



If you own a house clad in something known as exterior insulated finish systems (EIFS), also known as synthetic stucco, you are probably trying to cope with a small but growing feeling of anxiety. You have heard all the horror stories about houses clad with this type of siding. And, you realize that ignoring the matter won't make things better.

In the past decade, EIFS has developed a rather bad reputation for causing extensive moisture damage, not entirely undeserved. However, before you decide there are no other options but to abandon the house, there are some positive attributes to this type of cladding--if installed and maintained properly.

If you have already done your research and would like to have your EIFS inspected by a certified EIFS inspector, call NorthWest Building Inspections to schedule an inspection. We perform EIFS inspections throughout western Washington, including Seattle, Bellevue, Tacoma, and Everett. (see [Area's Served](#) for more details).

When dealing with a potential moisture problem, time is of the essence. Taking a proactive approach will save you money and headaches down the road.

If you are still unsure as to what all the negative hype surrounding EIFS is about, we hope the following will shed some light. Also, please feel free to give our EIFS-certified inspector a call to discuss what the inspection entails, what NWBI does to go the extra mile, and to ask any other questions you may have.

What is EIFS?

EIFS was developed in Germany during the 1950's as one of many revolutionary building materials and systems to assist in the rebuilding of Europe after World War II. It not only allowed for flexibility in design and application, it also helped to address issues of high energy consumption associated with masonry structures. It was first introduced into the U.S. in the 1970s for use in commercial applications, and eventually made its way into the mainstream residential arena in the 1990s. There are now over 30 manufacturers of EIFS, some of the most prominent being Dryvit, Senergy, Sto and Parex.

EIFS is a non-load bearing exterior wall system, typically comprised of three layers. The inner layer consists of foam insulation board that is fastened to the substrate, either mechanically or with an adhesive. The middle layer consists of a polymer and cement basecoat, which is applied to the top of the insulation, then reinforced with glass fiber mesh. The exterior layer is the finish coat, which gives the wall its stucco appearance.

Home buyers are attracted to EIFS for its aesthetic appeal and, ironically, perceived lack of maintenance. Architects and builders are attracted to EIFS because it offers almost limitless design flexibility, and is a competitively priced alternative to conventional stucco or brick siding. However, EIFS's greatest appeal is its insulating properties. EIFS insulation boards can cover the entire exterior wall space of a building, virtually eliminating any thermal breaks in the insulation barrier. This can reduce air infiltration and increase energy efficiency.

Typical of a face seal or exterior barrier system, the success of EIFS relies entirely on its ability to keep air and water out. In fact, before changes were made in a new generation of EIFS, there were no provisions made for water drainage. This would have been fine if water never entered the system. However, this has rarely proved to be the case.

Why did EIFS fail?

Despite all the bad publicity EIFS has received, it is not an inherently bad system. In certain applications, it has lived up to its ideal as the durable cladding with superior insulating properties. However, for EIFS to function as designed, it must be installed strictly to manufacturers' guidelines and specifications. This was typically not an issue when EIFS was initially applied to commercial buildings. The many layers of supervision and oversight involved in commercial construction often provided the quality control required to ensure the system was installed properly. Problems began when the product made its way into residential construction, where there was relatively little oversight and quality control.

A residential builder can have tens, if not hundreds, of homes being built at any given time, and oversight may consist of a general contractor's superintendent making quick rounds to ensure subcontractors are completing the work on time, not necessarily checking for quality. Subcontractors are generally left to self-police on matters of quality control. But, with tight deadlines and even tighter profit margins, often a subcontractor's primary focus is to get the material up as quickly as possible and move onto the next house. Short cuts are implemented, and in their haste, mistakes are made.

Unfortunately, EIFS can tolerate only the smallest margins of error. These seemingly insignificant mistakes or short cuts have sometimes led to total system failure in the form of water seepage and eventual rot and decay of the structural members of a house. Often seen types of improper installation are:

- improperly flashed and caulked windows

- missing flashing at door and window headings, deck ledger boards, roof-wall intersections
- foam insulation placed below grade
- missing backer rod around windows
- missing expansion joints
- no backwrapping of the insulation foam
- failure to eliminate horizontal surfaces

To be fair, these problems are not necessarily attributable to a single subcontractor, such as the EIFS installer. In order for EIFS to be applied properly, subcontractors that come before and after the EIFS installer must also adjust their installation practices to meet specifications associated with EIFS. However, codes are not written with EIFS in mind. Unless a general contractor has enough foresight to address the overall installation guidelines before any work begins, individual subcontractors will not know to adjust their usual practices to meet EIFS requirements.

In a perfect world, the EIFS installer would catch any potential installation problems created by the previous subcontractor and ask the general contractor to have the situation remedied before applying the EIFS. However, this would slow construction progress and more often than not, nothing is said and the material goes up and its effectiveness to keep moisture out is compromised.

Wind and rain, helped by natural forces such as pressure differentials between the exterior of the EIFS and the wall cavity, drive moisture into any opening left unsealed or improperly flashed. Unlike brick or stone cladding, which have weep holes at the base of each wall, EIFS has no drainage provisions (some newer EIFS may). Unable to drain away or evaporate quickly enough, water remains in contact with the wood substrate for prolonged periods of time. The warm and moist environment becomes an ideal breeding ground for wood destroying fungus, leading to rot and decay of the sheathing and eventually the wood studs. Left unchecked, this condition can lead to major structural damage.

Is there anything I can do to diagnose the problem myself?

Occasionally, you may see obvious visual signs, such as cracking or de-lamination of the surface. Although these areas usually require repair, only testing will reveal if the damage was caused by water. More often than not, even extensive water damage may reveal no visual clues because the damage is generally behind the cladding. Scanning with special tools and/or actually probing the EIFS and substrate with a contact moisture meter can confirm the presence of moisture and any associated damage.

Could my siding be real stucco?

Possibly. If your home was built before 1990, there is a good chance your siding may consist of real stucco. EIFS did not gain mainstream popularity in residential construction until the 1990s. However, the builder of your home may have been ahead of his/her time and applied EIFS long before it became popular. One way you can check is to apply a bit of pressure to the surface of the siding, and also give it a slight tap. Unlike EIFS, stucco includes a plaster cement basecoat and a hard coat finish. Its surface is hard and brittle and should sound solid when tapped. EIFS gives slightly to pressure and may sound hollow when tapped. If you have a strong suspicion that your siding is EIFS, or if you see obvious damage to the material, it may be a good idea to have the EIFS inspected by a certified EIFS inspector. Moisture problems rarely get better with time, and usually much worse if neglected. Early detection is always key to heading off potential problems and minimizing damage.

Can I have any home inspector inspect my EIFS?

The short answer is "no". A general home inspection, if performed by a highly qualified home inspector, can indeed be very thorough. However, a general home inspection is a visual, non-intrusive investigation. Although a lot can be determined through careful observation, EIFS inspections require a bit more to be most effective.

A EIFS-certified inspector is trained to look for problems and issues that are very specific to EIFS, such as installation practices that deviate from industry guidelines and specifications, by far the greatest contributor to the failure rate of EIFS. Because most problems occur behind the cladding where it cannot be visually or directly observed, specialized tools and equipment must be used to identify areas of concern.

We use the Tramex Wet Wall Detector, a deep sensing moisture detector, to scan exterior and/or interior walls for signs of moisture intrusion. We also use an infrared camera to perform a thermal scan of interior walls that abut EIFS to further identify areas of concern. After we have performed these non-invasive methods to identify areas of concern, we confirm the presence (or absence) of moisture by using a penetrating moisture probe. This instrument punctures the EIFS and substrate with two 1/4-inch probes to read the moisture content in the wall. The moisture content reading is used to determine the severity of the problem and associated recommendations. The holes are then filled with color-matched sealant.

Performing an EIFS inspection requires specialized training, tools, and more time than a general home inspection allows, which is why home inspectors typically call out for an EIFS-certified inspector when EIFS is encountered during a general home inspection.

Helpful maintenance tips:

- Annually inspect all sealant around windows, doors, penetrations through EIFS, EIFS transitions (such as EIFS to brick, EIFS to stone) and terminations (at roof, at grade, at patios or walkways). Have a certified EIFS installer repair any areas where caulk is split, cracking, crazing or is losing adhesion. Also, promptly repair any cracks in the EIFS.
- Any leaks, cracks, areas of discoloration, mold or mildew should be promptly investigated by a certified EIFS inspector. Repairs should be proper and prompt.
- Anytime a penetration is made through EIFS (to mount a satellite dish, add shutters, new wiring, cables, plumbing, security systems, etc.), the perimeters must be sealed with a quality sealant approved for EIFS.
- Modifications, additions, or renovations to the structure of any kind (including roof replacement) should be inspected by a qualified EIFS inspector to ensure critical areas are properly waterproofed.
- Periodic cleaning of the surface is necessary to maintain its appearance and prevent permanent staining. Pressure cleaning equipment must be calibrated to the EIFS manufacturer's recommended pressure level (low) to prevent damage. Select contractors that are familiar with and have experience in cleaning EIFS.
- A maintenance inspection should be performed by a certified EIFS inspector at least once every two years to check the exterior for damage, such as cracked joints and seals, and to perform a moisture scan to identify any new potential moisture issues.