ELECTRONIC LEAK DETECTION
PERFORMANCE ASSURANCE

ZERO/SIX CONSULTING, LLC | WWW.Z6CONSULTING.COM

ELECTRONIC LEAK DETECTION

The roof is a costly component of the building envelope with its integrity being a large factor in the efficiency of the building.

The issue is that during construction the roof can get damaged by even the most conscientious roofing contractor; nails, screws, workers boots, and dropped equipment and tools can cause dents or tiny holes in the roofing system. These areas then go unnoticed until extreme weather or heavy rainfall reveals minor breaches that can cause major damage and deterioration both on the roof and inside the building.

By pinpointing defects invisible to the eye, Electronic Leak Detection (ELD) has become the most cost effective and useful means of roof leak detection effective for **99% of commercial waterproofing systems**. Through a process of detection and isolation, Z6 Commissioning (Z6) will thoroughly test the most vulnerable areas of your roof system to identify pinhole leaks and breaches for the most efficient diagnosis. This protects building owners from signing off on defective roof systems and roofing contractors from future call backs or potential litigation. ELD can be used for most every roofing application including green roofs, but can also be applied to parking garages and deck waterproofing on patios, planters, and waterproofing between split slabs.

ELD is the best tool for architects, specifiers, contractors, manufacturers and building owners to test, verify, and monitor the integrity of waterproofing membranes and roof assemblies, resulting in better performing buildings. Damaged areas, once identified, can be repaired, and then retested, immediately.

> When stripped down to its most fundamental purpose, architecture is about sheltering people from the elements. From this point of view, perhaps the most important part of any building is its roof. Roofs keep us dry…most startling, though, is the fact that, while roofs only make up about 2 percent of construction costs, water intrusion accounts for more than 70 percent of construction litigation; roof failures and related fallout are often at the root of the issue. So what's going wrong?
>
> **Aaron Seward, Architect Magazine, "When It Leaks It Pours."**

HOW IT WORKS

There are two methods of Electronic Leak Detection:

LOW VOLTAGE VECTOR MAPPING

Low Voltage Vector Mapping requires a wet surface which makes it the method-of-choice for green roofs and/or rainy days. Wet surfaces create a conductive medium over the entire surface of the roof. A trace wire is applied to the perimeter of the roof area to be tested. This trace wire is then connected to a pulse generator. From the pulse generator, a ground wire is connected to a penetration in the structural roof deck to complete the circuit covering the testing area. The penetrations and drains in the roof system are then isolated and connected to the perimeter trace wire. The roof membrane acts as a barrier between the electrical circuit. If there are any breaches in the roofing membrane, current will flow through this breech and connect the circuit, detected by a trained Z6 technician utilizing a receiver and a set of probes. The technician traces the sensor's direction until all breaches are identified.

HIGH VOLTAGE TESTING

High Voltage ELD testing is performed on dry, horizontal and/or vertical surfaces. The Z6 technician connects a ground wire to a penetration in the structural deck. A portable generator with an electrode brush made of highly conductive bristles is utilized to emit an extremely high voltage (low amperage for safety) current to the roof deck. The technician then sweeps over the roof membrane acting as a barrier with this conductive brush to cover all horizontal and vertical roof surfaces. When a breach is passed over, the electrical circuit is completed and a signal is emitted that identifies the exact location of the membrane breech, regardless of the size.

ELD BENEFITS

COST SAVINGS
Testing is completed within hours instead of days required for the traditional flood testing approach.

ECO-FRIENDLY
Reduced water consumption and lower energy bills by not flooding the roof.

NON-INVASIVE
Leaks are discovered without saturating the penetrated area.

MEET LEED INITIATIVES
Verify green roof membranes prior to installing overburden.

TARGETED ACCURACY
Identify pinhole leaks and breaches for the most efficient diagnosis, saving time and decreasing labor costs.

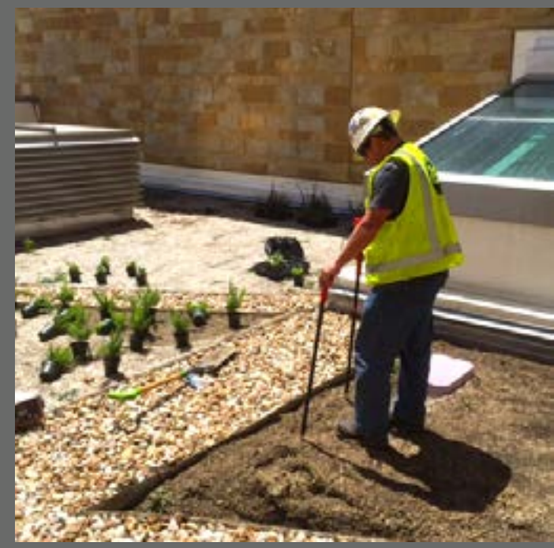
WARRANTY COMPLIANCE
Warranty compliance requirements can be validated through verification, enabling faster hand over.

QUALITY CONTROL
Ensure quality assurance integrity to certify the watertight, safe, and sustainable performance of new roof membranes.

REDUCED RISK
Reduces the possibilities of trapping water under the membrane leading to both wet insulation and mold growth.

APPLICATIONS

- Insulated and non-insulated low-slope roof systems (excluding metal-coated and carbon black EPDM membranes)
- Ballasted roof systems (low voltage)
- Ponded and flooded roofs (low voltage)
- Green roofs (hot applied and cold applied membranes)
- Plaza decks and balconies
- Horizontal and vertical roof and waterproofing membranes
- Patios, planters and waterproofing between split slabs
- Pools and fountains



WHY ZERO/SIX CONSULTING?

Z6 is accredited to the highest possible standard of this testing through the ANAB/ILAC ISO/IEC 17025 standards organization. This accreditation reinforces our commitment to adhering to the ASTM D7877 (Electronic Methods for Detecting and Locating Leaks in Waterproof Membranes) standard for all ELD testing and allows Z6 to provide both the building owner and the roofing contractor an ISO/IEC accredited report stating that, at the time of testing, the roof was free of defects. ISO/IEC 17025 accreditation requires an audited adherence to the highest international standards in the industry, as well as, provides evidence of integrity and impartiality in all testing procedures undertaken.

ANAB
ACCREDITED
ISO/IEC 17025
TESTING LABORATORY

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