To be able to identify the stucco system you must understand system components. You should understand the basic components of the most common stucco systems. Some homes have multiple systems on them. At times it may not be possible to identify the system. Occasionally the cladding will not be a standard system but rather a combination of components or systems.
Stucco and EIFS

Describe and Identify

The InterNACHI Residential Standards of Practice of Practice state that an Inspection report shall describe and identify in written format the inspected systems, structures and components of the dwelling and shall identify material defects observed. The difficulty is in the identification of the exterior covering material. When the siding appears to be stucco, it may not be enough for many inspectors to simply identify the covering as “stucco.” You may decide that it is in the best interest of your client to know what type(s) of stucco is installed on the house, and to correctly identify if the cladding is EIFS or not. With professional training a home inspector should be able to identify the type(s) of “stucco” that is installed on the house, identify common concerns and defects related to the material, and communicate the inspector’s findings in an inspection report.

This article does not go into enough detail about performing a stucco and EIFS inspection. You should consider taking a professional training course. There is one provided by InterNACHI at http://www.nachi.org/stucco-eifs.htm. This course will teach you about the best non-invasive, visual-only inspection techniques used to inspect stucco and EIFS as required by the InterNACHI Residential Standards of Practice.

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General

Stucco is used as an exterior covering or coating on residential buildings, and is common in many parts of the U.S. Stucco is durable. Traditional stucco is made of lime, sand, and water. Modern stucco is made of Portland cement, sand, and water. Lime can be added to decrease the permeability and increase the workability of modern stucco. Sometimes proprietary additives such as synthetic acrylics and glass fibers are added to improve the strength and flexibility.
Modern stucco can be applied as one base layer and a finish layer, which is thinner and faster to apply, compared to the traditional application of three-coat stucco. Stucco is applied wet and hardens to a very dense solid. It is used as a coating for walls and ceilings and for decoration. Stucco may be used to cover concrete, block and brick.

**Components**
There are several components that should be inspected during the identification and description of the stucco/EIFS siding material. The following should be inspected during your inspection of the “stucco.”

- Exterior wall cladding
- Flashings
- Trims
- Doors and Windows
- Deck and Balcony Attachments & Flashings
- Eaves, Soffits and Fascias
- Grading and surface drainage

**Coats**

Stucco can be applied in “coats” — some coats are called “base,” “scratch”, “brown” and “finish.” For some exterior wall applications, lath, mesh or netting is installed with the stucco. On some stucco applications, there can be a weather-resistant barrier installed behind the stucco. This barrier is often asphalt-impregnated felt paper. It protects the framing (weather wood framing or metal) from moisture that may pass through the stucco covering. The barrier is often referred to as a WRB or MRB (weather resistant barrier or moisture resistant barrier.)
The WRB or MRB is often an asphalt-saturated paper, but there are a variety of manufactured plastic-based sheets, known as "building wraps" or "stucco wraps". The properties of the weather barrier must not only protect the framing from rain and moisture, but also at the same time allow the free passage of any water vapor generated inside the building to escape through the wall.

There are a wide variety of stucco accessories, such as weep screeds, control and expansion joints, corner-aids and architectural “plant-on” details that can be incorporated into the stucco application. Wire lath is used to give the plaster something to attach to and to add strength.

Stucco is valued as an exterior covering material for its attractiveness, versatility and durability—Portland cement can last indefinitely without requiring maintenance. Stucco is versatile. It can be directly applied to brick and concrete, or applied to a lath (paper or wire mesh) over wood frame or other material.

**Weep Screeds**

A corrosion-resistant weep screed or plastic weep screed should be provided at or below the foundation plate line on the exterior stud walls. The weep screed should be placed a minimum 4 inches above the earth or 2 inches above paved areas and should be of a type that will allow trapped water to drain to the exterior of the building.

**Inspection Tips for Weep Screeds**

If you can not easily access, reach, or you can’t see the bottom of the wall and the weep screed, then the installer of the stucco probably had a difficult time down there as well. If it’s difficult to reach, then there may be a problem there. Use kneepads when inspecting the stucco at ground.
level. Use mirror with an extension arm to check the bottom wall termination for the proper installation of weep screeds.
Barrier or Face Seal PB EIFS

This is the most common type of EIFS. PB = Polymer Based. Barrier means that the system is designed such that water should not get behind the exterior surface.

Components of Barrier
- EPS insulation adhesively or mechanically attached to a substrate
- Polymer Based Base Coat with embedded fiberglass mesh
- Acrylic Finish Coat

Things to look for to Identify a Barrier PB EIFS Clad Home:
- EPS foam insulation (by itself EPS does not mean the cladding is EIFS)
- Fiberglass mesh
- Thin lamina (base coat, mesh & finish coat); about 1/16 inch
- The wall surface gives slightly to hand pressure
- Typically no accessories although PVC starter tracks or casing beads are allowed
- Sounds hollow when tapped
- Typically adhesively attached to substrate (OSB, plywood, etc.)

Base Coat for PB EIFS
- Trowel applied
- Weather resistant layer
- The fiberglass mesh provides the impact and crack resistance
- Encapsulate the mesh with base coat.
- Applied in 1/16 inch thicknesses
Moisture Drainage MD-EIFS

The basic installation appears very similar to Barrier PB EIFS with one additional component. A Moisture Barrier and drainage plane is first placed over the moisture sensitive substrates. PVC accessories are permitted but not required. Most systems have a weep screed (PVC starter track with weep holes), but not all systems. Historically they were mechanically fastened thus they flex more than PB EIFS; however, the most advanced systems are now adhesively attached. Each system is proprietary thus there are many variations.

**MD-EIFS**

![MD-EIFS Diagram]

**Things to look for to Identify a MD-EIFS Clad Home:**
- There will be a moisture barrier over the substrate
- EPS foam insulation (by itself EPS does not mean the cladding is EIFS)
- Fiberglass mesh
- Thin lamina - about 1/16 inch
- The wall surface gives slightly to hand pressure
- There may be accessories such as PVC starter tracks or other drainage provision at bottom of wall
- Sounds hollow when tapped
- Typically mechanically attached to substrate (OSB, plywood, etc.) although new systems adhesively attached to liquid applied membranes
Polymer Modified, PM – EIFS

PM systems were popular in some locations around the country but not extensively used.

**Polymer Modified PM – EIFS**

PM components include:
- Extruded Polystyrene (XPS) mechanically attached
- Heavy fiberglass mesh, mechanically attached
- Thicker basecoat ¼ to 3/8 of an inch
- Control and expansion joints; limit 144 sq. ft.
- Plastic or metal trim accessories

Things to look for to Identify a PM-EIFS Clad Home:
- XPS foam insulation
- Exposed heavy open weave fiberglass mesh
- Thick lamina; ¼ to 3/8 of an inch
- The wall surface is hard and firm
- Should have PVC or metal accessories
- Sounds solid when tapped
- Mechanically attached to substrate (OSB, plywood, etc.)
- Typically no drainage plane or Moisture Resistive Barrier
Modern Polyisocyanurate (PI) EIFS

These systems perform much better but have lost the economy that they originally had.

**Polyisocyanurate (PI) EIFS over Open Framing**

Most current PI systems require:
- Substrate
- Moisture Resistive Barrier
- Joints must be base-coated and meshed
- Then PI insulation board must be fully meshed and base coated
Direct Applied Exterior Finish System (DA or DEFS)

Historically, DEFS had lamina directly applied to an approved substrate such as DensGlass or Cement Board (No insulation board).

Current specifications call for cement board in all exposed wall areas, while DensGlass or equal is approved in protected areas. Originally mesh was only required at joints in approved substrate. Now all manufacturers require that the mesh cover entire wall surface. DEFS uses system accessories. Each system is proprietary thus there are a number of variations.
Traditional or Three-Coat Stucco

Basic components include:
- Portland Cement Stucco
- Requires a Moisture Barrier, metal lath and accessories on Moisture Sensitive Substrates but not on concrete or masonry substrates
- Hard & prone to cracking
- Requires control or expansion joints every 144 sq ft over lath and 250 sq. ft. without lath
- Metal or PVC casing bead or J-bead or weep screed
- Scratch, brown and finish coats
One-Coat Stucco System

Basic Components include:

- Many are proprietary requiring ICC Evaluation Reports.
- Portland Cement Stucco with polymers and fiberglass reinforcing.
- Requires a Moisture Barrier on moisture sensitive substrates.
- Hard surface which helps resist impact damage.
- Control joint are required but spacing is to be specified by the design professional (typically to limit panels to 144 square feet).
- Metal lath (stucco netting or diamond lath)
- Metal casing bead or J-bead or weep screed
- Minimum 3/8” basecoat plus finish coat

The incidence of cracking is dependent on the materials used and installation techniques. May or may not have foam insulation behind stucco; it can have EPS or XPS insulation behind the system. This does not make this an EIFS system as defined by Stucco or Insurance Industries. One-Coat Stucco systems are very popular since problems with EIFS have surfaced.