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Project: Martin County High School & ATC, Inez, KY
Design Firm: Ross Tarrant Architects, Lexington, KY



Celcore Installer: Seawest Specialty Contracting, Cape Girardeau, MO

Full and Adequate Slurry Fill

While every layer of an insulating concrete roof deck placement contributes to the overall performance of each assembly, the base layer [or slurry fill] placed upon the parent deck is among the more critical. The wind uplift resistance of an assembly is dependent upon the bond that develops between the base layer of insulating concrete placed upon the parent deck and the underside of the EPS insulation placed into it. Therefore, as the first step toward placement, the surface to receive a base layer of insulating concrete must be clean, free of standing water, debris and any substance that may interfere with its bond to the parent deck. Notably, water has a density greater than cellular concrete, therefore cellular concrete cannot be used to displace standing water by placement. Standing water must be removed from all parent deck surfaces prior to base layer placement.

[Celcore's Manufacturer's Installation Instructions](#) require the deck fill layer [slurry fill] shall be a full and adequate placement;

*"A base layer of cellular concrete is placed upon the structural deck in a thickness sufficient to receive the EPS holey boards plus minimum 1/8" above deck thickness, without voids. The holey boards shall be placed **in a manner that causes the***

board's underside to make full contact with the fresh cellular concrete".

This is accomplished by placing an adequate amount of fill upon the parent deck and setting the EPS holey board upon the freshly placed concrete and pressing it down, causing fill from beneath the panels to [partially or fully dependent upon board thickness] therefore enter into the board's holes. This practice serves to force out any air space between the board's underside and the fresh base layer of concrete. Following placement, the embedded EPS panels shall not be subjected to additional work traffic until an adequate set of the base layer of concrete fill is achieved. Particularly placements upon steel parent decks, the period of an adequate set should be considered overnight.



EPS holey board panels properly embedded into a full fill base layer of cellular concrete.

A void-free, full and adequate slurry layer and full underside contact with the embedded EPS panels shall be considered required for meeting an assembly's internal fire-resistant and wind uplift ratings.

Voids in a placement's base layer of concrete may also serve as pockets for free water from pre-roof-cover rain events to accumulate. These pockets are known to have a relationship to cases of post-construction underside of deck dripping that can occur after a building's envelope is complete and the mechanical systems are controlling its interior environment.

The startup of the mechanical systems on any new building begins a drying-out process of the material comprising it, including roof fill insulation. Our many years of investigation have shown that in cases where a post-mechanical start is followed by a pattern of underside of deck dripping, particularly on steel panel deck constructions, has been associated with installations having voids within the base layer of fill. Accordingly, simple and careful base layer placement practices can be used during installation to mitigate this post-construction phenomenon from occurring.

In Partnership,

Travis Morton

Design Professional & Contractor Support
Manager

(828)669-4875 Office

(386)569-1261 Cell



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