

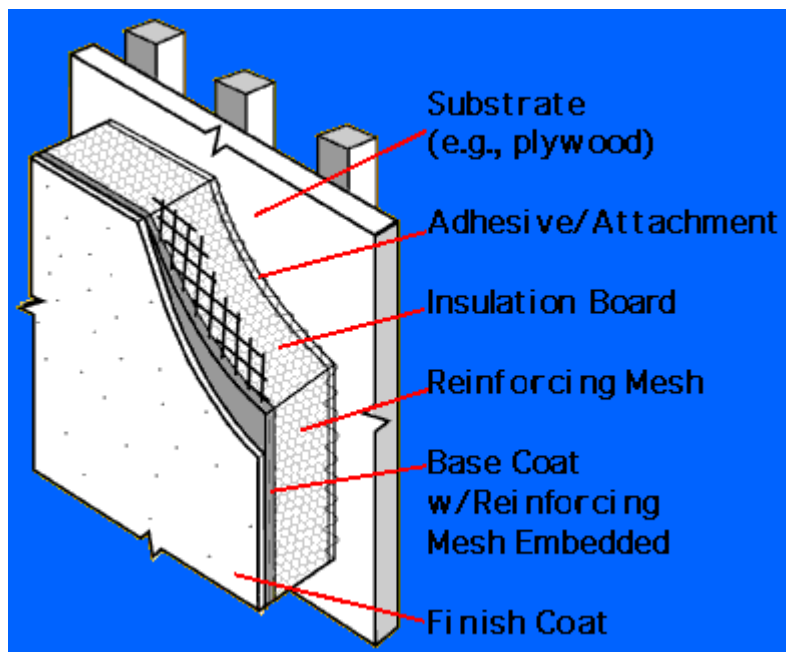
EIFS has been plagued by class action litigation, building damage, moisture intrusion, mold and other issues. Determining the integrity of an EIFS installation requires state of the art equipment, experience and training.

What Is EIFS?

Exterior Insulation and Finish Systems (EIFS) are multi-layered exterior wall systems that are used on both commercial buildings and homes. They provide superior energy efficiency and offer much greater design flexibility than other cladding products.

Developed in Europe in the 1950s, EIFS were introduced in the U.S. almost 30 years ago. They were first used on commercial buildings, and later, on homes. Today, EIFS account for nearly 30% of the U.S. commercial exterior wall market. EIFS typically consist of the following components:

insulation board, made of polystyrene or polyisocyanurate foam, which is secured to the exterior wall surface with a specially formulated adhesive and/or mechanical attachment
a durable, water-resistant base coat, which is applied on top of the insulation and reinforced with fiber glass mesh for added strength
an attractive and durable finish coat — typically using acrylic co-polymer technology — which is both colorfast and crack-resistant.



Resource:

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Members Association
1-800-294-3462

In many cases, we are asked to evaluate EIFS on buildings by the potential buyer of the property. This situation creates some unique problems which must be addressed by the consultant. In most cases, the owner of the building does not want or allow any type of destructive testing of the building they own. The consulting company must try to assess the building using non-destructive methods. This can be done using electronic moisture detection equipment such as a Tramex "Wet Wall". This alone will not provide the level of security you are probably seeking.

Closer Look Inspections utilizes Infrared Thermography to assess the Exterior Insulation Finish System for suspect areas of moisture damage and/or penetration. This is the most cost effective and accurate method of spotting potential problems using non-destructive methods. If anomalies are spotted during our scan of the exterior building envelope, we try to verify the high moisture content using the Tramex "Wet Wall" meter. If this meter also indicates a problem exists, it would be wise to insist that more invasive assessments be performed. This will include using electronic moisture meters (e.g. Delmhorst) that have long pins for penetrating the insulation to the exterior wood sheathing to determine moisture levels behind the EIFS. If the pin meter indicates excessive moisture exists at the sheathing level a decision will have to be made on how to proceed. This is when the experience of your consultant will be important.

First, it is important that the consulting company you hire has not only an understanding of EIFS. The firm should have a professional level understanding of building science including evaluating pressures across the building envelope, evaluating indoor air quality concerns, thermography, blower door testing and other areas which may be required to make a thorough assessment of what conditions must be addressed to remediate the problems. It is at the stage of the assessment that an improper diagnosis may create new problems or worsen existing problems. This is where many inspectors do not understand building science and/or EIFS. A properly installed EIFS application may still be playing a role in moisture issues in the building. This is due to a lack of drainage when water vapor enters the interstitial wall cavity. If the building has EIFS on the exterior and a semi-vapor impermeable or impermeable (e.g. vinyl wallpaper) wall finish at the interior problems can occur within the interstitial wall space when moist indoor air meets dew point temperatures inside the interstitial wall space.

Second, whenever there are water problems involving cellulose based building materials coupled with no drainage from the wall cavity, fungal amplification is a likely prospect. This should be evaluated by a consulting firm understands the entire science of the building including psychrometric analysis, building pressures, HVAC system operation and balancing and indoor air quality. Closer Look Inspections associates include state licensed HVAC mechanics, certified balancing professionals, thermographers, code certified inspectors and engineers. A thorough evaluation will assure that all areas of the building are assessed so that band-aid type repairs do not come back to haunt you later.

Inability to Properly Drain

Wood-framed residential homes require a secondary weather barrier to be placed over the sheathing before cladding is installed. This barrier protects the home from incidental water intrusion and allows moisture to escape by traveling on top of the barrier, keeping the sheathing and structural members relatively dry. Eliminating and rendering a substrate unprotected invites trouble, no matter what type of exterior cladding is used.

Due to the design of the EIFS, a majority of EIFS clad homes do not have a secondary weather barrier placed over the exterior sheathing. A large number of EIFS applications use an adhesive to fasten the two-foot by four-foot insulation boards to the sheathing. If an adhesive is used to hold the insulation boards to the sheathing, then a secondary weather barrier cannot be used. Any water that infiltrates the system will become trapped between the EIFS and the sheathing.

Newer drainage EIFS has addressed this problem by adding a drainage plane behind the EPS to allow any moisture to drain before causing damage. The lack of this drainage plane in the majority of older EIFS installations can be problematic if the installers did not pay attention to details (e.g. window

flashing, roof/wall flashing, deck flashing, etc.). This can also pose a problem from the interior based on vapor diffusion entering the wall cavity from the interior. Depending on the interior finishes, vapor pressures, pressures across the building envelope and other factors, moisture can become trapped in the interstitial wall space with no way out. This greatly increases the humidity levels within the interstitial space which can lead to conditions favorable to microbial amplification and may begin to damage structural components.

It is estimated that 95 percent of homes clad with EIFS in the United States are barrier-type. Most barrier EIFS projects are adhesively applied because it is less time consuming to install. Adhesively applied EIFS prohibits a vapor barrier from being installed. It also prevents many self-flashing windows from being installed properly since the sill flashing must be cut off to accommodate the adhesively attached foam board.

Drainage EIFS

[EIFS Segment](#) (from Dryvit Site)

EIFS Photo Gallery

Resources:

[EIFS Legal Network](#)

www.iaqcouncil.org

Web site of the American Indoor Air Quality Council. Find a CIEC (Board Certified Indoor Environmental Consultant) to evaluate your building.

www.awci.org

Web site of the Association of Wall and Ceiling Industries. Features contact information on EIFS inspectors and "EIFS mechanics."

www.BuilderCentral.com

A comprehensive builder and construction web directory.

www.dryvit.com

Web site of Dryvit Systems, Inc., an EIFS manufacturer.

www.durock.com

Web site of Durock Alfacing International Ltd.

www.eifs.com

Web site of CMD Associates, Inc., a consulting firm specializing in EIFS.

www.eifsconsulting.com

AWCI certified inspector located in North Carolina with links regarding flashing installation and what is considered adequate/proper flashing.

www.eifsfacts.com

Web site of the EIFS Industry Members Association. Features an industry response to the Dateline NBC report.

www.eifsfacts.org

Web site of the Northern Virginia Stucco Home-Owner's Coalition. Features news highlights about EIFS, information about detecting EIFS problems, and extensive information about EIFS-related litigation.

www.eifsinfo.net

The EIFS Institute provides consumer information about EIFS.

www.eifsinformation.com

Web site of N & B Enterprises, Inc., specialists in EIFS removal and replacement.

www.hadd.com

Homeowners Against Deficient Dwellings, Inc.: A consumer protection group for homeowners and home buyers.

www.hobb.com

Homeowners for Better Building: A consumer protection group for homeowners and home buyers.

www.kinsella.com/eifs

This site offers information pertaining to the Senegy and Thoro class action settlement.

[New Hanover County Inspections Department](#)

This site offers information on the EIFS phenomenon and features a large bank of photographs highlighting EIFS failure.

www.parex.com

Web site of Parex, an EIFS manufacturer.

www.stuccosettlement.com

Dryvit National Class Action Settlement

www.stocorp.com

Web site of the Sto Corporation, an EIFS manufacturer.

www.toxicmoldlegalnetwork.com

Toxic mold resource assembled by partner consortium of the EIFS Legal Network.

www.usg.com

Web site of the USG Corporation. Offers news about EIFS and information about water-managed synthetic stucco systems.