
*Model Quality Plan for
Use of Drainage-Type
Exterior Insulation and
Finish Systems (EIFS) on
One- and Two-Family Dwellings*

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Background

This document evolved over the course of several years, and its development involved several trade associations, builders, EIFS manufacturers, and EIFS applicators. The NAHB Task Force on EIFS, staff at NAHB and the NAHB Research Center, and Senergy, Inc., supported development of this document, which supersedes the *Quality Plan for Installation of Exterior Insulation and Finish Systems*, 1999, published by the NAHB Research Center.

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A. GENERAL

This document outlines key quality control points for builders and installation contractors using EIFS cladding for residential construction.

The purpose of the document is to establish a Quality Plan for the construction process that results in long-term performance of EIFS-clad dwellings. The construction process involves selecting an EIF system that can perform as intended, verifying that the building incorporates a properly installed substrate, weather barrier, flashing, and sealant and is suitable for EIFS installation. The EIFS installation process includes installation of the insulating board, reinforced base coat, and finish coat.

The aim is to prevent construction defects, ensure compliance with manufacturer's requirements, and reduce variation.

The following items are important factors to consider before selecting and installing EIFS:

- The EIF system must meet applicable regulatory requirements.
- The EIF system must be accepted by underwriters of builders risk insurance.
- The EIF system must be capable of performing for the intended application and meet the performance attributes described herein.
- EIFS materials from one manufacturer's system must not be substituted for materials from another manufacturer's system.
- Building designs must not exceed limitations specified by the EIFS manufacturer.
- Workmanship requirements must be clearly defined.
- Craftspersons must be trained and qualified to perform the work.

- EIFS contractors must be approved by the EIFS manufacturer for the system to be installed.
- The installation contract must define the responsibilities of both the builder and trade contractors and outline the sequencing of work.
- Purchased trade contractor services, products, and materials must conform to specified requirements of the EIFS manufacturer.
- Selection and installation of building materials, such as flashing, weather barriers, windows, and EIFS must be integrated in accordance with the manufacturers' specifications.
- The EIFS contractor must have an approved crew leader on the jobsite during installation.
- The EIFS contractor must conduct a job readiness inspection before installation and issue corrective actions to the builder when nonconformances are identified.

TERMINOLOGY

This document makes reference to various parties that are typically involved in the home building process and the installation of EIFS. To avoid confusion they are defined as follows:

- **EIFS Installer and EIFS Contractor**—the business entity that is under contract to install the EIFS system.
- **Builder and General Contractor**—the business entity that is coordinating construction and that has subcontracted the EIFS installation to an EIFS Contractor.
- **Applicator and Craftsperson**—the labor provided by an EIFS Installer or EIFS Contractor to install the EIFS to a house.

B. SELECTION OF AN EIF SYSTEM

Protection of the underlying construction materials from water intrusion is an important factor in the design of the building envelope. Water intrusion behind cladding may occur if rainwater gains entry by passing through penetrations or interruptions in the EIFS, such as those for doors, windows, roof/wall intersections, chimneys, and deck attachments. Rainwater that gets behind the foam insulating board and makes direct contact with the sheathing for sustained periods can cause susceptible materials to decay.

It is important to note that there are two basic designs of EIF systems: water-managed (also known as drainable) and barrier. All EIFS are designed to resist water penetration at the outer surface. **Barrier** EIFS are designed to prevent moisture entry at the outermost surface of the system.

Water-managed EIFS systems, just like brick, stucco, and vinyl siding, are designed to allow drainage of incidental water that may leak behind the exterior cladding. These systems typically have a building code-recognized weather-resistive barrier over the sheathing, flashed and protected openings, and a drainage mechanism/provision between the exterior finish and the weather-resistive barrier. These design elements are intended to prevent water from

contacting the sheathing and provide a path for incidental water to drain from the structure.

The scope of this document is limited to water-managed EIF systems. The document's Quality Plan and Quality Assurance Review (Appendix A) are not applicable to barrier EIF systems.

With respect to homes clad with barrier EIFS, code officials, insurance companies, and manufacturers may impose restrictions on the use of EIFS. The person selecting an EIF system should consider the following:

- recognition criteria listed in Appendix C;
- acceptance by the local code enforcement body;
- acceptance by the home builder's liability insurer;
- acceptance by the trade contractor's liability insurer;
- climatic suitability specified by the EIFS manufacturer;
- acceptance by the homeowner's mortgage lender; and
- acceptance by manufacturers of other products used in the building. Some window manufacturers do not warrant products installed with some types of EIF systems.

C. KEY EIFS AND BUILDING DESIGN CONSIDERATIONS

GENERAL

The use of EIFS must consider requirements for the design of the building, including the following:

- building code requirements (see Appendix B);
- design requirements and performance of other related building products;
- the material or product manufacturer's design specifications and details;
- the material or product manufacturer's restrictions for use; and
- demonstrated product performance capabilities and limitations.

KEY BUILDING DESIGN CONSIDERATIONS

Key items to consider in the overall building design of EIFS-clad structures are as follows:

- substrate type (sheathing), compatibility, and attachment;
- flashing/details at areas such as windows, doors, crickets or saddles, roof/wall intersections, copings/tops of walls, decks, roof runoff diverter, small penetrations, floor lines, bottoms of walls, dissimilar materials, etc.;
- building code requirements;
- vapor retarders;
- weather barriers, including rough-opening protection;
- sealant;
- window requirements/specifications;

- impact resistance;
- expansion joint placement;
- joint width at penetrations;
- termination above finished grade;
- color restrictions;
- inclined-surface maximum slope length; and
- aesthetic grooves and architectural features.

EIFS PERFORMANCE REQUIREMENTS

The EIFS manufacturer shall demonstrate that drainage-type EIFS meet the following minimum criteria:

- recognized by applicable model building codes and evaluation services (see Appendix B); and
- Pilot Project Evaluation Protocol (see Appendix C).

D. BUILDER REQUIREMENTS

Contractors in related trades (flashing, sealants, windows, weather barriers, etc.) must be fully versed in the EIF system specified in their scope of work and complete the installation in a workmanlike manner.

1. JOB CONTRACT REQUIREMENTS

To provide a basis for an agreement between the builder and the trade contractor, every job contract must clearly describe the work to be performed. The job contract must define the respective responsibilities of the builder and the trade contractor.

1.1 All EIFS job contracts must contain the following information:

- EIF system to be installed, including manufacturer and model/system and insulation board thickness;
- coverage areas;
- location and description of architectural details, other features such as special shapes, grooves, bands, quoins, etc., and details such as decks, roof/wall intersections, and penetrations (windows, pipes, etc.);
- type/color of finish coat as well as locations; and
- location of high-impact resistance mesh.

1.2 Job contracts must assign management responsibilities for the EIFS installation and other adjoining components of the exterior wall envelope as follows:

- EIFS contractor shall provide a crew leader at the job site during installation;
- the EIFS contractor's quality assurance records shall be provided to the builder (see Appendix A);
- flashing of windows (note that differences between window manufacturer's and EIFS manufacturer's installation requirements must be resolved);
- flashing and/or sealing of small penetrations (i.e., hose bibs and electrical conduits), windows, decks, and roof/wall (note that EIFS manufacturer's typical details can be used for guidance);
- application of weather barrier, including opening (note that weather barrier manufacturers typical details can be used for guidance);
- application of sealant; and
- use of EIFS manufacturer's specifications. Deviations from the manufacturer's installation specifications should be approved by the EIFS manufacturer and the builder and documented by the EIFS contractor.

The contractor(s) that installs the EIF system and sealant must provide the following instructions to the home builder:

- EIFS manufacturer's owner maintenance requirements and instructions; and
- sealant(s) identification and maintenance requirements.

1.3 Any discrepancies between contract requirements, approved materials, design requirements, application requirements, and work instructions must be resolved before work begins and during construction. Alternative materials, designs, applications, and work instructions may be used only with written approval.

2. COORDINATION AND SCHEDULING OF TRADES

Proper coordination and sequencing of trades and work is essential to avoid construction delays as well as to enable the various building envelope components to function properly and as intended. Listed below are the major as well as common sequencing steps for the exterior

wall system components for one- and two-family dwellings.

- framing/substrate;
- weather barrier, rough-frame-opening protection, and flashing;
- windows, doors, and other penetrations;
- integrate EIFS water management components to weather barrier;
- EIFS components such as insulation board, base coat, and reinforcement mesh;
- EIFS finish coat;
- copings, rakes, etc.; and
- sealant.

E. EIFS Contractor Quality Control Plan

1. GENERAL

The EIFS contractor must meet the requirements of this section.

The EIFS product manufacturer must list the EIFS contractor as an approved applicator for the specified system.

2. EIFS CRAFTSPERSON REQUIREMENTS

Every job must have a crew leader on the job site while work is being performed.

The crew leader must have at least eight hours of training by the EIFS manufacturer. The training must include instruction for proper

- job readiness requirements;
- installation of insulation board and the drainage medium;
- application of the reinforcing mesh and base coat;
- sealant specification; and
- application of the finish coat.

3. USE OF APPROVED MATERIALS AND TOOLS

The use of materials affects the quality of the overall project. Each EIF system has a unique set of compatible materials. Materials from different systems or unapproved materials may not be compatible and must not be used. Verify that the product manufacturer for the particular system to be installed approves the EIFS materials used. Material information may be

contained in the installation instructions. The following are materials that must be specified for dwellings using an EIF system:

EIFS materials:

- insulation board;
- mechanical insulation fasteners for wood, steel, and concrete;
- adhesives;
- drainage medium;
- fasteners for drainage medium;
- Portland cement;
- base coat;
- reinforcing mesh; and
- finish coat.

Related Components

- weather barriers;
- drainage track;
- starter track;
- flashing materials for openings, penetrations, etc.;
- weather barriers/opening protection;
- interior window air seal;
- sealant and primer;
- sealant backer rod; and
- substrate.

EIFS manufacturers may require the use of specific tools for the installation of their product. The availability and use of specified tools must be verified. Equipment typically used for EIFS installations include the following:

- straight edge for examining installed insulation board flatness (specify length);
- cutting guide for insulation boards (specify length);
- sandpaper for sanding insulation board surface;
- rasp;
- float;
- base coat trowel (stainless steel);
- finishing trowel (stainless steel);
- corner trowels;
- reveal trowels;
- insulation board router/groover;
- hot knife;
- mixing blade for finish materials;
- mixing drill; and
- colored primer and finish coating applicators: brush, roller, sprayer.

4. PROTECTION OF WORK

Before installation of the EIFS base coat, it is essential to avoid prolonged exposure of the insulation board to sunlight to minimize damage by ultraviolet rays. If damage has occurred, the surface must be rasped to ensure adequate bonding of the base coat to the insulation board.

During curing of the base coat and finish coat, care must be taken to avoid damage from the following:

- rainfall on the surface; and
- freezing.

5. INSPECTOR QUALIFICATION REQUIREMENTS

On projects where an independent inspector performs conformity assessment audits, the inspector must have at least eight hours of training. The training must address:

- job readiness requirements;
- installation of insulation board and drainage mat;
- application of reinforcing mesh and base coat;
- application of finish coat; and
- application of sealant as well as other exterior envelope components.

6. JOB SITE INSPECTION REQUIREMENTS

Inspections must be performed to verify that requirements in the manufacturer's work instructions and job contract have been met and that related components have been installed properly and in proper sequence. See Appendix A, Quality Assurance Review, for checklists that may be used by the crew leader for documenting conformance to manufacturer's specifications. Job site inspections must be performed for each stage of construction. Conformance must be verified for each construction phase and for completion of the job. Construction details may vary for each EIF system and/or manufacturer. Construction must conform to the EIFS manufacturer's requirements. Deviations must be approved and documented in writing from the EIFS manufacturer or design professional.

Work instructions specific to the EIF system must provide construction details and specifications for the following work processes:

EIFS

- installation of drainage medium;
- installation of insulation board;
- application of reinforcing mesh and base coat; and
- application of finish coat.

Related Components

- substrate type and attachment;
- weather barrier and opening protection;
- penetrations (windows, pipes, etc.);
- flashing; and
- primers and sealant.

7. JOB READINESS INSPECTION

Before commencing work, verify that all requirements and conditions are suitable for work to begin, including

- the adequacy of work performed by previous trades that may affect installation quality;
- building details that are compatible with installation requirements;
- no adverse weather conditions that undermine quality;
- the availability of installation instructions; and

- the availability of only approved materials for use.

All nonconformances must be clearly marked to prevent inadvertent cover-up. Any unapproved materials that are similar to those approved for use must be prevented from unintentional use by markings or segregation.

Inspect all materials before use. Only undamaged, defect-free materials may be used. Materials that are defective, deteriorated, or damaged by contamination, freezing, moisture, or other causes must be kept from unintentional use by markings or segregation.

Job readiness inspections must verify that the EIFS installation can proceed by ensuring

- a dry and properly fastened substrate;
- appropriate weather barrier type and installation;
- roof flashing in place;
- flashing of openings in place (i.e., windows, doors, decks); and
- availability of EIFS manufacturer's installation instructions on job site.

EIFS manufacturer's materials storage requirements must be complied with for

- insulating board;
- base coat material;
- finish coat material; and
- reinforcing mesh.

All deviations from job readiness requirements must be corrected before starting work or approved in writing by the EIFS manufacturer or design professional. The general contractor shall be notified in writing of the EIFS manufacturer's or design professional's approved changes.

8. JOB PROCESS INSPECTION

The job site process inspection must verify that specifications are followed and that workmanship meets expectations. Whenever verification to dimensional specifications is required, actual measurements must be made. Verify the use of specific equipment or tools if they affect quality.

(Note: Certain items noted below [*] may be contracted to other parties and therefore are out of the control of the EIFS contractor. In those cases, the EIFS applicator shall provide the

builder with EIFS manufacturer's specifications. The builder is then responsible for ensuring that the other trades involved with installing EIFS system components are qualified in accordance with this guide and that their construction complies with the EIFS manufacturer's specifications. The builder or designated trade contractor shall document the required inspections.)

Job process inspections must verify

- the weather barrier and rough-opening protection*;
- compliance of temperature and rain conditions with manufacturer's requirements;
- the EIFS drainage medium material used;
- the insulating board used;
- the insulating board fastener used;
- the backwrapping material used;
- joint widths at openings and penetrations;
- flashing at windows and doors*;
- flashing at decks*;
- joint widths at control joints;
- clearance above finished grade*;
- clearance above roof, deck, and patio*;
- the mesh material used;
- the base coat material and quantity (buckets) used;
- insulating board surface preparation;
- the coating of backwrap edges;
- the coating coverage of mesh;
- sealant primer used*;
- sealant used*;
- the backer rod type used*;
- finish coat material; and

9. COMPLETED JOB INSPECTION

Each trade contractor shall conduct a completed job inspection to document that the construction requirements of the job contract have been met. The inspection must assess every item specified by the job contract. Whenever inspections verify conformance to dimensional specifications, actual measurements must be recorded.

10. CONTROL OF NONCONFORMANCES

If quality nonconformances are found, they must be clearly identified to prevent concealment until they are corrected. Job site nonconformances must be clearly identified by tape, signage, or

markings to prevent inadvertent use or concealment.

When a nonconformance is not immediately corrected, a Job Site Non-Conformance Form must be completed and distributed to the builder.

Job site nonconformances will be recorded on, or incorporated as an addendum to job site inspection forms.

Possible quality nonconformances must be resolved by one of the following methods:

- reworked to meet specified requirements;
- accepted with or without repair by mutual agreement; and
- rejected.

Repaired or reworked product must be reinspected.

Corrective action will be taken to resolve nonconformances in a manner appropriate to the severity of the risk caused by the nonconformance. Deviations from the manufacturer's specifications is acceptable only when there is mutual agreement between the builder and EIFS contractor and when written acceptance of the deviation is provided by the EIFS manufacturer. The EIFS manufacturer's acceptance shall ensure that its product warranty is not voided by the "accepted" construction deviation.

APPENDIX A Quality Assurance Review Forms

The following *Quality Assurance Review* form can be used by EIFS installers to provide a record of an EIFS installation or by field inspectors to document quality review findings.

Job Number: _____

Job Name/Location: _____

EIFS Contractor: _____

Inspection Company: _____

Inspector Name: _____

Inspector Signature: _____

Inspection Date: _____

EIF System: _____

Nonconformance Reports: _____

Follow-Up Action Required: _____

Follow-Up Action Taken: _____

1. Job Readiness Inspection

Y	N	N/A	1.	Is the substrate in suitable condition for EIFS installation?
Y	N	N/A	2.	Are materials stored according to manufacturer's recommendations?
Y	N	N/A	3.	If corrections or repairs are required, are they clearly marked?
Y	N	N/A	4.	If defective materials are on the job site, are they clearly marked?
Y	N	N/A	5.	Are installation specifications available at the job site?
Y	N	N/A	6.	Is the Statement of Work, including plans and drawings, available on site?
Y	N	N/A	7.	Has window head flashing been installed per specifications?

Y	N	N/A	8.	Do window sills have pan flashing with provisions for weep?
Y	N	N/A	9.	Has kick-out/diverter flashing been installed properly?
Y	N	N/A	10.	Has rake flashing been installed properly?
Y	N	N/A	11.	Has deck ledger flashing been installed properly?
Y	N	N/A	12.	Are housewrap/weather barriers installed with proper lapping?
Y	N	N/A	13.	Are the required tools available for use?
Y	N	N/A	14.	Is the drainage medium installed properly?
Y	N	N/A	15.	Does the weather barrier overlap tracks?
Y	N	N/A	16.	Is the drainage track installed?
Substrate Type:				
Vapor Barrier Type and Location:				
Weather Barrier Type:				
Crew Leader:				
Date:				

2. Insulating Board Installation Inspection

Y	N	N/A	1.	Does the adhesive application pattern meet specifications?
Y	N	N/A	2.	Do the fastening pattern/types of fasteners and sunken depth meet specifications?
Y	N	N/A	3.	Is backwrapping installed at all openings and terminations?
Y	N	N/A	4.	Is foam installed in a running bond?
Y	N	N/A	5.	Are foam board joints kept out of alignment with windows and doors?
Y	N	N/A	6.	Are gaps in foam filled to specifications?
Y	N	N/A	7.	Is the foam surface rasped/planar and flat as specified?
Y	N	N/A	8.	Does foam thickness meet specifications, including at aesthetic grooves?
Y	N	N/A	9.	Are all horizontal surfaces sloped for drainage per specifications?
Y	N	N/A	10.	Is grooved insulation board installed with channels in the vertical position?
Y	N	N/A	11.	Is insulation board held above roof shingles per manufacturer's specifications?
Y	N	N/A	12.	Are control/expansion joints placed and detailed per specifications?
Y	N	N/A	13.	Is proper insulation being used?
Y	N	N/A	14.	Is the insulation terminated above grade per specifications?
Insulating Board Type, Thickness, and Manufacturer:				
Adhesive Type and Manufacturer:				
Fastener Type and Manufacturer:				
Typical Gap Foam Held Back from Window/Door Openings:				
Drip Flashing Type:				
Drainage Track Manufacturer and Model:				
Crew Leader:				
Date:				

3. Base Coat Inspection

Y	N	N/A	1.	Is the board surface dry, and are weather conditions suitable for installation?
Y	N	N/A	2.	Is material mixed and handled per manufacturer's specifications?
Y	N	N/A	3.	Is the base coat installed to proper thickness?
Y	N	N/A	4.	Is the reinforcing mesh an approved material for this EIF system?
Y	N	N/A	5.	Is the installed by embedding it into a wet base coat?
Y	N	N/A	6.	Is the mesh installed and lapped to specifications?
Y	N	N/A	7.	Are edges backwrapped to specifications?
Y	N	N/A	8.	Is the base coat continuous and the mesh properly embedded at backwrapped edges?
Y	N	N/A	9.	Is installation workmanship satisfactory?
Base Coat Type and Manufacturer:				
Cement Type and Manufacturer:				
Mesh 1 Type and Manufacturer:				
Mesh 2 Type and Manufacturer:				
Temperature (during Installation and Cure):				
Crew Leader:				
Date:				

4. Sealant Inspection

Y	N	N/A	1.	Are weather conditions suitable for installation?
Y	N	N/A	2.	Is the base coat dry and cured?
Y	N	N/A	3.	Is the sealant an approved material?
Y	N	N/A	4.	Is the backer rod an approved material?
Y	N	N/A	5.	Is the backer rod installed in all joints to an appropriate depth?
Y	N	N/A	6.	Are surfaces to receive sealant primed or treated to specifications?
Y	N	N/A	7.	Are weep holes unobstructed by sealant?
Y	N	N/A	8.	Is efflorescence present on the base coat?
Y	N	N/A	9.	Is installation workmanship satisfactory?
Y	N	N/A	10.	Did the builder receive information on sealant use, care, and maintenance requirements?
Sealant Manufacturer and Type:				
Backer Rod Manufacturer and Type:				
Temperature (during Installation and Cure):				
Sealant Contractor:				
Crew Leader:				
Date:				

¹A qualified craftsman must be trained on the specific EIFS manufacturer's product. EIFS and sealant product manufacturers should provide specific instructions on material compatibility, design, and installation requirements.

5. Finish Inspection

Y	N	N/A	1.	Are weather conditions suitable for installation?
Y	N	N/A	2.	Is the base coat dry and cured?
Y	N	N/A	3.	Is the material mixed and handled to specifications?
Y	N	N/A	4.	Is the application performed out of direct sunshine?
Y	N	N/A	5.	Is the finish installed to proper thickness?
Y	N	N/A	6.	Is the finish held back from sealant joints?
Y	N	N/A	7.	Are color and texture uniform?
Y	N	N/A	8.	Is efflorescence present on the base coat
Y	N	N/A	9.	Is installation workmanship satisfactory?
Finished Material Type and Manufacturer:				
Finish Color:				
Finish Texture:				
Temperature (during Installation and Cure):				
Crew Leader:				
Date:				

6. Nonconformance Report/Corrective Action Request

Job Location:	CAR #:
Reported by:	Date:
Nonconformance/Problem Description:	
Corrective Actions Planned:	
Follow-Up Required? Yes/ No	
Follow-Up Performed by:	Date:
Follow-Up Observations:	
Nonconformance has been resolved. No further action is necessary.	
Closed by:	Date:

APPENDIX B MODEL CODE REQUIREMENTS

1. Model Code Requirements

Listed below are the key current Model Code requirements related to the use of EIFS on One- and Two-Family Dwellings. Local regulatory requirements, if any, may supersede those listed below.

A. BOCA

Barrier EIFS with special inspections and in compliance with the exception to section 1404.3 of the 1999 National Building Code or Drainage-type EIFS on all types of construction.

B. SBCCI

Barrier or Drainage-type EIFS on all types of construction.

C. ICBO

Drainage-type EIFS on Type 5 framed construction with R1 and R3 occupancies.

Barrier or Drainage-type EIFS on all other types of construction.

D. IRC

Drainage-type EIFS.

E. IBC

Barrier EIFS with special inspections and testing per ASTM E331 or Drainage-type EIFS on all types of construction.

2. The EIFS manufacturer shall maintain evaluation reports on One- and Two-Family Dwellings from at least two of the three model code organizations listed below:

- BOCA Evaluation Services, Inc.
- SBCCI Public Safety and Evaluation Services, Inc.
- ICBO Evaluation Services, Inc.
- National Evaluation Service, Inc.

APPENDIX C RECOGNITION CRITERIA

A. EIFS Manufacturer Quality System for EIFS Contractor

EIFS manufacturer must adopt and provide training on a model quality system for EIFS contractors. The manufacturer's quality system must have the elements of this quality plan in order to be recognized.

B. EIFS Applicator Training

EIFS manufacturer must provide installer/applicator training for its products. The EIFS manufacturer's training program shall incorporate the following topics:

- types of EIFS
- tools and accessories
- protection of work
- material storage
- substrates
- insulation board
- adhesives/base coats
- reinforcing mesh
- finish coat
- details
- repairs
- weather barriers
- flashing
- sealant
- coordination
- scheduling
- adjacent materials

C. Training Registry

EIFS manufacturer should maintain a list of companies, company managers, and installers who have received training. The EIFS manufacturer should have a process of requalifying applicators and managers through continuing training. Continuing training should be tied to product changes.

D. EIFS Manufacturer Training for Builder/Contractors

EIFS manufacturer must provide training materials for those who specify their product and for those who oversee the installation of their product. Training materials should emphasize the issues that influence performance, including design considerations, building component integration, material compatibility, required materials, quality control and construction sequence.

E. Conformity to Building Code Requirements

EIFS manufacturer must maintain product evaluation reports from model code agencies as listed in Appendix B of this document.

F. Demonstration Project(s)–Evaluation Protocol

EIFS manufacturer should provide scientific data indicating that its designs meet acceptable performance standards listed below. Evidence of proper functioning should be based on observations of actual houses.

The objective of this evaluation is to provide a mechanism to verify the performance of a product design through observation and measurement of selected areas on actual houses. The key issue for the evaluation is to verify that the water-management feature is protecting the underlying construction by monitoring for moisture accumulation.

Evaluation Protocol

1. Three houses should be evaluated. The houses should be of a design and in a climate that represents the most severe condition permitted by the EIFS manufacturer.
2. The minimum evaluation period is a six-month exposure. The required exposure period should be extended if unusually dry weather is encountered.

3. All of the EIFS manufacturer's design elements and installation requirements should be evaluated.
4. The installation should be performed in a typical manner with installers trained in accordance with the EIFS manufacturer's requirements. Special attention or heroic effort should not be given to make the installation perfect; the installation should be typical.
5. Condition assessment should include measuring moisture levels of the sheathing at critical locations of a building. This includes, but is not limited to, below window corners and mullions, below deck ledgers, below roof diverter flashing, in chimney chase construction below the elevation of the roof line, and below other architectural details involving transitions between EIFS and other materials.

Evaluation

The evaluation may be conducted in accordance with the "Moisture Testing Guide for Wood Frame Construction Clad with Exterior Insulation and Finish Systems" version 3.01, New Hanover County Inspection Department, August 1998. Alternatively, other means of monitoring sheathing moisture content may be used, provided that the measurement instrument is accurate to ± 10 percent at 20 percent moisture content (18 to 22 percent).

Acceptable Performance

Moisture accumulation in wood sheathing and/or in adjoining wood structural members shall be evaluated for performance. Acceptable performance is defined at less than or equal to 25 percent MC for short duration periods (less than 30 days) and less than or equal to 20 percent MC for long-term periods (time averaged for 60 days or more).