DETAILING CLASS PB EIFS

Exterior insulation and finish systems (EIFS) have gained widespread acceptance as a choice veneer for building facades. Approximately 19 million m^2 (200 million ft^2) of EIFS have been sold in the United States over the past year. In the 1960s when EIFS was first introduced in this country, the chief benefit perceived by designers and owners was a continuous blanket of exterior insulation that reduced heating and cooling loads considerably. ■ While this remains a primary benefit, designers have become attracted to the relative ease and affordability of constructing decorative features—reveals, color accents, and moldings—with these systems compared to cement plaster, concrete, brick, and stone. In many ways EIFS provides the best of both worlds: function and aesthetics—an economical, lightweight insulating veneer in a

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by Thomas E. Remmele

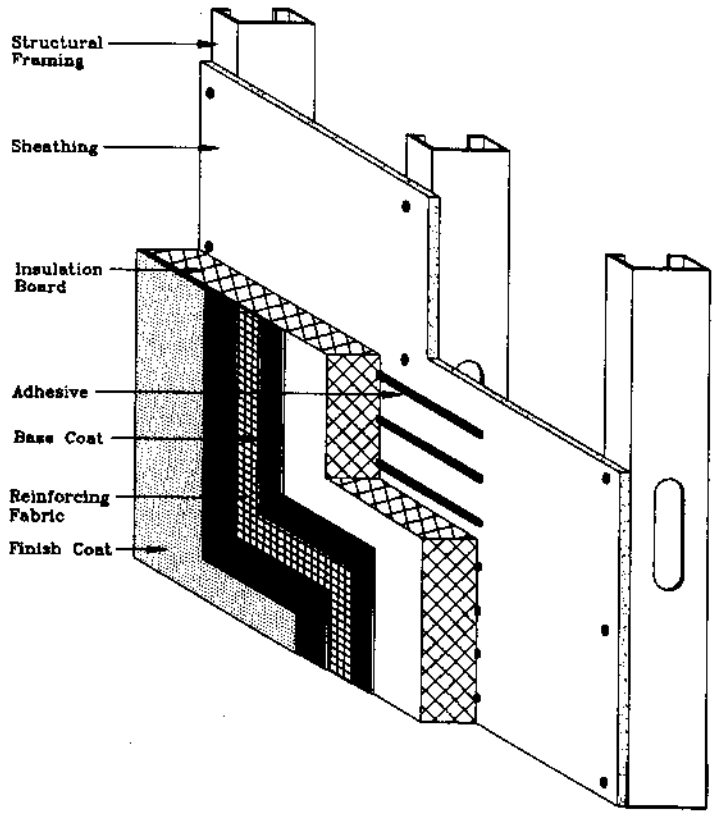

Figure A. Class PB EIFS (does not include sheathing and framing)

All figures courtesy the author

wide range of finish colors and textures. Yet, to reap the rewards of durability, longevity, and low maintenance, fundamental principles of installation, design/detailing, and performance specifications are required.

More than 80 percent of the EIFS sold in the United States is Class PB. The typical Class PB EIF system (see *Figure A*) consists of five components:

- adhesive, to attach the insulation board to a substrate
- insulation board—16 kg/m^3 (1 lb/ft^3) density expanded polystyrene (EPS) board
- base coat into which reinforcing fabric is embedded
- a treated fiberglass reinforcing fabric that strengthens the system
- a factory-mixed finish that can be textured and integrally colored.

Grade Condition

Like any other building material, EIFS requires fundamentally sound detailing if it is to provide satisfactory service. In most cases the critical details for the wall system will be at junctures with other building components such as windows, doors, or penetrations through the system and at building extremities, e.g., grade and parapets (see *Figures B* and *F*).

The temptation to extend EIFS system below grade should be avoided for the following reasons.

- Snow, frost, and puddling water will accumulate against the system and remain for extended periods of time. EIFS finishes are not intended for constant submersion. If adequate soil drainage and slope to shed water are provided at grade, the accumulation of snow or water poses no problem since it does not remain in contact with the finish for extended periods. However, in most cases landscaping and mulch defeat the purpose of any drainage that may have been called for in architectural drawings.
- Insects, particularly termites, can gain undetected access from soil to wood-frame construction by boring behind the insulation board.
- Impact damage from lawn mowers and grounds maintenance occurs more easily when the system is extended below grade.
- Dirt, splash, and scuff marks are unsightly.

By terminating the system approximately 200 mm (8 in.) above grade, some if not all of these conditions can be eliminated. Depending on climate and other factors, the distance to grade may be increased or decreased. For example, in warm climates the distance can be decreased, since the accumulation of frost and snow is not a major concern. At the same time, the 200 mm height enables

the detection of termites in wood-frame construction.

Some systems are specially designed for below grade; consult with the manufacturer to determine their performance with respect to anticipated job conditions.

Window Sills

The junction between the EIFS and windows is perhaps one of the most important areas of construction (see *Figure C*). Here, three separate elements—EIFS, sealant, and window, usually installed by separate contractors—must be joined so that the assembly remains watertight. The standard EIFS backwrap detail is followed, typically by extending the system beyond the plane of the window frame with sufficient slope to shed water. Horizontal ledges or minimal slopes should be avoided in areas where they will collect frost and snow. Alternatively, a metal sill can be installed to protect the top edge of the system with a more gradual slope.

Parapet

As with most construction, the use of metal coping is the most effective way to seal the parapet on an EIFS-clad building (see *Figure F*, page 83). On frame construction, the back side of the parapet should be insulated to prevent cold temperatures on studs or in the stud cavity, which could result in condensation in the cavity and water damage to the wall or ceiling components.

Expansion Joints

Expansion joints are another area where maintaining an impervious seal is critical for long-term performance of the wall assembly. While conventional seal-

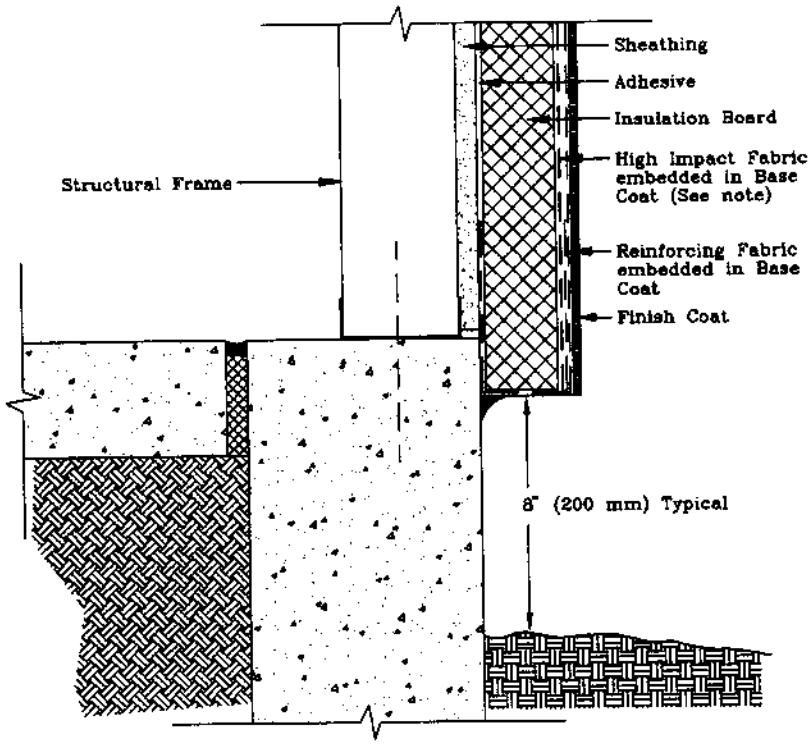

Figure B. Class PB EIFS: termination at grade

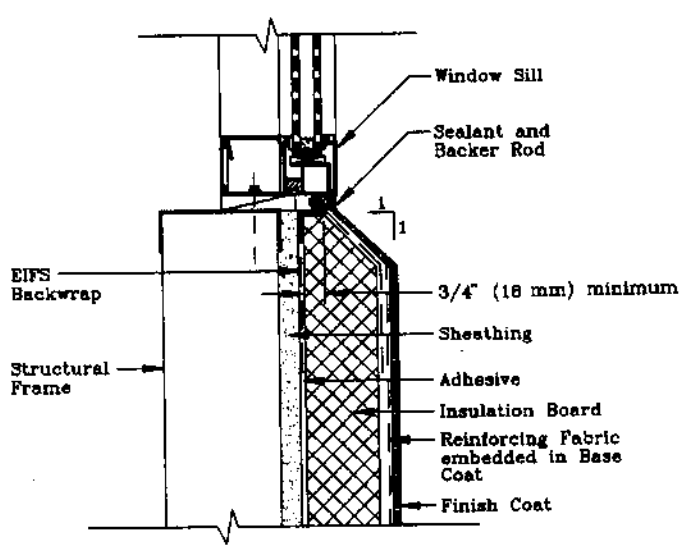

Figure C. Class PB EIFS: window sill