

Exterior Insulation and Finish Systems (EIFS) Timeline

Background

Exterior Insulation and Finish Systems, also known as EIFS or synthetic stucco, are a type of cladding for exterior building walls. EIF systems provide an exterior surface and insulation in an integrated composite system. Polymer-based, or Type PB, EIFS are the most common type used in the United States. The coatings in polymer-based systems contain substantial amounts of polymer (plastic resin). The resin content in Type PB systems makes them softer and more flexible than other EIFS systems. The vast majority of Type PB systems installed in the U.S. are comprised of expanded polystyrene insulation, adhesively or mechanically attached, and glass-mesh reinforced synthetic surface coatings. Most EIFS in the U.S. are barrier-type claddings; unlike drainage-type claddings (e.g., brick, vinyl, etc.) which can route leaks back to the outside, barrier EIF systems rely entirely on their outside surface to prevent water penetration and moisture intrusion. Barrier EIFS have no internal drainage provision; accordingly, these systems require excellent design and workmanship to produce a weather-tight and long-lasting system. In an effort to address moisture entrapment problems associated with barrier systems, several EIFS manufacturers have introduced water-management concepts to EIFS.

1940s to 1960s

Exterior Insulation and Finish Systems are developed in Europe after World War II to reclad bombed and damaged buildings. The development of these systems is generally credited to Germany. In Europe, the use of EIFS on stud/sheathing walls is rare, as most European buildings have solid masonry walls. European concrete or masonry substrates can function as exterior walls without the EIFS. European EIFS tend to have thicker and coarser finishes, which provides for better waterproofing. The systems used in Europe also feature the use of less portland cement and a higher resin content in the base coat, giving the system more flexibility and water resistance, albeit at greater cost.

1969

Rhode Island-based Dryvit Systems, Inc. introduces EIFS to the United States. During the oil crisis of the early and mid 1970s, EIFS becomes popular with energy-conscious builders and buyers, who sometimes see energy bills halved. By 1980, EIFS cladding accounted for one-half of 1 percent of the residential housing market.

October 1989

Building diagnostic consultants Mark Williams and Barbara Lamp Williams, in an article published in *Progressive Architecture*, note that the Gypsum Association, representing 14 gypsum product manufacturers, distances itself from the issue of moisture exposure with the disclaimer that the performance of EIFS and their method of attachment is the responsibility of the manufacturer. The disclaimer is issued in response to documented instances of the paper facing delaminating from the gypsum core in EIFS where water has penetrated joints. The article notes that the Gypsum Association promotes exterior gypsum sheathing as a substrate for conventional portland cement stucco applied to metal lath.

April 1993

Building diagnostic consultants Mark Williams and Barbara Lamp Williams, in an article published in *Progressive Architecture*, identify various federal government agencies investigating the poor performance of EIFS. They note the following:

The Dade County Florida office for the Department of Housing and Urban Development is examining damage caused by Hurricane Andrew on HUD-financed projects.

The Massachusetts Executive Office of Communities and Development has commissioned a study evaluating numerous state buildings clad with EIFS that have performed below expectations.

The U.S. Army Corps of Engineers Construction and Engineering Research Laboratory (USACERL) has studied various EIFS-clad military buildings (with specific emphasis in the Midwest and the East) to determine what problems have occurred, why they have developed, and how to be "smart buyers" of EIFS.

July 1993

EIFS manufacturer STO Corporation files a patent with the United States Patent Office for a new EIF System with rain-screen technology. This system is designed to equalize the pressure that exists between the exterior of the home and the interior wall cavity. The patent is issued to STO Corporation on May 2, 1995.

November 1994

The New Hanover County (North Carolina) Inspections Department receives a complaint from a homeowner concerning moisture entrapment and sheathing deterioration on an EIFS-clad home. Inspections Director S.D. "Sky" Conklin and assistant director J. Allen Golden investigate the complaint.

July 1995

J. Allen Golden, acting director of the New Hanover County Inspections Department, receives about six separate homeowner complaints concerning moisture entrapment and sheathing deterioration on EIFS-clad homes. Concerned about the possible penetration of water behind EIFS-clad homes, Golden begins a preliminary investigation of EIFS-clad homes in New Hanover County, which includes Wilmington. As part of the investigation, Golden inspects the home of his friend Bill Clontz, head of the New Hanover County Computer Department. Using two hatpins through the stucco exterior underneath windows and a voltmeter to check for electrical continuity, Golden discovers moisture behind the stucco façade. The findings and similar findings on other homes using representative inspection sampling techniques, become part of a database established by Golden for department findings.

August 1995

Jonathon B. "Jay" Graham, III, is hired as director of the New Hanover County Inspections Department to replace S.D. "Sky" Conklin. Graham, the building inspections administrator in Cary, North Carolina since 1987 will begin work on September 5.

August 1995

J. Allen Golden, acting director of the New Hanover County Inspections Department, reports to county officials that nearly all of the area's estimated 3,200 houses sided with EIFS might have damaging moisture inside their exterior walls. Golden's assessment is based on his preliminary investigation of EIFS-clad homes in the Wilmington area and is supported by database findings that reveal moisture entrapment to 30 of 32 homes inspected by the department.

September 1995

News reports of moisture entrapment problems associated with EIFS in residential construction begin to reach audiences outside of New Hanover County, North Carolina. Jay Graham, director of the New Hanover County Inspections Department and Allen Golden, assistant director of the department, begin to receive inquiries from media interests around the state of North Carolina and nationally, bringing widespread attention to the problems associated with synthetic stucco siding. The department's database findings from the preliminary investigation are shared with media interests. The department's database is eventually closed with data collected from 72 homes, 70 of which reveal moisture entrapment.

September 1995

The National Association of Home Builders Research Center recommends that a vinyl vapor barrier required by North Carolina state building codes be left out of homes covered with synthetic stucco. The recommendation comes after NAHB officials visit Wilmington to investigate problems of wood decay caused by moisture behind synthetic stucco facades.

September 1995

A Stucco Task Force is established in North Carolina to investigate the EIFS phenomenon. The task force is made up of representatives from the local, state and national associations of home builders, EIFS manufacturers, the North Carolina Insurance Department, New Hanover County Inspections Department officials, engineers, and the Wilmington chapter of the American Institute of Architects.

September 1995

The North Carolina Home Builders Association issues a memorandum to all its member chapters warning about the dangers of EIFS, stating: "there is justifiable cause for concern that EIFS stucco combined with an interior vapor retarder creates a moisture trap that is unforgiving."

October 1995

Stucco Home Owners Committee, or SHOC, forms in North Carolina. The group eventually moves its headquarters to Atlanta at the end of 1996. Local chapters of SHOC (some use the name Stucco Home Owners Coalition) have sprouted throughout the country where individual or small groups of homeowners have taken an interest in organizing groups of homeowners with EIFS problems.

November 1995

Harris Specialty Chemicals, Inc., a privately-held manufacturer of specialty formulated chemicals for the construction industry, announces the acquisition of EIFS manufacturer Senergy, Inc.

December 1995

Representatives of the Consumer Protection Section of the North Carolina Office of the Attorney General begin working with various parties potentially liable to EIFS homeowners in an attempt to develop an out-of-court claims resolution program which "would be fair, simple to utilize and which would save everyone the time, expense and headaches of protracted court battles."

1995

The EIFS Industry Manufacturers Association (EIMA) releases a position paper outlining what has happened in New Hanover County, North Carolina. The paper cites that a local building inspector found evidence of water penetration in approximately 50 EIFS-clad homes. The paper further notes that initial inspections demonstrate that while EIFS performed properly, water intrusion may have occurred because of related construction details, such as sealant joints and flashings, resulting

in damage to wood substrates, wood framing, soffits, windows and interior systems. EIMA cites that approximately 50 million square feet of EIFS have been installed throughout the state and that there are an estimated 3,200 EIFS homes in Wilmington, North Carolina.

January 1996

New Hanover County (North Carolina) Superior Court certifies a state class action of plaintiff homeowners against defendant manufacturers of EIFS. *Ruff v. Parex*. Plaintiffs allege that the defendant manufacturers marketed and sold EIFS as a "barrier system," when, in fact, it allows water intrusion into the system. Plaintiffs claim that once water has penetrated the exterior of a building, it can become trapped within the wall and can cause structural damage and failure of the EIFS. The defendant manufacturers deny all allegations.

January 1996

The National Association of Home Builders issues a report concerning EIFS problems in North Carolina. The NAHB report is entitled *Investigation of Moisture Damage in Single Family Detached Houses Sided with Exterior Insulation Finish Systems in Wilmington, NC*.

January 1996

A moratorium on most EIFS construction becomes effective in Vancouver, British Columbia. The moratorium came after the city tried unsuccessfully for three years to abate EIFS problems with revised building code guidelines.

March 1996

The North Carolina Building Code Council adopts guidelines that effectively put an end to the use of foam-based barrier EIF systems. The regulations require manufacturers to provide a 20-year warranty on barrier EIF systems and call for any EIFS in North Carolina to contain an internal water drainage system starting in 1997. The guidelines further call for the application of "drainable" EIFS for any repairs of existing EIFS-clad houses with moisture damage problems.

March 1996

In a brochure entitled *EIFS, Water Intrusion and Wilmington, NC*, EIMA calls the problems with EIFS in Wilmington a "unique" and "isolated problem." The brochure includes the following statements from EIMA:

"Contractors, architects, builders and applicators know that, when EIFS is installed properly, it provides a water-tight exterior building envelope, extremely effective insulation against cold and heat, and an architecturally sophisticated building façade."

"In no instance that we know of has the EIFS failed to keep water out. In every case water intrusion is attributable to one or more of the following problems. No caulking around windows, doors or other penetration points. Faulty caulking at penetrating points or caulking not applied according to EIMA or sealant manufacturer specifications. No flashing or improper flashing at rooflines, heads of penetrations, deck to house attachments and other joints. *This is a contravention of building codes or conventional building practices.* Windows that leak and fail to meet N.C. Building Code requirements. *In a vast majority of water intrusion cases, substandard or improperly caulked windows are a main culprit.*"

March 1996

Builder magazine reports results of several studies of EIFS homes, including more than 200 in North Carolina. Many of the homes developed moisture problems inside the exterior walls that, in some cases, caused extensive damage. The studies were

conducted by the North Carolina Home Builders Association, the American Institute of Architects (AIA), and the EIFS Industry Members Association (EIMA). The report noted that much of the in-wall moisture resulted from water penetration caused by improper caulking around windows. The North Carolina HBA said 95 percent of randomly tested houses had some problems, with damages averaging \$3,000 to \$5,000. The AIA found unacceptable moisture levels in 90 percent of the 205 houses it tested. EIMA inspected 68 houses and found that 20 had \$1,500 or less in damages, 35 had damage of \$3,000 or less, and six had damage of more than \$10,000.

March 1996

The National Research Council of Canada (NRCC), based in Ottawa, Canada, releases the results of their investigation on EIFS cladding: water intrusion occurs through a variety of means, namely windows, wall/roof intersections and wall penetrations. The NRCC is an internationally recognized research laboratory with specific expertise in the performance of building envelopes. The group conducted a field investigation on several EIFS-clad homes in Wilmington and subsequently conducted detailed laboratory testing of EIFS walls subjected to the climate conditions and the construction methods typically found in the Wilmington area. The research was performed under contract from the USG Corporation Research Center.

March 1996

United States Gypsum Company (USG Corporation), a major manufacturer of EIFS, announces its plan to exit the "barrier" EIFS market and focus on "water management" systems only. The decision was made as a result of water-management problems discovered on EIFS construction in North Carolina and other areas of the country. The company states in a press release that barrier EIFS construction "may not be practical or reliable in some market areas and building types." The company adds that the problems in North Carolina "related specifically to EIFS applications by all manufacturers." USG Corporation says it will continue to manufacture and market "water-management finish systems" that feature flashing, drainage plane, and weephole details designed to allow water that penetrates beneath the surface to escape from the system instead of remaining within the wall.

April 1996

An advertisement appearing in several leading North Carolina newspapers draws sharp criticism from the Wilmington-Cape Fear Home Builders Association. The advertisement, placed by EIFS manufacturer Dryvit Systems Inc., claims most problems with EIFS are due to "substandard building practices."

April 1996

EIFS is considered so promising that it is used on four "21st Century Townhouses" in the Research Home Park of the National Association of Home Builders in Bowie, Maryland. The townhomes are showcases for many innovative building techniques and are a project of the NAHB Research Center, Inc.

April 1996

The North Carolina Office of the Attorney General directs builders, developers and real estate agents to provide a disclosure form to prospective purchasers of EIFS-clad homes before any serious negotiations begin. The disclosure statement is distributed to the North Carolina Licensing Board for General Contractors, the North Carolina Association of Home Builders and the North Carolina Real Estate Commission for circulation to members and licensees.

April 1996

The North Carolina Real Estate Commission legal staff takes the position that the presence of EIFS on a property is a material fact and therefore should be disclosed to prospective purchasers. In its *Real Estate Bulletin*, the Commission states the

following:

"[A]gents should disclose available information about synthetic stucco to consumers and refer them to building inspection offices, manufacturers, and other experts for further information. In addition, agents may wish to refer prospective purchasers to professional inspectors for a thorough examination of the property."

The Commission's position followed the release of a Synthetic Stucco Alert from North Carolina Assistant Attorney General David N. Kirkman.

August 1996

The Maryland Casualty Co., the nation's largest insurer of builders, announces that it will no longer issue builders' liability insurance to builders who use EIFS. The insurance exclusion, to become effective in November, applies to new projects and does not affect the Baltimore-based company's coverage of homes built before the exclusion was added. The company informed agents in an August 26 letter that:

"[B]ecause of the very high probability of claims against general contractors who use EIFS, our builders should understand that the use of EIFS is no longer insurable by The Maryland . . . Although we have confidence in our insured's ability to effectively supervise work and produce a quality result, EIFS always will present the potential for damage. Essentially, even the best builders cannot necessarily avoid claims if they use EIFS."

August 1996

The Tidewater (Virginia) Builders Association and the EIFS Industry Members Association (EIMA) roll out a training program aimed at eliminating installation defects that have contributed to moisture entrapment problems associated with EIFS-clad homes. The TBA program, developed by EIMA as a national model, will teach builders and EIFS distributors and applicators proper building methods, materials and maintenance for new and existing homes clad with EIFS. The building inspection departments of Norfolk, Chesapeake, Virginia Beach, Portsmouth, Suffolk, Franklin, and Southampton County will require EIFS applicators to complete the TBA training, in addition to EIFS manufacturer training.

September 1996

Lenawee County (Michigan) Circuit Court Judge Harvey A. Koselka issues a Temporary Restraining Order against The Maryland Casualty Co., ordering the company to immediately cease and desist in distributing copies of an EIFS videotape or any other materials regarding EIFS. The TRO was sought by Simplex Products Division of K2, Inc., which manufactures and sells EIFS under the trade name Finestone. The videotape, produced and distributed by The Maryland, alleges that EIFS products are per se defective.

October 1996

Following the lead of The Maryland Casualty Co., the wholesale mortgage division of Maryland-based Chevy Chase Bank issues a bulletin that the bank will not accept any loans, in any region where homes are constructed using any synthetic stucco.

1997

The Maryland Casualty Co. is folded into Zurich Commercial and remains headquartered in Baltimore, Maryland. The company continues to provide one of the broadest lines of commercial property and liability insurance products and services for construction customers in the United States. Zurich Commercial's construction segment is targeted to meet the needs of builders and trade contractors.

January 1997

Regulations requiring all EIFS for Type VI construction in North Carolina to contain an internal water drainage system become effective. The regulations call for a current compliance report certifying that the system is designed to drain to the exterior any water intrusion into the stud cavity. A copy of the compliance report and manufacturer's installation instructions shall be submitted to the code enforcement official with the permit application.

April 1997

A Foam Board Insulation Task Force of the Georgia Department of Community Affairs recommends a statewide ban on the use of barrier EIFS on residential dwellings and small commercial buildings.

July 1997

Attorneys for homeowners, EIFS manufacturers, and various insurance carriers, along with professional mediators and representatives of the Consumer Protection Section of the North Carolina Office of the Attorney General, appear before the state and federal judges presiding over the federal and state class action cases and announce that their most recent, six-month effort to negotiate a settlement program has failed.

July 1997

A civil jury in Tacoma, Washington finds that EIFS manufacturer Sto Corporation is not responsible for water intrusion damage suffered by plaintiff homeowners. *Mayer v. Sto*.

August 1997

U.S. District Court Judge W. Earl Britt (USDC for the Eastern District of North Carolina) denies a motion for class certification brought by plaintiff homeowners in federal court against defendant EIFS manufacturers. *In re Stucco Litigation*. Britt concluded that the plaintiffs failed to meet the prerequisites for federal class certification. The defendant EIFS manufacturers successfully argued that the role of third parties such as contractors, EIFS applicators, architects, and window manufacturers, is relevant to liability, causation, and comparative fault determinations.

Fall 1997

National Association of Home Builders president H. Daniel Pincus issues a warning to all NAHB members to protect their reputation as builders and be aware of the EIFS complaints and lawsuits throughout the nation.

October 1997

The application of barrier EIFS is banned in Georgia.

October 1997

The Georgia Department of Agriculture issues a two-fold warning to home builders regarding the increased moisture found in EIFS clad housing: First, the increased moisture favors the development and growth of wood destroying fungi and second, under certain circumstances, termites may form an aerial colony in the structure when sufficient moisture is available.

November 1997

Illinois State Representative Lou Lang (D-Chicago) introduces House Resolution 273 to protect homeowners and builders from the potential damage to their property through the use of EIFS.

January 1998

The International Conference of Building Officials (ICBO) and Building Administrators and Code Officials International (BOCA), two of the three major code making bodies in the United States, revise acceptance criteria for both barrier and water managed EIFS.

May 1998

The National Pest Control Association (NPCA) issues a position update stating that EIFS may lead to wood damage and infestation. The NPCA states that EIFS construction creates a serious pest control crisis for two reasons: first, EIFS structures are very prone to moisture penetration and infestation by insects and once infested, the systems are nearly impossible to treat; and second, the rigid foam board used in EIFS construction frequently extends below grade which allows it to wick up moisture and simultaneously create an unseen route for termite entry.

May 1998

New Hanover County Superior Court Judge Ben F. Tennille grants preliminary approval of plan that calls for EIFS manufacturers Senergy, Inc. and Thoro Systems Products, Inc. to pay \$20 million into a settlement fund for plaintiff homeowners in the *Ruff v. Parex* state class action. The partial class action settlement leaves seven defendant EIFS manufacturers remaining in the lawsuit.

July 1998

The Tennessee Residential Property Condition Disclosure Act requires that property condition disclosure forms include information on EIFS.

September 1998

Senergy Corporation resigns from the EIFS Industry Members Association (EIMA), citing philosophical differences regarding the use of drainable EIFS in residential construction. Senergy was an original member of EIMA and has always been an active member of the trade association, holding both the presidency and marketing committee chairmanship positions three times and playing an important role on key technical committees.

September 1998

New Hanover County (North Carolina) Superior Court Judge Ben F. Tennille enters a final order approving a \$20 million partial national class action settlement offered by EIFS manufacturers Senergy, Inc. and Thoro Systems Products, Inc. to plaintiff homeowners in the *Ruff v. Parex* state class action.

October 1998

The EIFS Industry Members Association (EIMA) announces that it is now recommending the use of "drainage" or "water-managed" EIFS for one and two family residential construction.

November 1998

In an interview with Walls & Ceilings, David Fyfe, president and CEO of Harris Specialty Chemicals, the parent company of Senergy, Inc., offered the following response to the question "At what point did it become clear to Senergy that the future of residential EIFS lay in drainage systems?":

"The big change was that until 1996, we had regarded ourselves as just a component of the total building envelope. It was the builder's responsibility to coordinate the components and it was the builder's responsibility to make sure that the weaknesses of one part were compensated by the strengths of another. That was our naivete, to believe that we could just be regarded as a

component of the envelope, just like windows. So what we said to ourselves is, 'Like it or not, fair or not, we're going to be hung for the performance of the total envelope including leakage of windows. So we'd better recognize that and design the EIFS to take care of that reality.'

When asked to describe EIMA's vision of the proper course for the industry, Fyfe offered the following:

"I don't think EIMA has a clear vision for the future of the industry. I think that some members would hope this would all go away. Some people believe that as long as you write some specifications for flashing that it's going to go away and that you can continue to put barrier systems up. I think they're not recognizing some things that we've recognized."

November 1998

The first EIFS trial in North Carolina concludes with an out-of-court settlement of a lawsuit brought by Kent and Martha Pepper against EIFS manufacturer Sto Corp. The Pepper's had alleged that their Wilmington home had sustained \$220,000 in damages after water had become trapped behind the EIFS barrier. The Pepper case was heard in New Hanover County Superior Court, the same court with jurisdiction over the North Carolina state class action.

November 1998

The National Association of Home Builders issues a caution notice to members who install barrier EIFS in their *Nation's Building News* magazine. The notice states the following:

"Members who are installing barrier EIFS products in their homes are strongly cautioned by NAHB that the design of the EIFS systems, unlike other cladding, does not allow water penetrating the external surface of the system to drain. NAHB believes that homes with barrier EIFS can develop moisture intrusion problems even when properly constructed according to industry standards. Also, homeowners who do not diligently ensure that all openings in the house remain properly sealed and caulked over the life of the structure may be more likely to encounter water intrusion problems than with other types of cladding systems. NAHB agrees with liability insurance carriers, relocation services, mortgage lenders, building code officials in North Carolina and Georgia, and others who say that barrier EIFS systems make homes more susceptible to moisture intrusion problems."

December 1998

Washington, D.C.-based law firm Cohen, Milstein, Hausfeld & Toll, P.L.L.C. files the first EIFS lawsuit in the state of Maryland. The lawsuit, filed in the City Court of Baltimore, alleges that EIFS manufactured by Sto Corporation and/or Dryvit Systems, Inc. was defectively designed and caused damage to plaintiff's townhouses.

January 1999

New Hanover County (North Carolina) Superior Court Judge Ben F. Tennille entertains defendant EIFS manufacturer motions to decertify the class in the North Carolina state class action of plaintiff homeowners against defendant manufacturers of EIFS. *Ruff v. Parex*.

March 1999

The television newsmagazine program *Dateline NBC* airs its investigation of problems associated with EIFS in a segment entitled *Is Your Home Crumbling Around You?*

May 1999

New Hanover County Inspections Department records show that 345 permits have been issued since 1996 to repair and replace EIFS cladding. Inspections Director Jay Graham notes that the number of houses that have been repaired could be higher because permits are not required if repairs total less than \$5,000.

May 1999

New Hanover County Superior Court Judge Ben F. Tennille denies defendant EIFS manufacturer motions to decertify the class in the North Carolina state class action of plaintiff homeowners against defendant manufacturers of EIFS. *Ruff v. Parex*. In a memorandum prepared for counsel of record and counsel for parties moving to opt out of the litigation, Judge Tennille notifies all parties that plaintiff homeowners "will be permitted to proceed with their class action on two issues only: defective design and failure to warn." He further notifies the parties that he will grant the defendant EIFS manufacturers' motion for separate trials, with the first case to be tried against the defendant with the largest market share (Dryvit Systems, Inc.) and the remaining cases tried in order of market share. Judge Tennille also notifies the parties that he will grant the defendant EIFS manufacturers' motion for a change of venue, noting that the first trial will take place in Johnson County beginning October 4, 1999. A deadline of August 31, 1999 is set for completion of discovery.

June 1999

New Hanover County Superior Court Judge Ben F. Tennille enters an Order and Opinion outlining the best method for adjudication of the claims arising out of the use of EIFS in the *Ruff v. Parex* class action litigation..