The Truth About EIFS

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In the 20 years since exterior insulation and finish systems were introduced to North America, they have made a sizeable impact in the building trade. This is true for both new construction and retrofit.

Their versatility has played a major role in that market growth. Unlike competing building materials such as brick, masonry, aluminum siding, marble, glass, shingles and others, EIFS are easily adaptable to all types of buildings.

They are practical for residential use as well as commercial or industrial, governmental or religious, high-rise or low-rise. They are equally useful for dressing up glamorous buildings, such as the casinos in Las Vegas or for a cladding on service stations, automobile dealerships and specialty stores.

Where once only one manufacturer provided EIFS to the market, that being Dryvit Systems, Inc., whose founder, Frank P. Morsilli, introduced the system to the U.S., there are now some 25 companies competing for a share of an ever growing pie.

EIFS Attract Attention

Because of their phenomenal success in a short period, EIFS have drawn increasing attention in the trade journals. Unfortunately, some of the articles have raised issues about the qualities of EIFS and have even suggested that EIFS are composed of a combustible material.

Proposed code changes along those lines have been offered to Building Officials and Code Administrators (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International (SBCCI).

To date, not one of the three model code organizations has elected to restrict the use of EIFS, but because the effort by competitive interests is continuing, the Exterior Insulation Manufacturers Association (EIMA) would like to set the record straight about the performance of EIFS in a very critical area, that of fire, both during real-life fires and in manufacturer-sponsored tests using recognized test methods.

EIFS do not contribute to the propagation of flames. That is the bottom line about EIFS performance...

EIFS Do Not Propagate Flames

EIFS are composed of either an expanded or an extruded polystyrene foam core that gives the system its outstanding insulation, weather-and crack-resistant properties. This polystyrene foam core resists burning. Instead, it withdraws from the point where flame or heat impinges on the wall.

EIFS manufacturers have conducted numerous tests over the years, according to ASTM and other recognized test methods. Tests have been conducted at Southwest Research Institute in San Antonio, Texas and at other independent laboratories.

Those tests include the ASTM E-84 flame spread test, modified ASTM E-108 vertical fire spread test, and UK 17-6 (Southwest Research Institute Multi-Story Test), which tests for horizontal and vertical fire propagation. They have shown that EIFS resist spread of flame over the surface and through the core.

Moreover, the ASTM E-119 fire-resistance tests have shown the EIFS neither improve nor detract from the fire ratings of wall assemblies to which the EIFS are applied.

Real-Life Fires Support Tests

There have been some real-life fire situations that have supported these test findings. Sometimes these fires are referred to as "unscheduled tests" because the performance of the EIFS is as predicted in testing. Two fires in particular deserve closer attention.

The first of the fires occurred in March 1975 at the Hilton Hotel at Boston's Logan International Airport. The exterior walls of the 14-story hotel are prefabricated metal studs and gypsum sheathing with an EIFS applied as the exterior cladding. In the early morning hours, a fire started in one of the sleeping rooms on the eighth floor. The official fire report stated that the room was "completely consumed by the
fire and that intense heat penetrated surrounding rooms, causing heavy smoke and heat damage.

But only minor damage occurred to the EIFS cladding and that was limited to an area around the window of the room in which the fire originated. About 25 square feet of EIFS was replaced. As expected, the EIFS demonstrated no tendency to propagate the spread of fire or flame.

An independent fire protection engineer then under contract to the Hilton Hotel concluded that the actual fire performance at Boston’s Logan Airport was subsequently reaffirmed by the results of diversified fire testing initiated by the manufacturer and conducted according to recognized test standards and procedures.

Second Fire Starts Mysteriously

The second fire occurred in March 1985 in Manchester, New Hampshire. The fire had an interesting twist to it and has been the subject of several articles that appeared two summers ago in a model building code publication. Essentially there was a four-story brick building that was totally gutted from an extremely intense, vicious fire.

“More than 250,000 North American buildings have been clad in EIFS since 1969...”

After the fire had raged for several hours and the heat built up to such an extent that firefighters were ordered to leave the area for their own protection, flames suddenly appeared on the wall of an EIFS-clad building across a 20-foot alley.

Firefighters immediately played their hoses on the second building, extinguishing the flames within seconds. Again, the flames did not spread, the EPS melted and sagged but did not bum, and the building’s owner easily replaced the damaged section with EIFS.

Although there has been much speculation, what is not known about that New Hampshire fire is what caused the flames to appear initially because no one, not even the firefighters on the scene, saw the fire start.

A consultant working in conjunction with an association representing a competitive interest claimed that heat radiating across the 20-foot alley ignited the vapor from melted EPS in the EIFS. He also claimed to have duplicated the same fire conditions in a laboratory with the same result. Then he wrote articles describing his hy-
The conclusion that the consultant drew was that EIFS should be highly regulated for alleged combustibility based on this one instance.

**Test Validity Questioned**

The EIFS industry has questioned the validity of those tests because they fail to simulate real world fire conditions and are not recognized test methods.

After the consultant’s articles were published, the EIFS manufacturer whose system was on the New Hampshire office building filed suit in the U.S. District Court against him and several other parties alleging violation of U.S. antitrust and unfair trade practice laws.

A few months later, one of the defendants, which provided the testing facilities for the consultant’s tests, signed a consent decree admitting that it does not endorse nor support any of the consultant’s conclusions concerning the EIFS system’s fire performance. Furthermore, the defendant admitted in the agreement which dropped it from litigation that no test performed in its facilities demonstrated that EIFS are fire hazards. The defendant also acknowledged that the test performed there by the consultant was not necessarily representative of actual fire conditions.

What was demonstrated in the New Hampshire fire and has been demonstrated repeatedly in both real-life situations and testing through the years is that EIFS do not contribute to the propagation of flames or create a life safety hazard. Period.

An article published in 1985 in Building Standards magazine based on studies of 21 real-life fires involving EIFS and metal-faced composite wall panels, both of which employ EPS board, reported that the performance of both wall systems was excellent.

The article concluded: “Based on these real fire performances, it seems clear that properly qualified systems do not present an added fire hazard and that they can meet the intent of the code.”

**EIFS Growth Is Phenomenal**

More than 150,000 North American buildings have been clad in EIFS since 1969, and we at EIMA estimate that in 1990 EIFS will represent more than 150 million square feet of walls. We further estimate that in the U. S. alone, manufacturers could soon supply 200 million square feet of EIFS a year.

Moreover, the fire safety performance of EIFS-clad buildings is enviable. In 20 years of use in North America, not one documented fatality has occurred in an EIFS-clad building.