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Membrane Quality Assurance Testing- HV

Part One- General

1.1 Description

A. Work to include: Attach direct current electronic testing that creates a voltage potential difference between the roof membrane surface and the conductive structural deck (ie. – concrete, metal). Complete testing by sweeping the testing equipment over all membrane surfaces to locate breaches.
B. Related Sections: Work contained elsewhere that applies to testing.
    1. Scope of Work
    2. Roofing or Waterproofing Membrane Section (Div. 7)

1.2 Submittals

A. Test procedure description
B. Closeout Submittals: Testing agency to submit report of findings (see Quality Assurance)
C. Proposed Perimeter Wiring Lay-Out
    1. Proposed segmentation of roofing/waterproofing area into individual test grids.
    2. Locate perimeter wire hook-up location for each grid within test area.
D. Testing agency shall provide a written report with a digital roof plan, plotted breaches on roof plan, photographs of each breach, a table of breach locations and verification of breach repair.

1.3 Quality Assurance

A. Testing agency shall have a minimum of 5 years experience of testing. As verification of this testing, agency shall submit a project list with city and state location, square footage, when completed and client with contact name and phone number.

B. Testing agency shall examine all surfaces to be tested. Testing agency shall notify roofing/waterproofing contractor contact of any and all conditions which in his opinion, will affect satisfactory execution of the testing.
C. Tested areas should be protected from roof traffic as soon as possible after test is completed.
D. Testing agency shall provide a written report with a digital roof plan, plotted breaches on roof plan, photographs of each breach, a table of breach locations and verification of breach repair.

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-ELD (Electronic Leak Detection) Detection System: Direct current leak detection equipment creating an electronic potential difference between the roof membrane surface and the conductive structural deck (ie. – concrete, metal deck). Technician will identify breaches by passing the testing equipment over the breach that then provides an audio response.

2.3 Materials

A. Conductive wire used to test membrane after overburden installation.
    - Wire shall be a polyethylene strand interwoven with .07-inch stainless steel wire to create a braided composite wire.
B. Tapes and sealants used to secure conductive wire shall be compatible with manufacturer's membrane.

Part Three- Execution

3.1 Installation

A. Verify membrane assembly and visually examine area to be tested.
    1. Materials, debris and equipment must be removed 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 6000 SF.
   5. Secure wire using materials compatible with membrane and acceptable to membrane manufacturer.

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

D. Testing
   1. Area tested must be dry.
   2. Identify membrane breaches, mark number and plot location. Photograph breach for documentation.
   3. After breaches have 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. Re-test membrane if it has not been protected.