RIGID FOAM (CI) &
CEMENT PLASTER

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STUCCO MANUFACTURERS ASSOCIATION

GENERAL: Rigid foam is often required for a Continuous Insulation (CI) over exterior framed walls. Rigid insultation panels are typically EPS (expanded polystyrene), XPS (extruded polystyrene). No rigid insulation product is perfect for every situation; the designer must select which product is best suited to meet specific conditions and requirements. The SMA offers some guidance with caveats when applying a cement plaster directly over a rigid insualtion. R-Value, fire-ratings, vapor drive water and impact resistance should be considered when cement plaster is applied over CI.

EPS: The stucco industry has experience with EPS starting in the 1970's. One-coat stucco was developed incorporating tongue and groove EPS with drainage channels (See Figure 2). Lath and cement applied to EPS has proven to work well. Most EPS is low density and can act as a kind of "shock absorber" or "buffer" to stress. Proprietary basecoats with fibers also help reduce cracking. The water-resistant barrier (WRB) is recommended to be <u>under</u> low density EPS. One-coat stucco is proprietary and codified through evaluation reports. Converting a proprietary one-coat system to a 7/8 inch three-coat stucco (generic) assembly is generally acceptable.

One-Coat Stucco

XPS: The stucco industry has experience with XPS and stucco. XPS and EPS have similar coeffecient of thermal expansion rates, but XPS is typically a denser product than EPS. When the dense XPS expands against the shaft of the fasteners to secure lath, the denser foam may bow outward. This pressure on green cement may result in cracking. The cracking is typically only hairline. The SMA recommends adding a base & mesh system to reduce these type of cracks. Follow all XPS manufacturers recommendations and SMA details for best results n generic stucco.

Polyisocyanurate: The stucco industry has limited experience with stucco over these foam products. These panels work can be used as in-fill between framing/furring members. If the panel is of sufficient density, it may be considered a rigid sheathing base allowing the water-resistant barrier to be placed <u>over</u> the Polyisocyanurate product (see notes on page 2). A base & mesh system over the brown coat is recommended to minimize potential cracking issues. Follow manufacturers recommendations.

RIGID FOAM PLASTIC NOTES:

- Portland cement plaster bonds tenaciously to many insulations. A bond is beneficial. Placing the WRB over a soft foam may result in tearing the WRB during the attachment of the lath increasing the opportunity for leaks.
- A foam plastic approved as a suffecient base for a nail-flange style window, may have the WRB placed over the foam. Adhere to foam manufacturers recommendations and SMA DI (Dense Insulation) details.
- It is generally recommended not to exceed two inches of CI foam plastic thickness with cement plaster. Thick foam sheathings require very long fasteners and may make attaching of lath to framing members difficult. Follow Tables in Section 2603 of the International Building Code for fastening requirements; NOTE: three-coat cement plaster is assumed to weigh 11psf.
- Foam plastic panels are generally not recommended on ceilings due to fire concerns.
- Adding foam may require an NPFA fire test on projects requiring a fire-rated assembly
- For CI on masonry/concrete substrates, the SMA recommends using an Exterior Insulation & Finish Systems (EIFS)
- A layer of foam plastic can qualify as the second layer of water-resistant barrier when required by code. For IECC Climate Zones B & C, the foam plastic must include drainage grooves on the backside or a drainage mat between the water-resistant barrier and the rigid foam plastic (See Figure 2). Refer to the current SMA Technical Bulletin *Water-Resistant Barrier for Portland Cement Plaster (Stucco) on Framed Walls.*

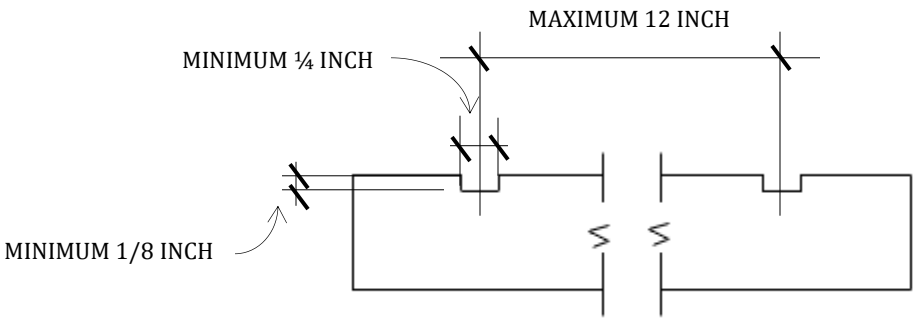

FIGURE 2
FOAM PLASTIC WITH DRAINAGE CHANNELS

Mineral Wool: The stucco industry has limited experience with mineral wool under stucco. Mineral wool offers superior fire/sound ratings with comparable R values. Testing is underway, and the SMA is optimistic that these products will be a benefit the cement stucco industry. The SMA will provide information when available on these assemblies/systems when available.

The SMA is a national not-for-profit trade association formed in 1957, dedicated to education and promotion of stucco. This guide paper is not intended for a specific project. Variations should follow manufacturers recommendations. The SMA can provide no warranty, express or implied, for the information contained herein. The Authority having jurisdiction (AHJ) has the final approval on code-related issues. The SMA and your SMA Certified Contractor can be of assistance in means and methods for applying cement plaster. One-coat or cement board systems must adhere to that manufacturers recommendations.