In the last five years, the concept of placing insulation to the exterior side of a building wall has gained widespread acceptance. In that time, the use of exterior wall insulation and finish systems in the United States has grown from 8 million square feet annually to a projected 75 million square feet manufactured by more than 20 companies.

The elimination of thermal breaks and the drastic reduction of thermal shock to the building structure are characteristics that are acknowledged as desirable by architects, engineers and owners throughout the country. The systems are favorably accepted, as evidenced by a recent market survey by Architectural Record.

As with most rapidly growing industries, specifications and standards for application and use of these systems have been dictated entirely in the product literature of each manufacturer. The resulting confusion of claims and counterclaims has led to a need for definition of system types, and the establishment of standards and guidelines for the specification and application of these systems.

In 1981, after more than a year and a half of informal discussions and organizational meetings, the Exterior Insulation Manufacturers Association (EIMA) was formed in Washington, D.C. This organization consisted of Exterior Insulation Systems Manufacturers Move To Strengthen Industry By Formulating Ethics Codes, Standards and Guidelines

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“One of the most important accomplishments of EIMA has been the classification and publication of the various types of systems that are available on the market . . .”

of 11 manufacturers of exterior insulation systems. Each had a common desire to “legitimize” the industry through the establishment of a code of ethics, and standards and guidelines necessary for coherent selection, specification and installation of exterior wall systems.

Since that time, EIMA has progressed rapidly. A position paper was written and unanimously approved by the membership. It provided the design profession and building code authorities with a clear and coherent history of the acceptance of these systems by the building codes and of their performance as regards to fire hazards.

**CLASSIFICATION OF SYSTEM BY PROTECTIVE COATINGS**

<table>
<thead>
<tr>
<th>Classes</th>
<th>Types</th>
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<tbody>
<tr>
<td>“PB”—Polymer Base</td>
<td>A. External Reinforced, Cloth, Lath</td>
</tr>
<tr>
<td>“PM”—Polymer Modified, Mineral</td>
<td>B. Internal Reinforced, Random Fibers</td>
</tr>
<tr>
<td>“MB”—Mineral Base</td>
<td>C. Unreinforced</td>
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Guidelines have been established for the specification and verification of expanded polystyrene for use with these systems. The industry has established a position and clarified the nature of the acceptable substrates to which these systems may be applied. In particular, as regards gypsum sheathing, an industry position has been adopted on the adhesive and/or fastening of the system to gypsum sheathing. Joint positions between the exterior wall insulation manufacturers and the gypsum industry are being clarified for the purpose of eliminating any controversy in this area.

EIMA has published newsletters on a quarterly basis containing information about the systems, as well as industry positions concerning their use. Of particular interest have been articles on the tax benefits that accrue to buildings which utilize these systems for the retrofit of exterior walls. Not only does the building benefit from the additional insulation, but tax benefits are available for old buildings. Economic analyses of these benefits have been presented in the newsletters.

One of the most important accomplishments of EIMA has been the classification and publication of the various types of systems that are available on the market, as follows:

**Classification of Exterior Insulation Systems**

Exterior Insulation Systems are defined as:

A system of at least two components, one of which provides insulation. When applied as an exterior
building envelope, the system must provide weather protection, aesthetics, and thermal insulation. The protective coatings are essentially wet applied, on-site, or on prefabricated building sections. They may or may not be used in combination with conventional insulation methods.

**Insulation Component:**

The insulation component is unique for each system and is selected from rigid boards or compound mix. It must provide at least R-2 per inch when tested in accordance with ASTM designated C-236. Typical insulation materials are expanded or extruded polystyrene, polyurethane, isocyanurate, or cement based insulation plasters.

**Substrates:**

Exterior insulation systems may be applied over virtually any sound substrate. This depends on the proper surface preparation and selection of system fastening components. The selection of backup sheathing over open stud framing must be based on structural considerations and must be in compliance with acceptable building codes and fire safety.

**Fasteners:**

Each manufacturer has specific recommendations on types of mechanical fasteners and/or adhesive fasteners depending on substrate and exposure conditions.

NOTE: The Exterior Insulation Manufacturers’ Association recognizes among its member systems individual preference and mandatory requirements for installation procedures.

This very important classification eliminates the “apples and oranges” comparison that has been required in the past. Although all of the types and classes of systems provide insulation to the exterior of the building with a finish to the weather side, the three types vary in the performance characteristics that may be expected. The architect can now clearly specify by class and type in order to achieve the specific characteristics he desires.

The original type of system that was manufactured for this application is Class PB, Type A. These
systems are flexible and can be applied continuously without the requirement for control joints. The reinforcement in the lamina is continuous fiberglass fabric. Finish materials generally are shipped “ready to use,” which provides color consistency found only with wet materials that require little or no job mixing.

The exterior lamina is generally very durable and weather resistant. The systems can be characterized primarily by the fact that they are thin elastic lamina applied over varying thicknesses of insulation board.

The second type of system marketed is Class PM, Type A. These systems are heavily modified cementitious lamina with external reinforcement consisting of either various types of wire lath or, in some cases, fiberglass fabric materials. The most usual reinforcement consists of a type of wire lath.

The reason for the introduction of these systems is that they provide a thicker hard lamina for the protection of the relatively soft insulation board below.

Obviously, the thicker lamina reduces the elasticity and flexibility of the lamina, and therefore, must be installed with control joints. The required control joint spacing will vary from the spacing required in ordinary stucco and may extend to greater dimensions. Again, this depends on the amount and nature of modification of the cementitious materials. These products are generally provided as “dry mix” material. Color consistency and claims for consistency will vary from manufacturer to manufacturer.

An additional type of system has been introduced from the surface bonded masonry industry. This is Class PM, Type B. Introduced for the same reason as the Class PM, Type A systems have the same characteristics, except that they are internally reinforced. Internal reinforcement consists generally of chopped alkali resistant fiberglass strands within the plaster mix. The goal is to reduce field cost by introducing a reinforcement within the body of the material itself.

Importance of classification of the various types of exterior wall systems is obvious. Each of the classes has differing performance characteristics, and different advantages and disadvantages associated with their use. The thicker lamina may be more applicable on certain types of buildings in certain geographic areas, while the thinner elastic systems are appropriate for more continuous applications.

Both products are applied by the plastering trades. There are, though, differences of application between the thicker cementitious materials and the thinner polymer based lamina. It is important that the designer be clear as to which systems are appropriate for each job. This allows him to get what he asked for in the performance characteristics and detailing which are appropriate for the project.

I feel that the establishment of guidelines and standards is a much
needed next step in the exterior wall industry. EIMA is actively addressing several of the most important issues in this area.

In the next year, EIMA will be working on the development of generic specifications for each of the three types of systems. A set of test standards with guidelines for the performance that should be expected in each of the tested areas is being developed within EIMA for each of the three classes of material. Architectural specifications will cover the basic performance characteristics that should be required for exterior wall systems, as well as language to assure the specifier of code-conforming products being developed.

EIMA has established liaison with the various federal agencies involved in the new construction or the renovation of existing facilities. Standards and guide specifications that are being developed by these agencies are receiving input and assistance by EIMA.

EIMA is receiving input from the wall and ceiling contractors through our liaison with the Association of Wall and Ceiling Industries (AWCI). An initial draft of standards for the application of the materials, required standard details, and general construction requirements for protection of work in progress and storage of materials on the job is being developed for each of the classes of material. An initial draft is slated for submission to the AWCI technical subcommittee which deals with exterior wall insulation and finish systems.

In addition to the technical/standards activities currently going on within EIMA, a series of seminars of a generic industry-wide nature are being put together for the design profession, government agencies and code officials. The specifications and application standards will form the core of these seminars, which are slated for presentation beginning in 1984.

All of this is not to imply that proprietary differences between individual manufacturers will not continue to exist. Twenty manufacturers equates to 20 competitors, and specific detail recommendations, mixing instructions and unique techniques of both problem-solving and application will be evident in the industry on a permanent basis. Development of generic guidelines is intended only to provide a base line of data for the designer to determine which class of system is appropriate for a project. This is consistent with the ambition to provide required safeguards assuring the designer’s selection of a system that will comply with the code. It also promotes manufacturers who both manufacture and present their systems in accordance with established minimum guidelines.

EIMA invites your participation. A new growth industry desperately needs input from the design profession and the contractors. EIMA provides a focus for participation and input.

Categories of membership are available for members of the design professions, as well as the contractors who are so instrumental in any successful application. We encourage you not to just watch the parade go by. We invite you to write or call us with your input, and, most importantly, join this fast growing parade.