

STUCCO & MASONRY

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Coring Stucco to Determine Thickness

Coring stucco is fast becoming a standard, though dubious, practice for determining the quality of stucco applications. In fact, this practice sheds little light on the overall quality or performance of a stucco application whether over frame construction with lath or direct-applied to concrete or masonry.

Unfortunately, this practice is being used to promote litigation, particularly for thickness, whether there is cause or not. So, what do you truly discover by coring stucco? And what can you really learn from a 3-5 square inch sample, or even 4-8 similar samples out of what may be several hundred thousand square inches of stucco?

Coring stucco over lath can provide some insight as to application methods if the sample sites are chosen wisely.

Here are a few items that are possible to observe in a 5 in² core sample:

Condition of the lath – rusted or clean

Condition of the substrate at that specific location.

Size and condition of the fastener – *if* you happen to uncover one.

Size, sequencing and orientation of the lath laps – *if* you happen to uncover them.

Embedment of the lath – at that specific location.

Thickness and number of coats of the plaster at that exact location – but not the thickness 2 inches in any direction from that spot.

Even less can be learned by coring direct-applied stucco. In this case, you are limited to finding the thickness, number of coats at that specific spot and the bond condition. In either case, it is the depth of the core that should be measured, not the thickness of the removed plug. That is because, the drill or saw vibration can create some loose plaster around the lath or at the block interface that may fall away during the removal process. Thickness of plaster is measured to the back plane of the lath or the surface of the solid substrate. Therefore, measuring from the sheathing or the concrete/CMU face out to the surface of the finish coat is the correct procedure. Applied textures do not count.

Discovery of the true condition of a plaster application requires a much more extensive investigative protocol and much larger sample sizes: both physically and numerically. That is beyond the scope of this article and should be addressed in a future article. Here I want to concentrate on plaster thickness and the proper way to determine such over the entire stucco surface.

It has been noted that plaster sections or panels tend to be thinner in the middle of the panel than at the edges. That is because the accessories offer a screed to which to finish the plaster at the correct depth while the middle of a panel has to be applied by “eye.” Many of these self-proclaimed expert organizations know this and they specifically target the middle areas and then claim the stucco is of less than code specified thickness. Often, this is simply not the case.

The code and standards require a “nominal” thickness based on the substrate and number of coats. Over lath, it is always three coats to a nominal thickness of 7/8-inch. “Nominal” means in name only. It does not mean minimum or maximum. The question is what can be considered “nominal.” Let’s look at it this way. Lumber is offered by its’ nominal name. A 2 by 4 is not actually 2 inches by 4 inches; it is 1½ inches by 3½ inches. So, the logic of calling a stud a 2 by 4, represents an actual dimension is a 25% reduction (1½ out of 2).

The proper method for determining stucco thickness over an area of statistical significance requires the use of a string or a straightedge as follows:

- 1) Determine whether the accessories, CJs or plasterstops, are oriented under the lath or on top of the lath. This will make roughly a 1/8 – 3/16-inch difference.
- 2) Measure the depth of the ground flanges of the accessories. If the accessories are on top of the lath, add the 1/8 or 3/16” to your findings. The depth of the ground flange may give you an indication of the orientation of the accessory to the lath, but it is not foolproof.
 - a. You may need to drill or make a small core hole at cornerbeads to determine the depth to which they are set unless you have previously made that determination prior to plastering.
- 3) Compare the measurements at vertical CJs or plasterstops to the depth at a terminating weep screed. If the ground flange measurement of the vertical accessory is less than the ground flange depth of the weep screed, then the vertical accessory is likely installed over the lath and an additional 1/8 -3/16 inch should be added to depth findings.
- 4) Stretch a string or place a straightedge on the nose of one accessory and pull it tight to the nose of the next accessory (vertical to vertical or horizontal to horizontal).
- 5) Bows or bellies in the finished plaster will give you an indication of the predominant stucco thickness over the area. Move one end of the string or straightedge up or down along the nose of one accessory. Measure any significant gaps between the edge and the plaster. Any gap greater than ¼ inch may indicate a less than compliant thickness over the panel and not just in one specific location.

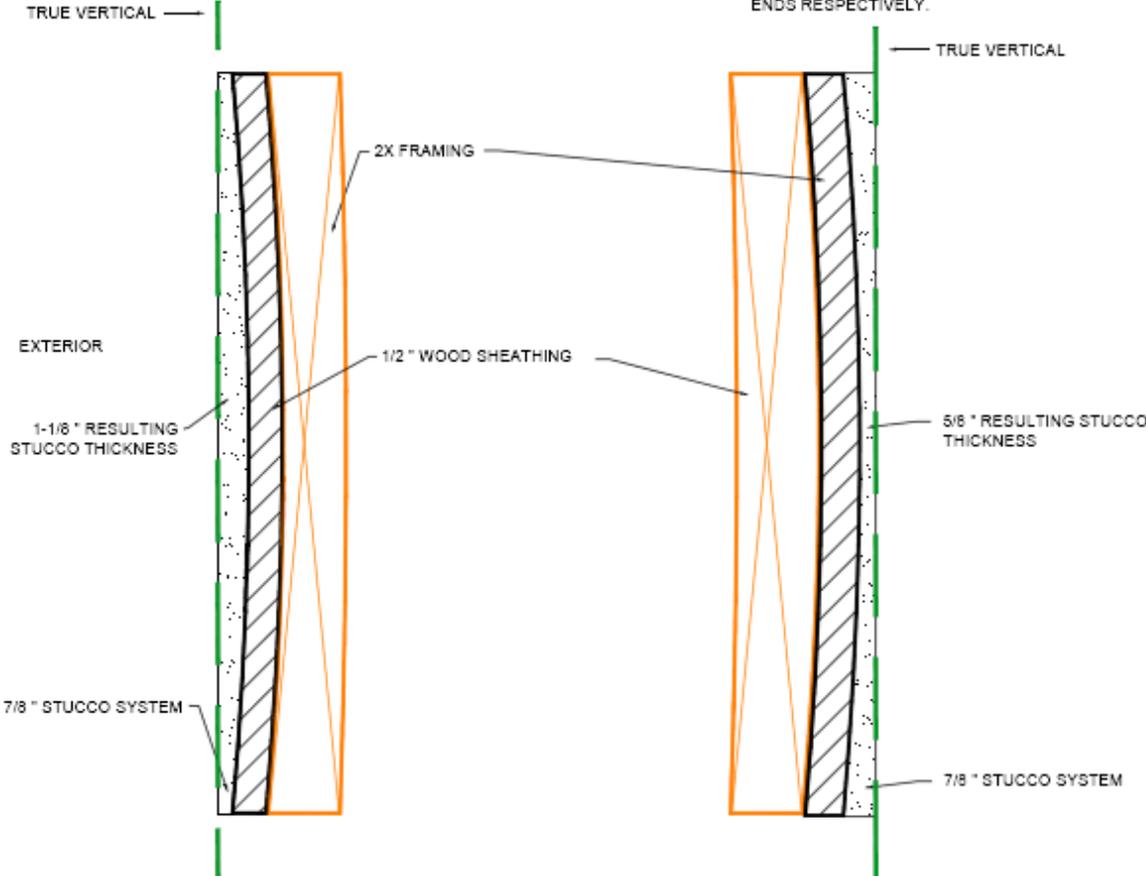
Bear in mind that the substrates to which stucco is applied also have a planar tolerance built in the code or their respective standards. These tolerances must be taken into account when measuring thickness of plaster samples (see the diagrams below).

The decision to take further action can now be made on a statistically significant result. It is important to remember that stucco is a hand-applied product performed by artisans and craftsmen using their eyes and it is installed over hand-installed substrates. It is not applied by machine or with laser guided accuracy. There are going to be discrepancies. It is the magnitude of discrepancies that determine the ultimate quality of the finish.

The following pages contain two figures that demonstrate the need for “nominal” dimensions in plaster coats.

STUCCO THICKNESS VARIATIONS DUE TO FRAMING

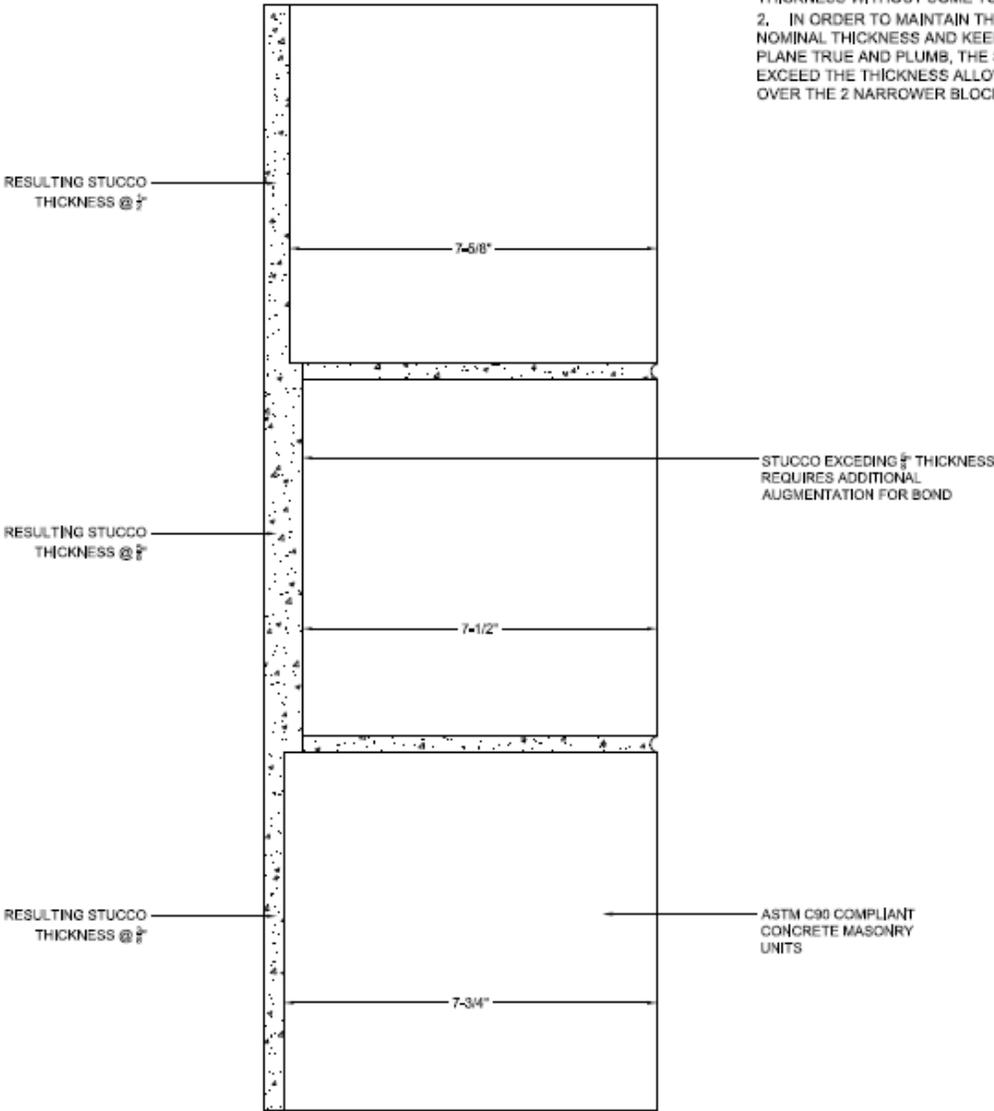
NOTE:
 1. IN EITHER CASE STUCCO CANNOT BE APPLIED TO CODE/ STANDARD COMPLIANT THICKNESS WITHOUT SOME TOLERANCE.
 2. IN ORDER TO MAINTAIN THE REQUIRED $\frac{5}{8}$ " THICKNESS AND KEEP THE FINISH PLANE TRUE AND PLUMB, THE STUCCO WOULD HAVE TO EXCEED THE THICKNESS ALLOWED BY C926, EITHER IN THE MIDDLE OR ON THE ENDS RESPECTIVELY.



A1 STUCCO THICKNESS VARIATIONS DUE TO FRAMING
 N.T.S.

STUCCO THICKNESS VARIATIONS DUE TO ALLOWABLE CMU SIZE TOLERANCES

- NOTE:
1. IN EITHER CASE STUCCO CANNOT BE APPLIED TO CODE/STANDARD COMPLIANT THICKNESS WITHOUT SOME TOLERANCE.
 2. IN ORDER TO MAINTAIN THE REQUIRED $\frac{3}{8}$ " NOMINAL THICKNESS AND KEEP THE FINISH PLANE TRUE AND PLUMB, THE STUCCO MAY EXCEED THE THICKNESS ALLOWED BY C925 OVER THE 2 NARROWER BLOCK.



A1 STUCCO THICKNESS VARIATIONS DUE TO ALLOWABLE CMU SIZE TOLERANCES
N.T.S.

For further information, contact In-Spex, LLC at www.in-spexllc.com or (407) 709-9001.