

Waterproof Membrane Quality Assurance Testing – (High Voltage) + Future Testing

Part One - General

1.1 Description

- A. Work to include: Attach direct current electronic testing system that creates a voltage potential difference between the roof membrane surface and the conductive structural deck (ie. – concrete, metal).
- B. Related Sections: Work contained elsewhere that applies to testing.
 - 1. Scope of Work
 - 2. Roofing or Waterproofing Membrane Section (Div. 7)
 - 3. Vegetated Roof Section

1.2 References

- A. ASTM D 7877-14 – Standard Guide for Electronic Methods of Detecting and Locating Leaks in Waterproofing Membranes.

1.3 Submittals

- A. Test procedure description.
- B. Product Data Sheets for materials permanently installed to provide specified leak detection system.
- C. Proposed perimeter and isolation wiring layout.
 - 1. Proposed segmentation of roofing/waterproofing area into individual test grids.
 - 2. Locate perimeter wire lead location for each grid within test area
 - 3. As built grid plan as needed

D. Final report shall be provided, including

1. Digital roof plan
2. Breach photographs
3. Plotted breaches when repairs are not completed same day of testing
4. Verification of breach repairs
5. Location of any permanent components installed on roof surface.

1.4 Quality Assurance

- A. Testing agency shall have a minimum of 10 years experience of testing
- B. Testing agency shall examine all surfaces to be tested. Testing agency shall notify roofing/waterproofing contractor of any and all conditions in which in his opinion, will affect satisfactory execution of the testing.
- C. Tested area should be protected from construction traffic as soon as possible after test is completed.
- D. Testing company shall complete and submit a final report. (see submittal 1.3.D)
- E. Pre-construction conference – site or phone conference
 1. Coordinate meeting with general contractor, roofer/waterproofer, testing agency, landscaper, architect, owner's representative and other trades whose work interfaces with the roof/waterproofing application.
 2. Verify project requirements
 2. Discuss test procedures, needs to complete testing and coordination
 4. Discuss site conditions

5. Discuss post testing protection of membrane

Honza Group Inc.

Part Two - Products

2.0 Membrane Quality Assurance Testing Agency

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2.1 Provide products that are accepted by the membrane manufacturer and are fully compatible with the indicated substrate and other components.

2.2 System Description

A. HV-Electronic Leak Detection (ELD): Complete testing by sweeping the testing equipment over all membrane surfaces to locate breaches. Technician will identify breaches by passing the testing equipment over a breach that then provides an audio response.

2.3 Materials

A. Conductive wire used to deliver electronic charge around perimeter of all areas being tested and to isolate grounds (ie. drains, railings). These wires shall be installed on the membrane surface to be used for reducing the area of discovery in the event of a leak.

1. Composite poly-wire has 9 strands of 0.07 inch stainless steel wire interwoven into braided polyethylene strands.

B. Tapes and sealants used to secure conductive wire to membrane assembly surface shall be compatible with membrane manufacturer's membrane.

Part Three - Execution

3.1 Testing

A. Verify membrane assembly and visually examine area to be tested.

1. Materials, debris and equipment must have been removed the prior afternoon from area to be tested.
2. Grounds must be located for creating an electronic charge in the structural deck.

B. Install perimeter and isolation wire. (Leave in Place for Future Testing)

1. Membrane surface must be dry for securement of perimeter and isolation wire.
2. Install perimeter wire within 4" – 6" of base flashings.
3. Any penetrations that act as grounds shall have isolation wire installed around them. (ie. drains)
4. No single area shall exceed 6,000 SF.
5. Secure wire using materials compatible with membrane and acceptable to membrane manufacturer.

C. Turn on equipment and verify ground lead is activating structural deck.

D. Testing

1. Area tested must be dry.
2. Sweep elctrobe brush over the membrane. Breaches are identified when the elctrobe is swept over the breach, completing the circuit.
3. Identify membrane breaches, mark number and plot location. Photograph breaches for documentation.

4. After breaches have been repaired, complete confirmation testing to assure repair is watertight.

E. Prepare and submit report.

F. Post Test Membrane Protection

1. Protect membrane from storage of materials and construction activities after testing is completed.
2. We recommend you contact the membrane manufacturer for recommendations to protect the membrane. Methods to consider;
 - a. On a daily basis general contractor has a laborer sweep roof surfaces not limited to debris, fasteners and/or concrete chips.
 - b. Thoroughly sweep all debris, fasteners and/or concrete chips from the roof surface and lay down 4' x 8' sheets of plywood.
 - c. Thoroughly sweep all debris, fasteners and/or concrete chips from roof surfaces, lay down ½", .75 lb density, expanded polystyrene insulation and cover with 4' x 8' sheets of plywood.
3. Re-test membrane if it has not been protected in a satisfactory manner.

Memo: The specification is the way to have something enforceable. It is not enough to simply state that the membrane be protected. It is not happening.

Memo: If a vegetated roof is to be installed you may want to install surface wiring around the perimeter and at grounds (drains) before the overburden is installed. This wiring can reduce the discovery area in the event of a future leak.