, but I prefer the screws-and-washers method. When the plastic washers are screwed onto the insulating board, they actually pull down below the surface, leaving no bumps for your plastering. (These plastic washers are also great for attaching banners to walls!)

Building the structure

Figures 3, 4, and 5 give you a good idea of how I built my structure for this project. I like to install my Quick-R to a solid wood surface, so I skin the framework of the structure with 3/4-in. exterior plywood. This also adds strength to the framework.

The next step is installing the insulation board over all areas to be stucco finished. This begins with a very important process called backwrapping, which protects any edge of the insulation that may be exposed to the elements. Edges that require backwrapping include the bottom of the sign (where water could soak into the edge), and all the other places where foam doesn’t touch foam, such as where the insulation board butts into other material like brick or concrete.

To backwrap, apply a layer of the base coat with a 6-in.-wide spackling knife to the front, back, and edge of the foam, then wrap it with plastic mesh (Figure 6). Work the mesh into the base coat with the knife and let it dry—preferably overnight. The consistency of the base coat should be similar to icing on a cake. Follow the mixing instructions on the bag. The mesh seams hold better around the board when it isn’t too



Figure 3. The wood framework



Figure 4. Skinning with plywood



Figure 5. Note bracing for top arch



Figure 6. Backwrapping an edge



Figure 7. After the insulation board is installed, the sign is ready for stucco.

wet. Please note that I'm showing you the mesh after I've already completed the backwrap on the board.

If I'm in doubt about whether to backwrap a certain piece or not, I wrap it just to be on the safe side. Moisture getting into the board could destroy the project, so I'd rather be safe than sorry.

After the necessary backwrapping is done, I installed the foam. There are no tricks here—it goes up easily. Make sure your corners are neat and tight. I used a cordless power screwdriver to put the screws in, pulling the plastic washers down flush with the surface.

In Figure 7, which shows the insulating board installed, you can see the areas I have backwrapped. This is done before the foam is physically attached to the base, so if pre-cutting the foam board at the shop is possible, you can save some time.

Applying the base and finish coat

Next, all corners and seams got a layer of base coat and mesh (Figure 8). Once that was finished



Figure 8. Applying base coat to seams and corners



Figure 9. Applying base coat to entire sign



Figure 10. Base coat is dry and ready for finish coat.

I plastered the base coat on the whole sign with a metal trowel (Figure 9). The base coat will turn a light gray when dry. I let it dry for a day before putting the finish coat on (Figure 10).

I used a metal trowel—a tool I'm very familiar with—to apply the finish coat of Dryvit Quartz Putz. I spread it in a thin, solid coat (Figure 11). This material goes a long way. After it set up a little, I used

the plastic trowel that the supplier told me to use (Figure 12). It worked better than a metal trowel. Using a circular motion and keeping the trowel dead flat against the surface, I was able to get the “wormy” effect we wanted.

Depending on the temperature, you must allow the finish coat ample time to set up before finish troweling. The colder it is, the longer the wait. I learned this

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through trial and error. I thought I'd ruined my first job because I couldn't get the finish I had

wanted. It was a hot day, and I quickly found out that if the material set up for a short time I could

get the look I'd expected.

Both the base coat and the finish material will stick to your



Figure 11. Applying finish coat with metal trowel



Figure 12. Finish troweling with plastic trowel



Figure 13. After the finish coat dries, the structure is ready for the trim and sign panels.



Figure 14. The architectural moulding at the bottom of the main panel was installed with stainless steel screws.

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Figure 15. The completed sign

hands, and it's hard to get off clothing. Wearing disposable gloves make cleaning easier. Rubbing under running water seems to work best for removing it, when necessary.

Finishing touches

The sign panels were sand-blasted Sign-Foam® high density urethane. The address is cut from urethane and gilded. The logos are also gilded. The signs were fastened to the sign structure with stainless steel screws. Before inserting the screws into the holes, I coated them with silicone, then screwed them in. This helps to seal

the holes in the insulation board.

The top and bottom mouldings are architectural foam, which was a real plus on this job (Figure 14). These mouldings are available from lumberyards and builder supply companies who will order them from the manufacturer for you. They have catalogs that show the many standard shapes and sizes available. They are expensive, but still less than the cost of having a custom moulding milled. They can add a nice touch to a sign.

This sign will have to be moved within a year or two, so that had to be considered during installa-

tion. The main posts are set in pea gravel instead of concrete. On each side, in the very front of the protruding base, there is a 4-by-4 post set in concrete. When it's time to move it, I'll cut those 4-by-4 posts off at ground level and remove the signs and mouldings. We'll lift the sign out of the ground in a sling, with the help of a large tow truck. We'll trailer it to the new site and plant it again.

I can't guarantee that everything I did is 100% correct. This knowledge came from hands-on experience I started gaining when I did my first sign of this type. But it should give you an idea of what's involved if you want to try a job like this. To guarantee successful use of this system, follow the manufacturer's instructions for the product you are using. Your supplier should have additional literature on the materials. You'll want to read that before you ever pick up your trowel to get started. You'll also want to do some practice work in the shop before you tackle it on a project you have sold.

You may notice the plastic tent visible in some of the photos. In December, the weather in Cincinnati is unpredictable, so I built a tent over the sign with 2-by-4s and clear plastic to keep it dry. Rain and 50- to 60-mph winds were in the forecast that night. I called the company the next day to see if the tent was still there. I lucked out. Cold weather was coming, though, and since the finish must stay above 40° F for 24 hours to cure properly, I had to get the stucco work done soon. The sign was completed the last day of 1996, and the temperature rose to nearly 60° after I was done!□

Jim Schmidt's shop, Schmidt's Signery, is in Hamilton, Ohio.