



# CELCORE TECHNICAL BULLETIN

## WATER INTRUSION GUIDELINE

### Definition

Intruded water for this purpose, is defined as being environmental water (rain water) which during extreme events can enter an installed insulating concrete roof deck system and accumulate at the placements structural base. Intruded water generally finds entry into a system at areas of cracking, penetrations, perimeters and designed low points.

### Environmental Condition

After the placement of a cellular insulating concrete roof deck and prior to the complete installation of the roof cover, roof decks subjected to prolonged or repeated heavy rain events may undergo water intrusion. Generally, extreme weather events are required to cause this condition.

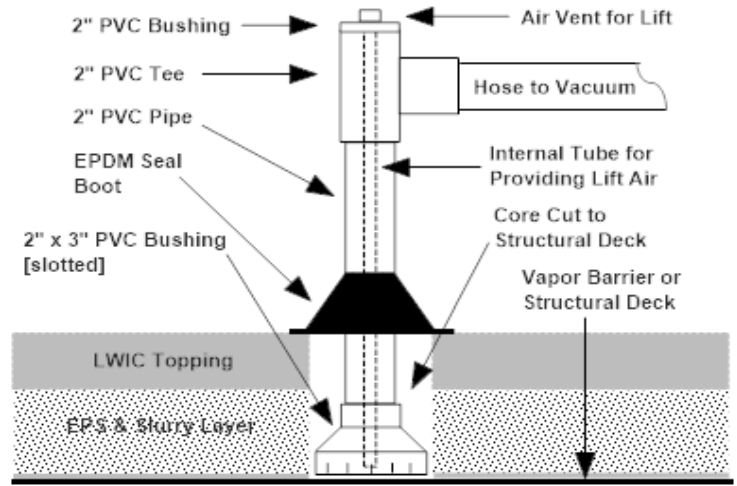
### Observations

Intruded water is commonly detected by observation. After a rain event, when the environmental conditions become favorable for drying, the surface of the roof deck will return to its light, dry natural color. It is not uncommon to have some extended period of surface discoloration along cracks and at penetrations during the drying process. However, should discoloration in these areas appear unusually persistent, particularly at deck low points, it may be advisable to core cut the roof deck, down to the structural substrate, to check for intruded water. Intruded water would be a visible accumulation of liquid water found at a cores base.

### Remedial Recommendations

When intruded water is found in a roof deck system, Celcore recommends removal by method of vacuuming. The sketch provided herein illustrates the configuration of the preferred devices used to remove intruded water. These devices work most effectively when they are positioned at known low-points in the structural deck (areas that may have ponded water prior to the roof decks placement). These devices cause a strong vacuum to develop within the deck thereby pulling intruded water to the core for removal by the vac unit(s). For effectiveness, vac units should be operated rotationally between multiple deck cores. Importantly, once the roof deck's topping reacquires its dry uniform appearance, roof cover installation

should resume. Water removal and roof cover installation may occur simultaneously. Removal shall continue until liquid water no longer re-accumulates within the cores. This determination may require doing inspections at several hour intervals to conclude that a core has become non-productive. To the extent possible, all intruded water shall be removed by vacuuming.



### Commentary

It has been our long term experience that this is an effective method of removing intruded water. Notably, the topping segment of a roof deck with intruded water is mostly dry by appearance. Intruded water within a roof deck accumulates mostly at the systems base. Since the topping segment of an insulating concrete deck is that most effected by solar heating, intruded water will not act upon an installed above deck cover. Day time solar heating does not penetrate the deck insulation enough to cause any water found at the systems base to undergo transformation into pressurized vapor.

The best way to minimize the possibility of water intrusion is timely scheduling of roof cover installation following the insulating concrete decks placement. Extended uncovered exposure of an installed roof deck, beyond that required to properly install the systems roof cover is explicitly discouraged. Keep roof drains functional following deck placement.

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