Stucco Information by and for Stucco Applicators
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35 Year old Stucco Walls Performing Flawlessly!
2nd Story Wood Sheathed Wall Over Block 1st Story.

Un-galvanized paperbacked lath, No weep screeds, No control Joints, No casing stops at windows, No housewrap, Randomly attached with Staples

Located in Florida's Coastal Environment, Exposed wall, No overhang protection, 1/2 inch thickness, No cracks, No faults - WHY?

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Code Climate Zones 1 and 2 Regions

Applicable for all Gulf Coast States

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We have repeatedly told newer consultants about how the "old-timers" successfully installed stucco systems for decades so they would not fail.

These time tested application methods were used to create two sets of code installation instructions, both yielding the same installation results.

The Florida Building Code adopted in March of 2002, references the ASTM C926 (application of cement plaster) and the ASTM C1063 (application of metal lath), as the base documents for stucco application.

Prior to that adoption, Florida jurisdictions either used the Southern Standard Building Code or the South Florida Building Code as their base codes.

The Southern Standard Code used (and the current Florida Code uses) both of the ASTM Cement Plastering and Metal Lath documents while the South Florida Code only referenced the ASTM Cement Plastering with the elimination of its thickness tables.

These ASTM C926 (Cement Plaster) and ASTM C1063 (Metal Lath) were then (and are today) "International Standards". Accordingly they have always contained an "unless otherwise specified" provision to allow for regional, structural, system and climatic modifications necessary to attain best regional and project applications.

Plasterers in Florida (then and now) use the "unless otherwise specified" to modify the metal lath and cement plaster application processes to accommodate Florida's unique environmental conditions. Others in Florida simply followed the South Florida Building Code (later incorporated as the HVHZ provisions in the Florida Building Code) to assure system performance. The South Florida Code modified the provisions of the ASTM C926 for installing cement plaster and provided their own specific installation method for installing the metal lath rather than referencing the ASTM C1063 metal lath installation standard. Notably, these "South Florida" Systems were installed in one of the highest wind zones in Florida and in the wettest region of

Florida. Yet, they have continued to perform flawlessly since stucco was first applied in the modern code era.

But, some consultants (who were never involved in these previous installations) seem to be from Missouri, and just won't believe it until they see it. So, we set out to find some of our 30 plus year-old installations and ask if we could cut them up, document conditions, and re-stucco them. Well, one house that still that had original owners summed it up well when she said, "why would I let you tear up perfectly good stucco on my house and put it back with this newer stuff that is failing?" Can't say that I blame her.

So, no option left but to cut up our office building (my wife finally agreed to the removal of the back wall - but wasn't, and still isn't, happy about it). Built and stuccoed in1985, it's first floor is masonry block and the 2nd floor is wood frame with 1/2" plywood sheathing.

The second floor wood sheathed walls were covered with:

- Plain un-galvanized 2.5 black expanded paper back metal lath.
- Randomly spaced staples (7/8" staple leg) scattered across the entire face of lath (not attached to vertical studs).
- No weep screeds (lath brought down over block and stub nailed to allow a continuous coat of stucco from the frame wall to the block wall beneath)
- No control joints (400 sq. ft panel areas)
- No corner beads (lath bent around corner and fastened, all corners rodded with featheredge)
- Standard Sherwin Williams exterior acrylic - rolled on the required 12 mil thickness (not a "beefed up" or "robust" coating), just the coating installed per the standard manufacturer's instructions.
- Walls were recoated after 20 years of service (wife wanted new color - the old gray was becoming dull
- Standard "V" tool joint at penetrations
- Standard quality sealants installed and tooled with painters spatula.
- Building walls fully exposed to the elements (no overhang protection - mansard roof above).
- Wall dissected faces North West

although orientation was not a factor since all walls are the same and performing equally on all elevations.

- Windspeed: 145 V_{ult}, Exposure category "C"
- Building is close to Gulf of Mexico coastline.
- Fully exposed to 35 years of weather, storms and hurricanes
- Let's look at the results:

Look Mom! No weeps, No control joints, No casing beads separating windows, No cracks, No leaks, No flaws, No faults! 35 years old - perfect performance!

Stucco Cladding exterior fascia during cladding removal. Short flange casing used to terminate the top, Expanded flange at bottom. No weep screed, No leaks, No cracks, No flaws, No faults

Note lower portion has a stuccoed return (see red arrow) without any weeping mechanism. Some consultants say this violates the code and will never work. (It does not violate the code and always works in these installations. If its doesn't work there are other causes outside of the stucco installation causing the problem. Plywood used on fascia was surplus and had been previously painted for another job. All other plywood was not.

Upper section of rear wall with Stucco Fascia removed ready for lower back stucco wall cladding removal.

Rear Wall with scoring to remove stucco system. Stucco Cladding had zero cracks, zero leaks, zero faults. We will later look at the back side of the lath.

Exterior wall plywood pristine after 35 years covered with stucco cladding.

Note: Stucco scored deep to aid in plywood removal for examination.

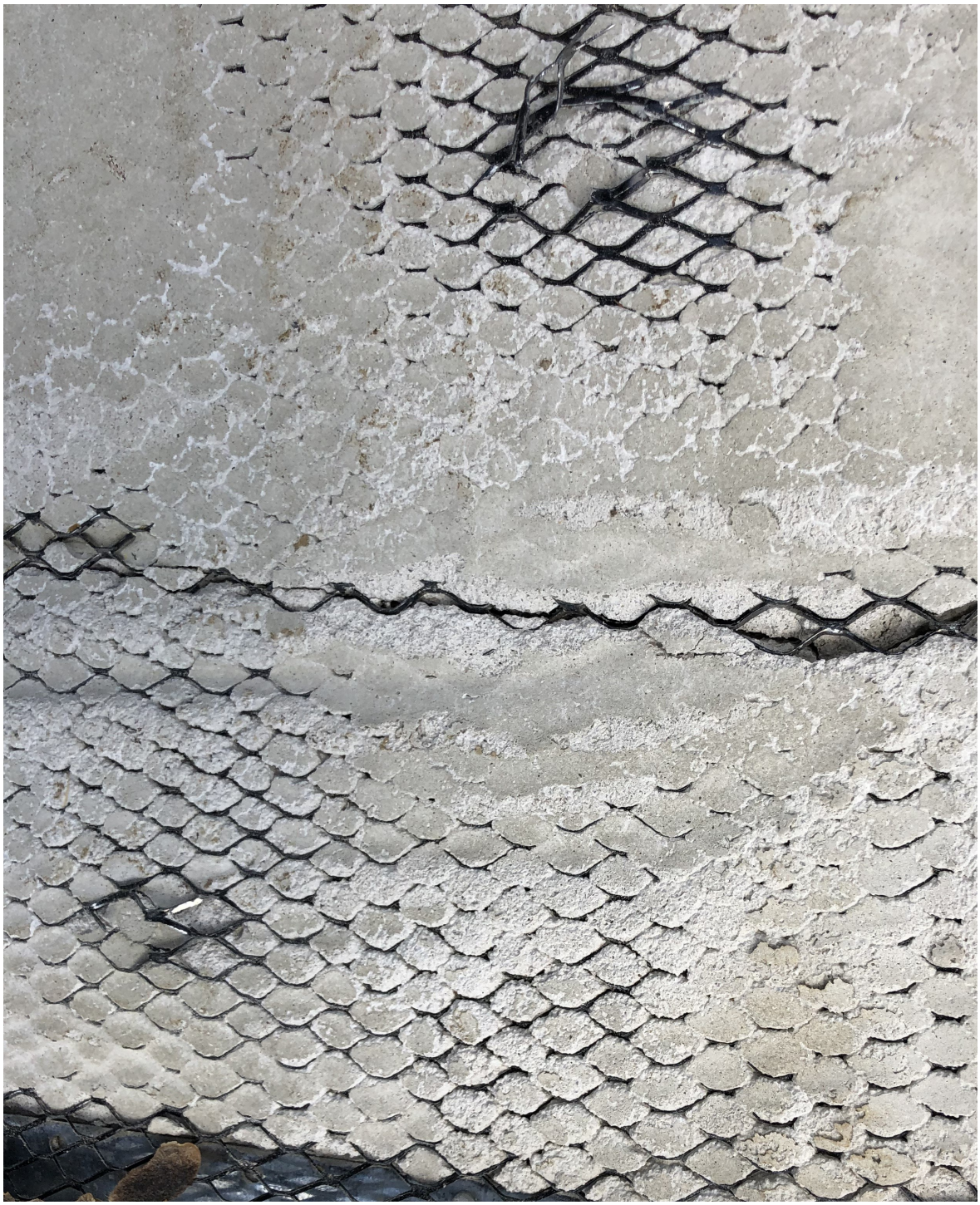
Exterior wall plywood pristine after 35 years covered with stucco cladding.

Note: Stucco scored deep to aid in plywood removal for examination only.

Exterior wall plywood pristine after 35 years covered with stucco cladding.

Exterior wall plywood pristine after 35 years covered with stucco cladding.

Un-Galvanized (black) FLAT metal lath (no dimples or furring), no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago and has remained fully exposed to all elements since.



Un-Galvanized flat metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Lath shiny where cut through.

Stucco Cladding 1/2” thick - applied using South Florida Building Code requirement or using the ASTM “unless otherwise specified” provision. No cracks anywhere. Metal shiny where cut through sample.

2 Inch lath lap - No cracks. Metal pristine. Metal shiny like new where cut through sample.

Stucco Cladding 3/8” thick in one area - Still no cracks, No rust, No faults.

Un-Galvanized flat metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago.

Un-Galvanized flat metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Stucco system had constant weather exposure to Florida's environment (no building overhang).

Back side of 1/2" exterior expanded flange casing stop used at bottom of stucco fascia. No weep, nor drainage accessory, 35 years exposed to the weather, looks like the day it was installed. No leaks, No faults, No flaws, No cracks, No rust.

Back side of 1/2” exterior expanded flange casing stop used at bottom of stucco fascia. No weep, nor drainage, 35 years exposed to the weather, looks like the day it was installed. No leaks, No faults, No flaws, No cracks, No rust.

Note how wet plaster was pushed through flanges and exudes out of the nail holes in the casing's solid flange. Exposed lath is where it was pried off its attachment.

Stucco Cladding painted twice in 35 years, original paint and white re-paint. Both followed standard painting instructions and was applied with rollers to the standard 12 mil dry film thickness (DFT) required for exterior cement plaster installation. This is a "Face Sealed System" *a/k/a* Face Barrier System as defined in ASTM, Architectural and other design documents.

Stucco Cladding painted twice in 35 years, original paint and white re-paint. Both followed standard painting instructions and was applied with rollers to the standard 12 mil thickness required by the manufacturer. This is a "Face Sealed System" *a/k/a* Face Barrier System as defined in ASTM, Architectural and other design documents.

Back side of metal lath on the wall - Un-Galvanized metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Constant weather exposure in Florida's environment. Lap paper over metal. Still no Cracks, No faults, No flaws. Note staple attachment.

Paper over lath & back lap - No cracks, No leaks and No faults.

Un-Galvanized metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Constant weather exposure in Florida's environment. Lap is paper over metal. Still no Cracks, No faults, No flaws. Note: Cracks seen in section samples underneath in rubbish pile were broken during removal. This installation methodology does not depend upon a drainage plane - it prevents water from entering at it face thereby protecting the system integrity.

Un-Galvanized metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Constant weather exposure in Florida's environment. Lap paper over metal. Still no Cracks, No faults, No flaws. Photo from back side of removed panel. This installation methodology does not depend upon a drainage plane - it prevents water from entering at it face thereby protecting the system integrity.

Un-Galvanized metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Constant weather exposure in Florida's environment. Note paper over lath - No cracks, No faults, No flaws.

No Weep Screed—Lath brought over block and stub-nailed (at arrow) - Then stucco applied in one continual plane. Un-Galvanized metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Constant weather exposure in Florida's environment. No wood degradation whatsoever. Note: Visible crack below lath was induced from prybar when dislodging the lath from the stub nail for documentation.

35 year old frame to block wall transition. Un-Galvanized metal lath, no weep, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Constant weather exposure in Florida's environment. Lap paper over metal. Still no Cracks, No faults, No flaws, and No weed screed.

Note: Visible crack below lath was induced from prybar when dislodging the lath from the stub nail for documentation.

No Weep Screed—Lath brought over block and stub-nailed. Un-Galvanized metal lath, no rust, no degradation, no water stains, no moisture deterioration. Just like the day it was put on 35 years ago. Constant weather exposure in Florida's environment. No wood degradation whatsoever on sheathing.

Stucco Cladding 1/2” Nominal Thickness - applied using South Florida Building Code requirement or using the ASTM “unless specified otherwise” provision. No cracks anywhere. Fully code compliant with the Florida and South Florida Stucco Code provisions.

Stucco interface with window separated by Sealant. No casing separating the frame, no backer rod, just a “V” groove and sealant. Always has worked flawlessly. Always will if done properly.

Shown here is the section pictured on page 12. It was pristine after 35 years behind a standard face barrier stucco system. We left the section covered, but exposed to Florida's atmosphere unprotected for 14 days. See the rust?

Now you begin to understand the need to keep Florida's atmosphere with its accompanying vapor laden, salt laden conditions and temperatures from entering behind the stucco wall cladding system. Night time radiant heat loss and other conditions will cause accumulated vapor to cross its condensing temperature. When this happens, simply put, "all hell breaks loose".

The old timers knew this and made sure the stucco, sealants, joints and coatings were installed properly and functioned with one purpose: "Keep the water and vapor from entering behind the stucco cladding - PERIOD". And all worked fine for many, many decades until the arrival of the so-called "stucco-consultants" who insisted on compliance with standards they did not understand, knowing not how and when necessary modifications were needed for system performance.

The installation shown herein would be written up by consultants serving the litigation industry with count after count after count as "code violations" in addition with violations of numerous ASTM or other provisions, including but not limited to; Stucco thickness violations, Weep screed violations, Mid wall transition violations, Corner bead Violations, Attachment placement violations, Attachment length violations, Drain plane violations, Housewrap violations, Control Joint violations, Panel size violations, Metal lath embedment violations, Paper lap violations, on and on. They would say the stucco system in its entirety would need to be completely removed and replaced, it won't last! That it surely is in danger of imminent failure! Danger Will Robinson!

Of course that would not be at all accurate. Most do not understand, or have knowledge, of all of the known code exceptions, modifications, details and changes needed and allowed to ensure proper system performance in this region. In some cases, even if they learned, admitting their lack of knowledge would expose them to the incorrect statements, positions and conclusions, contained in their many "expert" reports.

They would have you install their opinion of "a fully compliant system", that most likely would prematurely fail because it did not address all the needed modifications.

So, what are causing the problems in todays cement plaster stucco systems? Well the answer is not a simple statement since a successful stucco system installed by a professional plasterer is interdependent upon other trades performing their work properly prior to the plastering contractor's arrival and other professional tradesmen performing their work properly after the plasterer has left. However;

Key issues in stucco failures are:

- incorrect soffit slope
- roofing edge metal installed incorrectly
- Use of un-needed control joints,
- Use of un-needed corner beads
- application of plaster with "slickers"
- improper understanding of mixing ratios
- lack of required densification of the material
- improper "V" tooling for the receiving of sealants
- cutting relief channels to make faux shutters or designs
- improper sub-framing
- improper sealing of fenestration

- improper integration and installation of roof flashings
- Improper attachment od bandings, buildouts and architectural trims
- improper application of the exterior coatings (exterior paint) and sealants
- improper coating mil thickness
- improper use of OSB sheathing
- nailing to the ASTM standard and not the South Florida Standard
- and most critical, improper maintenance of the assembly, flashings, fenestration and replenishment of the coating (re-painting).

It is not all of these conditions on each building, but most assuredly, one or more of these factors are the cause.

The good news is almost all can be repaired without de-skinning the whole building. All walls can be repaired, but extensive repairs may be more economically addressed by removing all of the stucco on a single wall section.

The climatic, code and installation methodologies are complex for stucco installations and all must do their part. But this is true for all claddings (sidings).

When cement fiber board sheathings (and other siding types) are not installed correctly for this region (and most are not) they have proven more disastrous than stucco ever has been. It is the sheer volume of stucco facades make them stand out as problematic.

Please visit stuccoinstitute.com - Read the article "Truth about Florida Stucco" and other specific newsletters for in-depth discussions on stucco applications in our regions.

And, although there are a few "consulting" firms extolling these phony evaluations, there are hundreds of knowledgeable stucco and waterproofing consulting firms and engineers that really know how to install a stucco cladding system in Florida along with all necessary modifications.

These professionals are not there to document misleading information for litigation - rather, they are professionals that will evaluate your building, use diagnostic protocols and tests to determine all causes, prepare a repair protocol, obtain bids for the necessary work, and supervise the repair work.

Plastering, whether cement or gypsum brown and white coat application, remains more of an art than a science. But remember, especially in Florida, the old adage rings true; "an ounce of prevention is worth a pound of cure".

So:

- if you have cracks, repair them or get them repaired
- if your stucco is separating from any embedded accessory, get it repaired
- if your roof leaks, fix it.
- walk around your house, if your soffit panels are discolored in one area as opposed to another, call your builder or contractor for repair
- and most importantly, re-paint and re-seal your house initially after the first 5 - 7 years. And make sure they seal the mechanical joints of your windows or all will be for naught. Subsequent re-coatings can be done with far less frequency.

So what is causing the problems? Well now you have some insight into what is causing them, but more importantly, you have knowledge and proof of what is NOT causing them.

The Missourian's are satisfied.

Visit www.stuccoinstitute.com for much more information and encourage others to join our mailing list on the website!

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Contractors Institute

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Building Officials Institute