The Joys of Stucco

Author's note: *The original version of this article was published ten years ago. We continue to see buildings that have had the stucco siding completely removed and replaced simply because it was cracked or windows leaked.*
Stucco is a form of concrete and is easily repaired by skilled painting contractors. It doesn't need to be replaced. Window leaks can be stopped by simply replacing the window with a retrofit vinyl insert.
REDUCE, REUSE, RECYCLE
There is nothing "green" about removing and replacing stucco. The material cannot be recycled because it is full of metal, paper and paint. Removing it releases a mildly caustic dust. Putting it into landfill reduces future landfill capacity.
RESERVING FOR STUCCO REPLACEMENT
We have surveyed buildings with concrete stucco walls that are nearly 100 years old. There is no need to begin to reserve for stucco replacement unless your complex is at least 50 years old. Stucco doesn't "wear out" very quickly.

For more than thirty years, our firm's task has been to keep buildings free of leaks.

When we first became seriously involved with leaks through stucco walls, we worked with John Bucholtz, a nationally recognized expert on the subject. His good counsel saved us from some of the errors in judgment based on a lack of knowledge that are still being made by others.

In the years since, we've learned a lot more. Common sense, work with stucco repair contractors and a willingness to experiment (in other words, lots of homeowner associations with limited budgets) have been useful teachers. While we don't even begin to pretend to know all there is to know, we do want to dispel a few misconceptions, show you how to keep and enjoy the stucco you already have and let you keep your reserves in the bank.

MISCONCEPTION # I "Stucco isn't waterproof."
Stucco is made of Portland cement. Portland cement is water-resistant. Anyone doubting this is invited to perform the following demonstration.

a Obtain a 3/4" thick flat piece of stucco.
b Remove the color coat.
c Bond a 2" or 3" diameter glass tube to the stucco with caulking. Allow to cure.
d Set the stucco and tube on a table and put 2" of water in the tube. Cover the open end of the tube to protect the water from evaporation.
e Work on other projects until all of the water in the tube passes through the stucco. This should take until at least the year 2012.

MISCONCEPTION # 2
"It's the paper behind the stucco that makes the wall waterproof."

If the paper is the waterproofing agent, why not do away with the expense of installing the stucco and simply trowel the color coat right onto the paper? (The industry actually

tried a version of this idea. It was called the EIF system and it was a spectacular failure.)

The paper or “weather-resistant barrier” used to back wire lath is what is known as a “grade D” paper, designed to be capable of resisting water penetration for at least ten minutes, and with a minimum water vapor permeability rating of 35. Claims of waterproofness for a product designed to keep water out for so short a time are simply silly.

The truth is that the paper is only there to hold the stucco against the wire so that the wet cement doesn’t fall away. This allows stucco to be placed directly over open-framed stud walls, which reduces construction costs.

For those still clinging desperately to the belief that “It’s the paper,” we have one question: Why does the building code require two layers of building paper between fresh stucco and wood? (Hint: what happens if the water of hydration in the stucco migrates into the wood?)

Misconception #3 “Everyone knows that stucco always cracks.”

No, everyone doesn’t.

Our office was once located in an early ‘60’s stucco-walled building in a California coastal town where the weather was unusually temperate, frequently fog-damp and where temperatures seldom go below 40F or above 80F. The stucco had been installed and cured under near-ideal conditions. The walls of that building were crack-free and could barely be drilled with masonry bits.

Stucco is a product with simple characteristics (such as slump and compressive strength) easily measured and compared to industry standards in the field. These standards are meant to ensure that stucco performs properly over decades. There are two excellent sources of these standards. One is the Uniform Building Code. The second is the Manual of Plaster, Metal Framing Systems and Lath published for the California Lathing and Plastering Contractors Association.

Properly mixed, placed and cured, stucco will not cause itself to crack. Other forces are required. They include, in no particular order:

- Improperly attached wire lath.
- Improperly installed edge details, particularly at windows.
- Improperly spaced or placed control joints
- Improperly constructed building foundations that allow differential settlement or seasonal shifting.
- Improperly installed or flashed wall penetrations or decorations that allow water to contact wood framing.
- Structural framing that flexes with the wind loads imposed on it.

- Earthquakes and other, similar *force-majeure* occurrences.

MISCONCEPTION #4 “THE ONLY WAY TO STOP STUCCO FROM LEAKING IS TO COAT IT WITH AN ‘ELASTOMERIC’!”

There are many situations in which “elastomeric” coatings will almost never work. One example is a building constructed on poorly designed foundations that allow the walls to move with seasonal soil moisture changes. This causes cracks in stucco to open and close across distances greater than most coatings can “bridge”. Another example is leakage due to wood embedded in stucco. Wood typically expands and contracts with seasonal moisture content changes in amounts that also exceed the crack bridging capacity of most coatings. And wood should NEVER be coated with an “elastomeric”. Yet another is when surfaces are poorly cleaned or primed and the coating doesn't bond properly. This can result in water blisters caused by water getting trapped between coating and stucco. These blisters frequently position themselves above cracks in the stucco and can actually make the leakage worse.

There is another, more serious problem. Applying one of these coatings to a stucco wall effectively creates a vapor barrier on the wrong side of the wall. The problems with condensation in the wall, high interior humidity, mold, mildew and rot caused by cold-side vapor barriers are well known. They have been written about extensively. Any plan to eliminate exterior wall "breathability" must include a consideration of interior humidity control and air circulation, particularly including closet areas located against exterior walls. The installation of mini vents in the stud cavities in walls should also be considered.

STUCCO MAINTENANCE: How to Keep Your Existing Stucco

The best solution to any stucco problem is not to tear it all off or “coat it and hope”. The solution is simply to repair the cracks with a material that will move and flex as the building itself does.

1. Scrape out, deepen and groove any cracks in the stucco to at least 1/4" x 1/8" in the brown coat.
2. Scrape a 1/4” groove between all embedded wood trim and the stucco around it.
3. Use a grout removing tool to scrape a shallow groove between stucco and window frames.
4. Blow all grooves free of dust, dirt and debris.
5. Fill the grooves with a good quality urethane caulk or specially manufactured stucco repair material.
6. Texture the repair material to match the existing stucco texture.
7. Prime and paint the walls with the best quality exterior grade primer and paint.

Following these simple steps will go a long way to solve almost any wall leakage problems, will save you a wonderful amount of money and will keep you “going green”.

END

Richard Tippett is the principal of ERTECH, Inc. the first roofinglwaterproofing consulting firm established in California. He has been extensively involved in stucco and EIF restoration projects in all of California's varied climates. Richard is serving his third term on ECHO's Board of Directors and is the vice-chair of ECHO's Maintenance Resource Panel.