



Synthetic Stucco/EIFS

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The History of Synthetic Stucco

Synthetic Stucco, also known as EIFS (Exterior Insulated Finish System), was first used in Europe after the end of World War II. The product was first installed on commercial buildings in Germany.

Synthetic stucco eventually made its way over to the United States. As in Europe, the early installations were on commercial properties. In the 1980's, architects and builders began experimenting with the idea of using synthetic stucco on residential homes.

What is Synthetic Stucco?

Synthetic stucco installation begins with attaching 2' X 4' EPS foam panels to the plywood sheathing of the structure. A fiberglass mesh is attached to the foam. The stucco, which is an acrylic, rubber based product, is applied in one or two coats, and the final product is typically 1/16th to 1/8th inch thick. In comparison, hardcoat stucco installed over wood strips, known as lath, or over metal lath, does not have the foam underlayment, and is usually 3/4" to 1 inch thick.

Why Was Synthetic Stucco Used?

The product was touted as the "Exterior Cladding of the Future". Benefits included the ease and low cost to install. The EPS foam installed behind the stucco provided additional insulation benefits. The finish color is consistent throughout the stucco, making it, in theory, low maintenance. Architects favored the product because you could create interesting design features and details, adding to the curb appeal of homes with synthetic stucco cladding.

What are the problems with EIFS?

Synthetic stucco was meant to be a barrier system, meaning it was not intended for water to get behind the stucco. Once water got behind the stucco, the water was trapped, causing wood rot to the wood framing and sheathing of the home, as well as

mold and mildew.

In the early 1990's, problems were discovered on homes with EIFS located in Wilmington, North Carolina. Removal of the stucco revealed extensive structural damage to the homes as a result of moisture intrusion behind the stucco. Local building officials called in the builders, architects, and stucco manufacturers to evaluate the problem.

The examination of the home revealed moisture was intruding behind the stucco cladding, as a result of poor design and installation. Installation defects include failure to install proper window, door, and kickout flashings, and leaking windows. In addition to the moisture related problems, it was discovered that the foam behind the stucco, when installed at or below grade, was conducive to termite and fire ant infestation.

As a result of problems discovered with synthetic stucco clad homes, inspection and testing protocols were created. The Exterior Design Institute, located in Virginia, was formed to educate and train independent, third party, EIFS inspectors.

The Synthetic Stucco Inspection

A moisture intrusion inspection on a home with synthetic stucco is a combination of a visual inspection, infrared thermography, and moisture detection using moisture probes and meters designed specifically for this purpose.

The visual inspection accesses the installation of the stucco. The inspector verifies whether flashings are properly installed. The stucco is checked for any signs of damage, cracking, and delamination. The inspector will determine if the stucco system terminates above or below grade. The windows and doors, porches and decks, and utility penetrations are carefully examined.

The home or structure is then scanned via infrared imaging for moisture intrusion and then using a non-invasive meter, typically a Tramex Wet Wall Scanner and finally a moisture probe prior to invasive exploratory investigation. Some probe and moisture meters can scan up to 3 inches behind the stucco for any signs of moisture however it is impossible to cover an entire home or structure with a meter; infrared imaging is by far the most cost effective and fastest method and technology for this purpose. Also one must keep in mind the drawback to the moisture meter type of inspection. These meters can give what is known as false positives. Readings which may occur as a result of metal installed behind the stucco, such as metal studs, electrical wiring, and plumbing piping. Inspection protocols require that specific areas be tested using a probe meter. With permission from the homeowner, two holes are drilled in each probe location. The probe meter will provide readings of the actual moisture content of the sheathing behind the stucco. Moisture readings below 14% are considered low, between 14 and 18% medium, and readings above 18% high. Moisture levels above 25% for an extended period are conducive to rot to the

wood framing and sheathing, as well as mold and mildew.

Utilizing the infrared imaging inspection all readings are recorded, and both infrared and digital color photos are taken to document the condition of the system, including components installed correctly and incorrectly. A computer report is then compiled from this data.

There is a Solution

A warranty offering protection from moisture intrusion and its related damage is available from the Moisture Warranty Company. The warranty is available in 3 and 5 year terms, with different levels of coverage available. The warranty is available to home owners, buyers, and sellers, and is guaranteed renewable and transferable. The warranty is a great marketing tool for homeowners selling synthetic stucco homes. For additional information on the warranty, call 1-800-400-8679, or visit www.moisturewarranty.com.
