

OVERVIEW: Test Procedure After Overburden Installed

Prior to any overburden being installed, electronic leak detection should take place. The method by which the membrane is tested does not matter. Both high and low voltage leak detections can be used prior to the installation of overburden.

With low voltage, an electronic field is created by placing a perimeter wire in a prescribed location. An electronic impulse is sent through the wire that then transfers to the wetted surface on the membrane. The testing equipment tracks the directional movement of the electronic charge to a breach location. With high voltage, the head of the testing equipment provides the electronic charge. The equipment is swept over the dry membrane and an audio signal is emitted at a breach.

The high voltage method must be completed with the equipment head making direct contact with the membrane. It is not used after the vegetated roof's overburden is installed.

Once the initial testing/scan of the membrane is completed with either high or low voltage, perimeter wire is then installed so future testing with overburden can occur. By installing this wire, the discovery area can be reduced if a future breach occurs.

When testing after the overburden of the vegetated roof is installed, the following conditions must occur or be created.

- A three-dimensional electronic field must be created. To achieve this, the soil media must be thoroughly wet-out and there needs to be water through and around all the filter fabric, modules, drain boards, protection/root barrier layers and insulation down to the surface of the membrane.
 1. If there is a dry location on the membrane, a breach won't be identified.
 2. Water levels creating this 3D field cannot reach levels above the membrane flashings as it will ground-out the system. This would include the frequently used termination bar termination detail.
 3. Lightning arrestor cables, when used, are a ground that greatly reduces the testable area.

4. Other conditions that need to be insulated to prevent grounding out of the system include:
 - a. Concrete curbs with rebar that have the membrane applied to the deck before the curbs are poured.
 - b. Tie-backs and davits that are not flashed or flashings that do not extend up past the overburden.
 - c. Any metallic flashings that come into contact with the structural deck. (Aluminum faced base flashings – Base flashings with counter flashings that cover them completely)
 - d. In the cases above, this can be addressed by extending flashings 12” above the membrane on conventional roofs or 12” above the ballast or overburden on a protected membrane roof.
 - e. Even prefabricated, hard rubber pipe supports will act as grounds if overburden comes into contact with metal components.
 - f. Prefabricated, hard rubber pipe supports will act as grounds if overburden comes into contact with metal components that are in contact with the structure.
 - g. Wood blocking used to support gas lines etc. become conductive when saturated, so they are a ground.