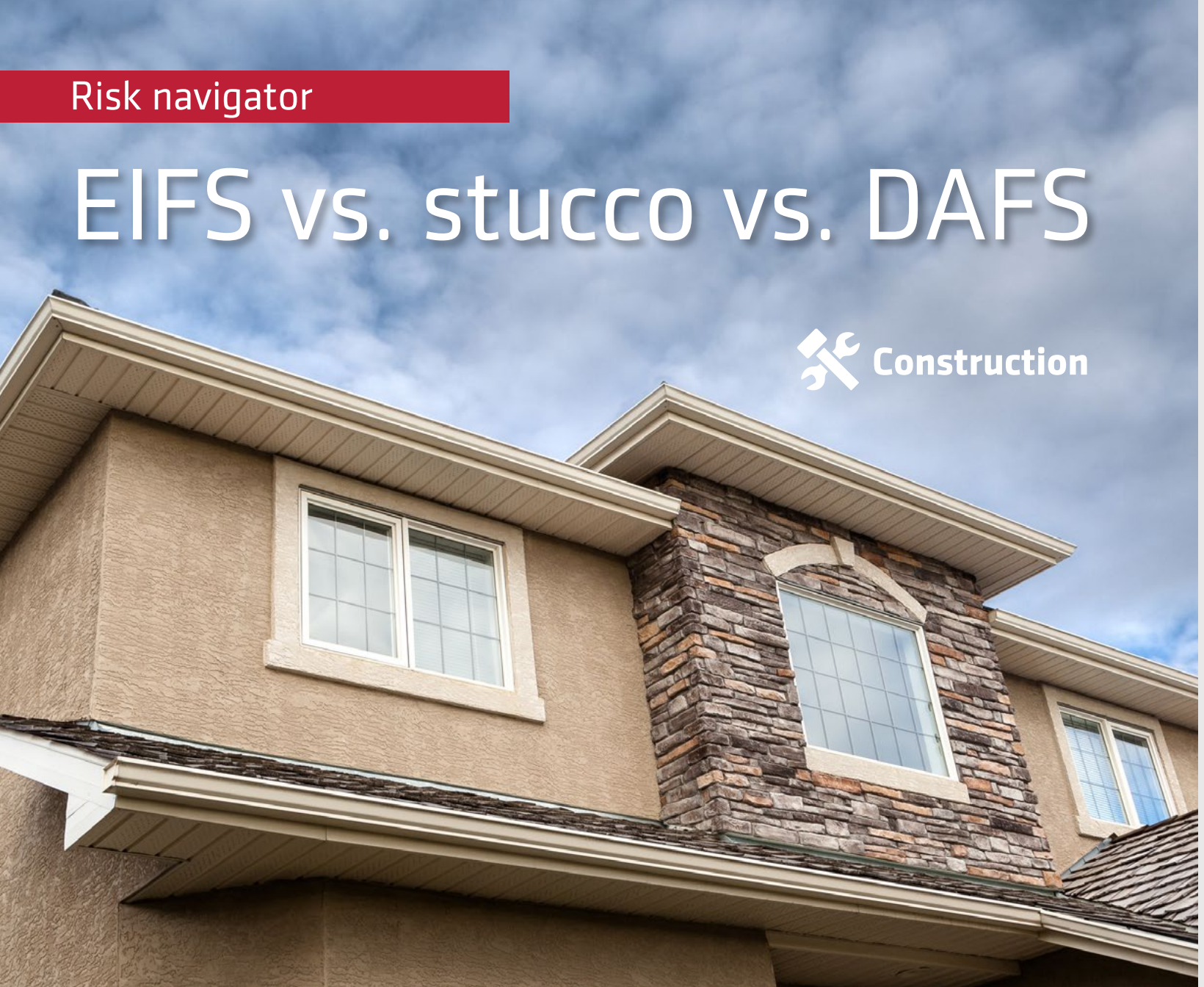
Risk navigator

EIFS vs. stucco vs. DAFS

Construction



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We do this by engaging with clients, underwriting, and claims teams.

E-mail our team at risksolutions@markel.com.

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EIFS claims

EIFS, stucco, and DAFS are not the same. As there is common "end product" utilization and oftentimes utilization of "some" related materials and overlapping nomenclatures of some materials utilized (e.g., polystyrene (PS)) the following may help to differentiate. With the strengthening of the EIFS product (drainable EIFS presently (introduced approximately 1995) vs. earlier barrier EIFS), better knowledge of EIFS use, installation and application overall; the risk is steadily going down with EIFS products. An EIFS product "risk improvement date" would most probably be around mid-2007 though significant cases continued into 2010. However, the legal environment surrounding EIFS remains a concern, as well as individuals and entities who install it improperly and the overall legal environment surrounding the nomenclature "EIFS."

With EIFS typical causes of action are negligence and/or negligent supervision, breach of express warranties, implied warranty of habitability, warranty of merchantability, warranty of fitness for particular purpose, warranty of workmanlike service, unfair or deceptive trade practices, or strict liability. However, the number of cases fell dramatically from 1995 and in particular from 2007 with a continuing downward spiral through 2016. Only 16 cases reported in one federal and state combined database for 2016. Though not a total of all cases it is indicative of the current situation. Currently plaintiff attorneys have become more wary of various limiting statutes.

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Legal issues and expenses involving EIFS

Many, including plaintiff attorneys truly do not understand EIFS use, application, proper installation and the improvements that have been made in the EIFS product (drain ability). Being named in any legal action involving EIFS, EIFS-type product, mold, potential mold or other "EIFS"-type issues will continue to be an issue from both; the prospective of plaintiff attorneys not cognizant of EIFS issues and improvements, or those wishing to benefit from EIFS product cases through EIFS knowledge obfuscation.

Thus, legal expenses will still be a very substantial issue in a case referencing EIFS either correctly or incorrectly. Depending on a claim representative's position, substantial legal expenses could also be encountered if it is decided to settle whether or not damage was really due to a defective product or installation or high-side/low-side evaluations. Some of the earlier problems with EIFS were due to items such as the fasteners, fastener penetrations, terminations, slopes, wrapping, ventilation, and of course drainage. It is not a simple product as construction goes. Bottom line, the EIFS product is better today and a better risk today than it was pre-2007; however, legal issues and maligning, and the issues surrounding improper installation remain.

Comparing EIFS, stucco, and DAFS

Three commonly confused but "end-use-related" products are EIFS, stucco, and DAFS (DAFS whether intentionally DAFS or not). To add to the confusion of nomenclature; in 1952, the first patent was granted for expanded polystyrene insulation board and also in 1952, the first synthetic plaster was developed. In the late 1950s, EPS (expanded polystyrene) and synthetic resin materials were first used together. In 1963, EIFS were first marketed in Europe, and in 1969 EIFS were first introduced into the United States. EIFS initially used on commercial buildings quickly expanded into the home construction market. Today, EIMA (EIFS Industry Members Association) is the trade association supporting the EIFS's industry and its members. However, even with continual product utilization for over 50 years, and with notable product improvement the terms EIFS, stucco, and DAFS are still confused and misused.

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Stucco

Stucco (Italian for plaster) in the US is currently a Portland cement-aggregate plaster mix designed for use typically on exterior surfaces, either a two-coat system (a base and finish coat, aka "one coat' stucco) or a three-coat system used on, in, or in conjunction with any part of any structure or building. It is typically composed of Portland cement, gypsum plaster, lime, and additives such as fibers and pigments. Stucco in many forms has been utilized for thousands of years as both a siding and for interior and exterior construction and art use.

Two-coat stucco systems consist of:

- Substrate
- Weather-resistive or moisture barrier
- Lath
- Control joints of metal or plastic accessories installed at corners of windows, doors, and/or other areas and within the field of any wall to control cracking
- Base coat of fiber-reinforced Portland cement
- EPS or other material flourishes upon or shapes "planted on" the stucco base coat to give or achieve any additional desired architectural feature(s)
- Finish or hard coat providing texture, color, and/or any other desired affects

Three-coat stucco systems consist of:

- Substrate
- Weather-resistive or moisture barrier
- Lath
- Control joints of metal or plastic accessories installed at corners of windows, doors, and/or other areas and within the field of any wall to control cracking
- Scratch coat or base coat
- Brown coat
- EPS or other material flourishes upon or shapes "planted on" the stucco base coat to give or achieve any additional desired architectural feature(s)
- Finish or hard coat providing texture, color, and/or any other desired affects

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EIFS

EIFS—or "Exterior Insulation and Finish System" (aka synthetic stucco, though technically incorrect)—is a non-load bearing, exterior wall cladding system that consists of an insulation board attached either adhesively or mechanically, or both, to a substrate; an integral reinforced base coat; and a textured protective finish coat. EIFS generally means or refers to an exterior cladding or finish system including; but not limited to PB (polymer-based) systems and PM (polymer-modified) systems used on, in, or in conjunction with any part of any structure or building consisting of:

- Wall sheathing or substrate to which base layer material will be attached
- An insulation board typically made from expanded polystyrene (EPS) or an alternative such as XPS (extruded polystyrene form) or polyisocyanurate (PIR or ISO a thermoset plastic used as a rigid thermal insulation); attached with an adhesive or mechanically to the substrate
- A water-resistant base coat that is applied on top of the insulation to serve as a weather barrier
- Adhesive and/or mechanical attachment used to attach base layer insulation material to sheathing or substrate
- An optional water-resistive barrier (WRB) that covers the substrate
- A drainage plane between the WRB and the insulation board most commonly achieved with vertical ribbons of adhesive applied over the WRB
- Base layer insulation material of polystyrene (EPS) board or other insulation material or board either rigid, semi-rigid, or of other nature or form such as foam
- Base coat applied over any base layer insulation material(s), or board(s,) and/or any additionally added layers of EPS or other materials
- Fiberglass reinforcing mesh or other reinforcing materials embedded into any base coat or reinforcing mesh mechanically attached via screws and plates or other attachment methods and/or mechanisms or methods to insulation board
- Any additional layers of EPS or other material(s) flourishes used alone or in conjunction with the base layer material and which may or may not be cut, rasped, shaped, formed, and/or placed or "planted on" or over base layer insulation boards or materials to give or achieve any additional desired architectural feature(s)
- Finish coating providing texture, color, and/or any other desired affects typically using colorfast and crack-resistant acrylic co-polymer technology

EIFS products are usually referred to as systems and may come in kits or may be prepackaged in bulk, typically consisting of some or all of the aforementioned major component groups.

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DAFS

DAFS (aka Direct Applied Finish Systems) are basically EIFS systems with the insulation layer taken out whether intentionally or unintentionally. Coatings are applied directly to a substrate. Because the insulation layer is removed or left out and its removal is hidden from common view, DAFS are oftentimes mistakenly identified as EIFS systems. DAFS are very seldom referenced as are many other related customizations of EIFS systems.

Common specifications for stucco and EIFS

Two of the most typical of the many related specifications involved with stucco include:

- **ASTM C1328/C1328M Standard Specification for Plastic (Stucco) Cement** - This specification covers plastic cements for use in Portland cement-based plasters for exterior (stucco) and interior applications. All the materials should be tested and conform to the required values of fineness, autoclave expansion, time of setting, compressive strength, air content of mortar, and water retention. The cement should be stored in a way that permits easy access and inside a suitable weathertight building.
- **ASTM C-926-16a Standard Specification for Application of Portland Cement-Based Plaster** - This specification covers the standard requirements for the application of full thickness Portland cement-based plaster for exterior (stucco) and interior work. It also sets forth tables for proportioning of various plaster mixes and plaster thickness. The materials used shall consist of the following: cement which shall be a Portland cement, air-entraining Portland cement, masonry cement, blended hydraulic cement, air-entraining blended hydraulic cement, or plastic cement; Type S hydrated lime; aggregates such as perlite and sand for base and job-mixed finish coats; water to be used in mixing; admixtures; and fibers. Surfaces of solid bases such as masonry, stone, cast-in-place or precast concrete shall be prepared either by sandblasting, wire brushing, acid etching, chipping, or a combination thereof. Details on curing to resist cracking; materials protection and storage; environmental conditions; and application of plaster, finish-coat, and fog-coat, which shall be done by hand or machine up to the specified nominal thickness on metal and solid plaster bases are discussed.

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Typical of the many related specifications involved with EIFS are:

- **ASTM E2110-11 Standard Terminology for Exterior Insulation and Finish Systems (EIFS)** - Terminology covering terms and definitions pertaining to materials and processes used in the design and application of exterior insulation and finish systems (EIFS).
- **ASTM E2511-09 Standard Guide for Detailing of EIFS-Clad Wall Assemblies** - This guide describes the types of project-specific construction conditions that need to be communicated by means of drawings ("details") for the purpose of constructing Exterior Insulation and Finish System (EIFS)-clad wall assemblies. EIFS manufacturers provide basic details for the installation of their materials and interface with adjacent materials. These details are generic and, in many cases, do not apply to specific project conditions. This guide addresses only the EIFS itself and the interface between the EIFS and the materials immediately adjacent to the EIFS; it does not address all parts of the wall assembly.
- **ASTM C1397-13 Standard Practice for Application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage** - This practice covers the minimum requirements and procedures for field or prefabricated application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage. Class PB EIFS are systems applied over insulation board, in which the base coat ranges from not less than 1/16 inch (1.6 mm) to 1/4 inch (6.4 mm) in dry thickness, depending upon the number of nonmetallic reinforcing mesh layers encapsulated in the base coat (see Specification E2568). The base coat is then covered with a finish coat of varying thickness in a variety of textures and colors. EIFS with Drainage provides a mechanism to drain incidental moisture.

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