

# Moisture Intrusion Analysis

## 1. Visual inspection of the house

Observe any deficiencies in the system. These items should be noted in the report. Inform the client that it is important that they determine the Manufacturer of their EIFS installation. Specifications for installation do vary slightly among the Manufacturers.

The general condition of the construction of the house and stucco (EIFS) wall-cladding should be determined.

- *Terminations:* Foam should be backwrapped, have an expansion type joint where EIFS terminates on a driveway, patio, sidewalk, etc. This is typically not done, because the flow of residential construction does not allow for this. The exterior concrete flatwork is usually done late in the schedule.
- *Roof termination:* Should be held off of roof a minimum of two (2) inches and backwrapped.
- *Below grade termination:* Foam should not terminate below grade. The foam substrate should be backwrapped and sealed to the foundation approximately 6-8 inches above grade. This mainly serves two purposes; it prevents wicking action of the foam and eliminates a termite path into the structure. The foam creates an ideal environment for the termite, which is impossible to treat.
- *Backwrapping:* Where the foam substrate terminates, it should be backwrapped, in order to provide for proper protection of the foam. Backwrapping also provides for improved attachment of the substrate to the sheathing.
- *Backer Rod/Sealant: Windows - Expansion Joints - Grade Terminations:* The usage of backer rod and sealant is necessary for the proper construction of an isolation type of joint. Flexible and waterproof.
- *Expansion Joints: Dissimilar Materials - Floor Bands:* Expansion-joints should be used where EIFS terminates, or meets a dissimilar material. The typical expansion joint is a flexible, watertight joint utilizing, backer rod and sealant. Expansion joints at the floor bands are usually 3/4 inch in width; typical joint at windows and doors is 1/2 inch,
- *Horizontal Surfaces: Trim Bands/Quoins:* There should be no horizontal (flat) surfaces. All surfaces should slope away from the structure at a minimum degree of 6:12.
- *Flashing:* Flashing should be utilized to properly direct water away from the structure. Doors, windows and deck attachments are the most typical areas where flashing is used. Although flashing has been required for several years, many builders felt that flashing on stucco-type exteriors was not necessary. Check for proper flashing details. Flashing points, where a gutter meets a side wall, are one of the most common areas for excessive moisture intrusion.
- *Penetrations:* Penetrations should be properly sealed. No foam should be exposed. Look for any penetration, not only the obvious. In addition to pipe penetrations, look for fasteners, lights or any object that passes through the EIFS wall-cladding materials.
- *Damaged Areas:* Damaged areas should be noted in the report. Areas that are cracked or damaged should be repaired. The finish coat and base coat material should be removed. If the insulation board is not damaged, the base coat, mesh and finish coat can be reapplied. If there is damage to the insulation board, remove and replace the damaged section of insulation board, reapply base coat, mesh and finish coat.

## **2. Test Probe**

The inspector should prepare test probes as needed and the holes filled with a sealant labeled in compliance with ASTM-C920, or of a type recommended by the EIFS Manufacturer. The test probe and the color of the sealant should be approved by the homeowner/client.

## **3. Moisture Detector**

The house should be scanned with a Tramex Wet Wall Detector or equivalent. The idea is to scan, or test, every area where moisture is obvious - but also those areas that might not be so obvious. Including, but not limited to:

- *Corners, outside and inside, both faces-minimum every 2 ft.*
- *Around doors and windows, and below.*
- *At the band, each floor level, every 3 ft.*
- *At flashing points - sidewall and gutter return areas.*
- *Around all wall penetrations.*

It should be emphasized that the scanners available at this time do not provide adequate information for rendering a conclusive Moisture Intrusion Inspection Report. The technology is limited to providing a basic indication of a possible elevated level of moisture in the area indicated. The areas where the scanner indicates an elevated level of moisture should then be probed using a reliable moisture meter with insulated probes of an adequate length.

The use of a scanner is not mandatory. If the individual doing the testing wishes to probe the entire house, this is acceptable. If this is the case, the amount of probing required may be extensive.

## **4. Moisture Testing**

Moisture testing is more complex than it seems. Just about anyone can buy a moisture meter, find a damp area in a wall and tell you to strip off the EIFS.

Replacing the siding will not solve the problem unless the leaks are stopped. If leaks are due to missing flashing and caulking, you can find water problems in any house, no matter what the siding.

In EIFS clad buildings, as with most other sidings, water usually enters the wall around penetrations (windows, doors, decks, roof/wall junctures) which are not properly flashed or sealed (caulked).

On rare occasions, a crack, hole or split in the EIF System will allow enough water in to cause serious problems. These openings can usually be found at floor lines, at corners of window and door openings, or in aesthetic reveals (control joints).

Sometimes a horizontal or vertical crack will appear in the middle of the wall. The cause and extent of this problem can vary from simple to severe.

Finding a high moisture reading is fairly easy. Locating them all, pinpointing their origin, determining the extent of damage and deciding on an effective and cost efficient solution is much more difficult and complex.

As with all specialties, the lowest price is rarely the least expensive.

## **5. Reporting**

The high readings, along with the specific location of the readings, should be noted in the report. This is necessary so that in the future, the readings can be referenced for a follow up test. A reference for future testing should be indicated in the report. Time frame should be approximately 6-18 months.

The report should indicate the following concerning the readings:

- *10 to 19%* - Moisture is present in the wall. Additional sealant at the specific area should be sufficient.
- *20 to 29%* - The source of the water intrusion should be identified, if possible. Appropriate corrective action should be taken to stop the entrance of the water. In many cases, a particular detail may be corrected, or additional sealant installed as a satisfactory corrective measure.
- *30%+* - This is the fiber saturation point of wood, the level at which decay rapidly begins to occur. The EIFS at these areas should be removed so that the framing can be inspected for indications of rot or decay. Any damaged areas should be repaired or replaced, as necessary.

The problem areas should be clearly identified in the report. There should be a system for identifying the probed areas. This is necessary so that the house can be effectively re-tested. Another inspector may be doing the re-testing.

### **Other Types of Inspections**

It is possible to do a mostly visual inspection of a house and observe conditions that do not meet current EIMA Installation Standards. This form of Inspection, or Consulting Service, should not be confused with, or claimed as, an EIFS Moisture Intrusion Inspection.