

External Stucco - Uses and How to Apply

The terms 'Render' and 'Stucco' are almost interchangeable; Render generally being UK terminology and Stucco, American. However there are differences, such as:

- Stucco tends to be thicker than render (20mm against 10-12mm).
- Stucco tends to be built up from 3 layers while render tends to be one or two.
- Render tends to be only applied to masonry while techniques allow Stucco to be used on other structures.
- Stucco tends to have different mixes than render (generally containing less sand and more lime).

This page is written around Stucco; however the general principles may be applied to rendering.

Stucco on Different Surfaces

Traditionally, Stucco has been applied to both internal and external masonry or timber wall construction as it requires a solid backing to give it strength. This page is based around the external use of stucco. Modern techniques have enabled the use of Stucco on timber frame walls. Although Stucco is at first sight a very simple technique, its incorrect or inappropriate application can result in major problems causing the Stucco to bulge, separate, crack or allow the entry of water causing timber frames to rot out.

When applied to masonry, the Stucco can be applied directly onto the surface. As masonry walls tend to be fairly substantial and are not susceptible to significant movement, the applied Stucco is unlikely to cause problems.

On stout wooden structures, the surface needs to be covered in some form of damp proof membrane (dpm) to prevent moisture passing from the Stucco to the timber. Wooden laths are then fixed over the dpm to provide a key for the stucco. The wooden laths should be horizontally attached to vertical wooden strips so that there is a gap between the laths and the dpm. Providing that the wooden subsurface is stout and the laths are adequately secured, the Stucco should last a long time.

On wooden frame structures, a dpm is required and the horizontal laths can then be fixed to the frame. An alternative method is to use some form of metal mesh to provide the bonding key instead of the wooden laths. A problem with timber frame buildings is that the strength of the Stucco is almost entirely dependant upon the Stucco itself, and its application on these sorts of structures should be left to specialist contractors.

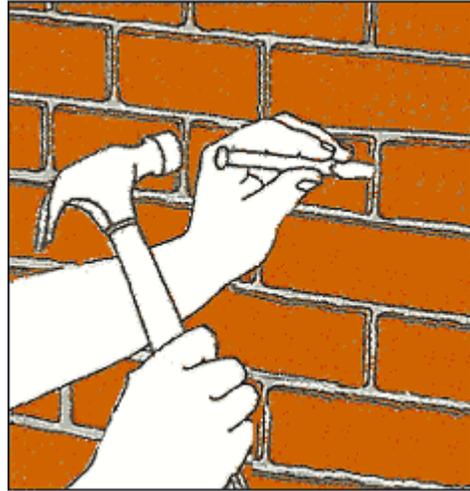
Stucco Techniques

Stucco has traditionally been applied in 2 or 3 layers. The first layer is normally about 10mm (3/8 inch) thick and is referred to as a "scratch" layer because once it has been applied; the surface is 'scratched' to provide a key for the second layer.

The second layer (if used) is another "scratch" layer about 10mm (3/8 inch); this is sometimes referred to as a "floating" or "brown" layer.

The third or final layer is a thin covering about 3mm (1/8 inch) thick which may be colored and/or textured to give the final appearance.

For the first layer on masonry, ensure that the surface is free of loose partials and, if necessary, roughen the surface to provide a good key - rack or chisel out the mortar between bricks/blocks.

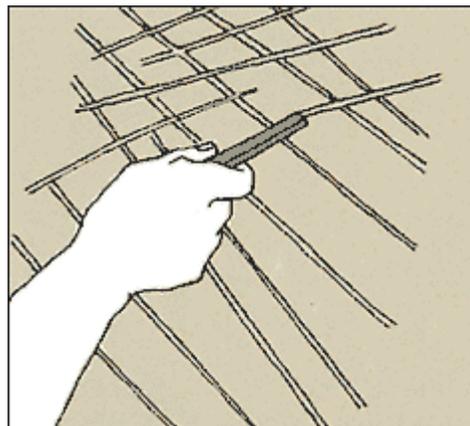


Dampen the masonry or laths before applying any mortar; this will help prevent them from pulling moisture out of the mortar too rapidly, which could cause cracking, loss of bond, and generally poor quality stucco work.

Place some mix on a builders hawk, push some mortar onto the area using a steel plasterer's float and spread it over the area. Make sure that it is worked into the joints of the masonry subsurface or in between/behind laths or into the wire mesh. Keep working within a limited area (say 1 meter/yard square) to achieve a thickness of about 10mm (3/8 inch), and then move onto an adjacent area.

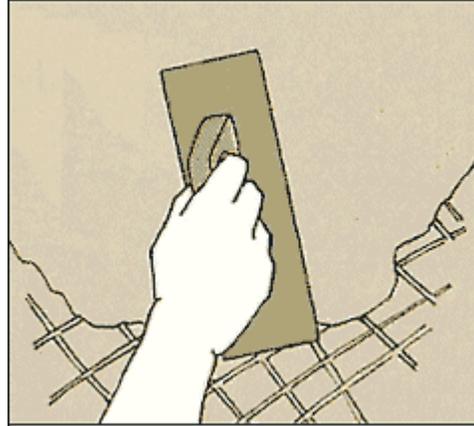


Allow the mortar to slightly harden (2 hours or so) and crisscross score it as shown to a depth of about 3 mm (1/8 inch). Alternatively (if stucco is being applied to a large area) make up a 'rake' by driving a number of nails through a length of 50 x 50 timber at 25mm spacing - make sure that all the nails project the same amount from the timber.



Allow the first layer to harden for 24 to 36 hours. Do not let the layer dry out, if necessary, keep it damp by misting it with water, do not spray it with a pressure hose as this will dislodge the mortar.

Apply and score the second scratch layer in the same manner as the first layer.



With a flat finishing trowel, apply the final layer to about 3mm (1/8 inch) thick.

If desired, apply a texture to the final layer after it has hardened for 2 hours or so. A wide choice of finish textures can be used, the only limitation is the imagination of the worker. When choosing a texture, make sure that the pattern can be repeated across the full area. The following indicates how some popular finishes can be achieved:

- Smooth finish. Smooth the final layer several times using a steel float as the mortar begins to go off, occasional plunging the float into water will keep it clean and prevent it pulling mortar away from the wall.
- Swirl texture. Use a float in an arcing motion on the mortar just once while it is still fairly damp, and then leave it to harden - a wooden float often gives better swirls than a steel float.
- Stippled texture, after the mortar has started to dry, hold a stiff broom at an angle to the wall and pat the bristles onto the surface to give the desired pattern.
- Wavy, scratched texture. Smooth the final layer, allow it to dry slightly, and then lightly draw a brush across the surface using a path to give the desired effect. Keep the bristles free from mortar build-up by knocking the brush head after each pass across the surface. The stiffer the brush, the coarser the pattern.
- Imprint finish. Smooth the final layer and use whatever necessary to make the desired imprint(s) (e.g. leaves, shoes, hands, the paws of pets or whatever). If required, leave the surface to further dry and lightly use a float or brush to soften the edges of the imprints.

After the stucco has been completed, keep the mortar damp over several days; lightly mist the surface occasionally if necessary.

Complete the job by sealing around doors and windows frames; these are areas especially susceptible to the ingress of water.

Leave the mortar to dry out for at least six weeks before applying cement paint or color wash if required.

General Tips for applying Stucco

To apply stucco, the skills of a plasterer are necessary. The following guidelines are important to remember:

- Only mix enough mortar as can be used within about one and a half hours. The actual time will depend upon the weather (the mix will dry out quicker in hot or dry conditions); experience will be the best guide. Any remaining mortar should be discarded; it should not be remixed.
- If colored Stucco is required, add cement coloring dye to the mix for the final layer. Carefully note the measure used so that identical proportions can be achieved with each separate mix of mortar.
- Stucco mortar should not be over mixed - hand mix for 10-15 minutes after adding the water. Over mixing can cause the mortar to set too quickly, this may cause cracks and poor bonding to the underlying surface.
- Wooden laths and masonry sub surfaces should be thoroughly damped before applying the mortar - this will prevent the subsurface drawing moisture out of the mortar. Bonding agents (such as a weak PVA adhesive solution) will also aid bonding to existing masonry.
- To avoid cracking, it is imperative that mortar is not allowed to dry out too quickly. Avoid applying Stucco in direct midsummer sunshine or very hot/dry conditions. In hot weather, keep the mortar damp for 48 to 72 hours after application.
- Stucco should not be applied in cold weather (below 5° Celsius/40° Fahrenheit), or if there is danger of frost during the 'drying' period.
- Cover the ground at the foot of the wall so that any dropped mortar can be easily removed. Lay down some old planks or a tarp; alternatively spread some sand to keep the mortar off of the ground.