



Exterior Stucco Soffits and Ceilings

Portland cement plaster is an excellent choice of cladding for ceilings and soffits. Unlike walls also clad in stucco, ceilings and soffits do not require a water-resistive barrier and in most cases sheathing provides no added benefit to the system.

The International Building Code (IBC) defines an exterior wall as “a wall, bearing or nonbearing, that is used as an enclosing wall for a building, other than a fire wall, and that has a slope of 60 degrees (1.05 rad) or greater with the horizontal plane.” From the IBC section 1403.2 “Weather Protection,” the code defines the requirements for the exterior walls to provide a weather-resistant exterior wall envelope. However, there is no requirement for ceilings or soffits to comply with the requirements for a weather-resistant exterior envelope. This is consistent with the fact that ceilings and/or soffits do not need a WRB.*

DISCUSSION:

The underside of exterior, horizontal surfaces (ceilings and soffits) to which three-coat portland cement plaster is applied (ASTM C 926) perform best under the following conditions:

- Suspended grillage – without compression posts
- 3.4 lb/sy expanded metal lath
- Rib lath only to be used where support spacing precludes 3.4 lb/sy expanded metal lath
- All connections made with tie wire and hanger wire – no welding or screw fasteners
- No WRB – spray lath paper is acceptable
- No gypsum sheathing
- Contact ceilings – 12-inch on center framing – no hat channel
- Sufficient ventilation
- Soffits – drip provisions at the wall to soffit transition

In non-fire rated construction, sheathing should be left off ceilings and large soffits. With proper support spacing, gravity ensures that the plaster thickness on a ceiling/soffit is consistent. Embedment is vital on a ceiling and gypsum sheathing can block full embedment. Weight is critical in ceiling construction and sheathing adds unnecessary suspended weight to these elements. Tie wire attachment and cold rolled channel, key components in good stucco ceiling design, cannot be incorporated into designs requiring sheathing.

SUMMARY:

Stucco is an inexpensive, durable and attractive cladding for ceilings and soffits – for these reasons it is a popular choice in stucco markets. The basic principals for achieving a quality installation involve structural isolation, basecoat embedment, moisture permeability, proper rustication, and adequate cement hydration.

**IBC: Water-Resistive Barrier (WRB): “A material behind an exterior wall covering that is intended to resist liquid water that has penetrated behind the exterior covering from further intruding into the exterior wall assembly.”*

This technical document is to serve as a guideline and is not intended for any specific construction project. TSIB makes no warranty or guarantee, expressed or implied.