The McGraw-Hill Companies

McGraw_Hill CONSTRUCTION

ARCHITECTURAL RECORD

# EIFS: The Next Generation

**Advertising supplement provided by Sto Corp.**

## EIFS Design and Detailing

Regardless of whether one chooses to design with a traditional Class PB EIFS or with EIFS—the next generation, a vital component for long term durability and life safety is construction detailing. “As much as 90 percent of all water intrusion problems occur within 1 percent of the total building exterior surface area. The 1 percent of the structure’s façade contains the terminations and transition detailing that all too frequently lead to envelope failures.”6 With this in mind, design criteria and detailing considerations for EIFS are listed below:

**1. Wind Load**—design for maximum allowable system deflection, normal to the plane of the wall, of L/240. This is a basic requirement for stiffness of the supporting wall construction. The EIFS manufacturers code evaluation report and/or independent tests should be checked to determine design pressure limits.

**2. Moisture Control**—prevent the accumulation of water behind the EIF system, either by condensation or leakage into the wall construction, in the design and detailing of the wall assembly. This is accomplished in three ways:

i.) by providing flashing above window and door heads, beneath window and door sills (Figure 4), at roof/wall intersections (Figure 5), decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall, such that water is directed to the exterior, not into the wall.

ii.) by controlling air leakage in cold climates to prevent water vapor in moist air from condensing and being deposited inside the wall assembly. EIFS—the next generation includes an air barrier behind the EIFS on the supporting construction. Note, however, that air barrier continuity is necessary to prevent excess air leakage. Thus, adjoining components in the building envelope assembly—windows, doors, and roof membranes—must be connected to the EIFS air barrier. The effects of air tightness on mechanical ventilation requirements and indoor air quality should also be considered in the overall project evaluation.

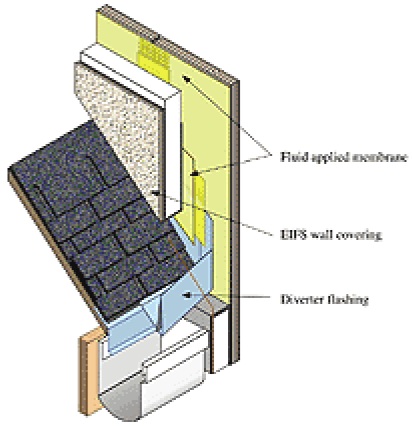


Figure 5—critical details such as roof/wall intersections must include diverter flashing that integrates with the exterior wall covering such that rain water is directed to the exterior, not into or behind the exterior wall covering.

iii.) by minimizing the risk of condensation in the wall assembly caused by water vapor diffusion. In the event condensation is identified in the wall assembly, increasing the thickness of insulation will generally move the dew point outward to a safer location in the wall assembly or eliminate it altogether. In any event one should generally avoid the use of vapor retarders on the interior side of the wall in warm, humid climates. The vapor retarder has the effect of inhibiting drying in the event of incidental moisture intrusion, and can potentially cause damage to interior wall components should water vapor condense behind them. In general condensation has not been a significant source of moisture accumulation in EIFS clad walls. By far, the largest risk of water damage in walls is bulk water entry from rainfall and leaks associated with poorly designed or improperly constructed details.