

**Aside from roofing failure, the most common source of moisture entering residential community properties is failure of the siding material. In southern California, most siding consists of stucco. Unfortunately, stucco siding systems leak!**

# ADDRESSING STUCCO FAILURE

## WHY DO BUILDERS SPECIFY STUCCO SO OFTEN?

Stucco became popular in the United States in the early 1800's as an inexpensive and effective means of exterior wall covering over concrete, brick or

When you look at a stucco wall, all you see is plaster. The plaster does not keep your home dry; it just protects the waterproofing paper. Yes, paper. In 90 percent of the exterior wall area, all that is keeping your unit dry is paper that is thinner than a business card. Because stucco acts like a sponge, water



By Charles Antis

gains access to the protective paper flashing and will leak into your wall cavity at any tear, backward lap or voided area of the paper.

Almost all stucco leaks can be traced to application error. Errors occur when paper, flashings, windows and other components do not properly overlap (flash) the items directly below them. Leaking will also occur from paper and flashing degradation due to age or excessive moisture entering. Remember, most stucco leaks do not show up on the interior of your unit; the 6-inch space between the stucco and your interior drywall – consisting of fiberglass insulation and wood framing – can hold a lot of water before it shows on the interior. When this occurs, you can expect mold, dry rot and termites to follow.

Leaking within stucco walls usually originates from one of the following sources:

### Windows

Window leaks in stucco walls are among the most common flashing failures within the entire building structure. These leaks occur from two basic sources: failure of the window frame mechanism itself or improper lapping of the stucco's protective paper system onto the window flanges. Repair commonly requires rehabilitation of the window frame or removal of stucco surrounding the window to correctly apply the paper flashing system.

### Miscellaneous wall penetrations

Vents, hose bibs, electrical outlets and light

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Early 1800's stucco

stone. Today most stucco involves a less expensive method of application; instead of brick or stone, it is applied over open frame construction. "Open frame" means that paper and lathe reinforcement resembling chicken wire is laid over wood-framed walls without sheathing, and then coated with three applications of plaster. This is a low-cost technique, but it has pitfalls.



Paper behind stucco

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Backward lap on window

fixtures in stucco walls create a flashing problem during construction. Most of these do not have adequate flanges to overlap the paper flashing properly and were not properly sealed during construction.

#### Fascia and trim wood

In the past, a common mistake made by builders was to terminate the paper protective system at the point of the fascia board (trim wood) located under the roofline. As the wood ages, it shrinks and splits, allowing moisture to go behind the wood and into the wall.

#### Wall base leaking

Since stucco acts like a sponge and holds water, it needs to have a "release" flashing at the bottom of the wall, commonly called "weep screed." Most multi-unit complexes constructed prior to 1970 did not have weep screed installed. In many of these structures, trapped water is channeled into the bottom plate of the wall.

Even when weep screed flashing is installed, exterior planter systems are often raised to a level higher than the flashing or the interior floor line. When this occurs, water is forced into the wall structure.

#### Retrofitted flashing installations

Most managed properties have retrofitted doors, windows, fixtures or repairs that were completed after the original construction. When the stucco around these is patched, the new flashing paper is often overlapped incorrectly, or the old, brittle paper is damaged so much that it is impossible to do proper overlapping. As the new plaster settles and cracks due to improper fastening of wire reinforcement, water finds its way through the plaster and paper and into the wall cavity.

#### Stucco cracking

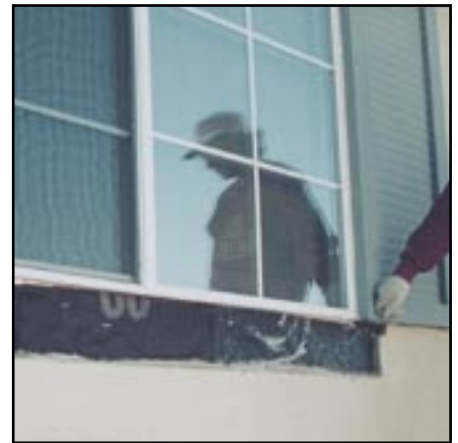
Stucco walls often exhibit cracking at windows, doors or open field areas within the wall. While cracking doesn't necessarily indicate failure of the weather-protection system, the increased exposure to rain water and air-borne pollutants cause the paper to prematurely rot and fail thereby allow moisture intrusion.



Stucco buried by planter



Gas conduit penetration



Window installation



No paper under fascia



Stucco cracking

## METHODS OF REPAIR

The difference in cost between repair options can be staggering, so it is critical to seek out an expert in diagnosing and designing an effective solution. Here are three repair options to consider, listed from most to least expensive:

### Wall rebuild

Completely rebuilding a 20-foot by 20-foot section of stucco wall with new flashing may cost between \$10,000 and \$23,000. Fortunately, this type of repair is seldom necessary. My own company completely rebuilds exterior walls less than 1 percent of the time when addressing stucco failure.

### Sectional rebuild

Perhaps the most common type of stucco repair involves removing sections of stucco around windows or flashing transition areas, then applying new flashing, wire reinforcement and plaster. This technique requires meticulous and intensive labor during the demolition and reapplication process. It should include using bituthene pliable membrane at all corners, horizontal surfaces and flashing transition areas. The cost to rebuild three or four flashing transition areas within the same 20-foot by 20-foot section of stucco may cost between \$3,000 and \$12,000 depending upon the quality of the repair. Doing the job right takes time, which is why this method has the highest failure rate of the three options. In a poorly done rebuild, the new paper flashing is not entirely lapped under the salvage edge of the old paper, and often the lathe wire reinforcement is compromised.

### Non-invasive repair

Even when failing sections of stucco and flashing are replaced, the walls can leak due to aging of the surrounding areas of stucco where the paper flashing system is disintegrating. A successful solution is to inject all window, door and miscellaneous flashing penetrations with pliable, durable urethane rubber. The entire wall is then coated from base to roof using an elastomeric coating system such as Thorolastic. Elastomeric coatings waterproof the exterior of the wall and therefore eliminate the necessity to remedy the worn paper flashing system. Repairing a 20-foot by 20-foot section of wall using urethane injection and elastomeric coating may cost between \$2,500 and \$5,500. When using coatings it is critical that the repair area extends to the roofline so no moisture can become trapped within the stucco. Elastomeric coatings should be reserved only for walls with a history of leaking.

Although troubleshooting leaking stucco walls can be difficult due to the nature of the underlying flashing system, water testing can often provide effective results. Such testing pinpoints failure behind stucco over 95 percent of the time.

Stucco is not going anywhere. You and I will move into our next homes, and chances are they too will be stucco. Fortunately, newer homes are being built with greater care and higher standards. But when leaks do occur, it is important that the method of repair is effective and affordable.

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Charles Antis is the president of Antis Roofing and Waterproofing. He also currently serves on the Community Leadership Training committee for the Orange County Chapter of Community Associations Institute.



\$\$\$\$ Wall Rebuild



Sectional rebuild



Two forward chimneys