



CELCORE TECHNICAL BULLETIN

WATER INTRUSION GUIDELINE

Definition

Intruded water is defined as environmental water (rain water) which during extreme events can enter an installed roof deck system and accumulate at its base. Intruded water generally finds entry into the system at areas of penetration, perimeters and low points.

Environmental Condition

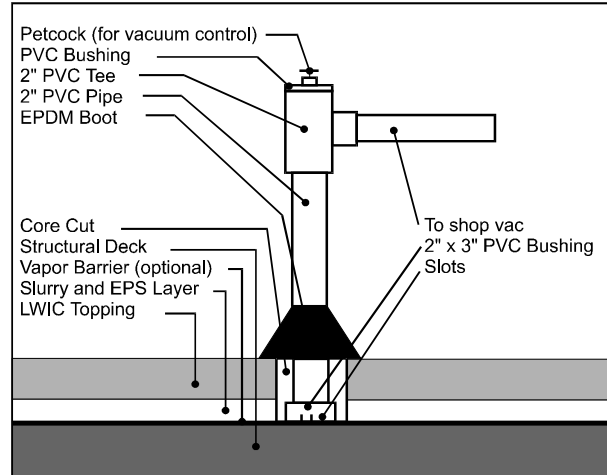
After placement of a cellular insulating concrete roof deck and prior to the complete installation of the roof membrane system, roof decks subjected to prolonged or heavy rain events may undergo water intrusion. Generally, the weather conditions required to cause this condition are extreme events.

Observations

Intruded water may be detected by observation. After a rain event, when the environmental conditions become favorable for drying, the surface of the roof deck will generally return to its light, natural color. It is considered normal to have some extended period of surface discoloration along cracks and penetrations during the drying process. Should however, discoloration in these areas appear unusually persistent, it may be advisable to core cut the roof deck to the substrate, to check for intruded water. Intruded water is indicated when a visible accumulation of water is detected in the base of the core.

Remedial Recommendations

When intruded water is detected in a roof deck system, Celcore recommends removal by method of vacuuming. The sketch shown on this page outlines the configuration of the device used in addressing water intrusion. These devices serve most effectively when they are positioned at low-points in the structural deck. The rubber seal shown causes a below deck vacuum to develop which pulls water to the core opening for removal by the vacuum unit. Several units can be run simultaneously for a faster removal. Membrane installation can proceed while conducting the water removal operation.



Commentary

It has been our experience that this is an effective method of water removal. Celcore has never had a report of a subsequent problem in the final roof cover. It should be noted that the topping pour of the cellular concrete is always dry, even in roof decks containing intruded water. Intruded water tends to accumulate at the bottom of the deck system. The topping segment of the insulating system is the segment most effected by the solar loads of daytime heating. Temporary one-way roof vents can be placed at the core locations if desired, but are generally not effective. This is due to the fact that venting requires moisture to undergo a transformation to vapor to escape through the vents. The solar loads of daytime heating do not penetrate the deck enough to cause moisture at the bottom of the system to transform into vapor.

The best way to prevent the possibility of water intrusion is timely scheduling of roof cover installation after the placement of the insulating concrete deck. Also it is a good practice to be sure that the roof drainage system is operational throughout the construction period.

REV. 06/04