This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D8231 – 19

Standard Practice for the Use of a Low Voltage Electronic Scanning System for Detecting and Locating Breaches in Roofing and Waterproofing Membranes[1]

This standard is issued under the fixed designation D8231; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice describes standard procedures for using an electronic scanning system to locate membrane breaches on both horizontal and vertical surfaces to locate potential leaks in exposed roofing and waterproofing membranes.

1.2 This practice addresses the need for a detailed technical description of a scanning method and procedures that are used to test and verify the integrity of membranes.

1.3 This practice is not intended to replace visual or other methods of inspection. It is to be used in conjunction with other methods of roof inspection when specified.

1.4 This practice requires that the detection and location equipment, procedures, and survey parameters used are calibrated to meet established minimum leak detection sensitivity. The detection sensitivity calibration must be verified on a regular basis using the manufacturer's procedures to assure maximum confidence in the results.

1.5 Scanning surveys can be used on membranes installed on roofs, plaza decks, pools, water features, covered reservoirs, and other roofing and waterproofing applications.

1.6 This practice is applicable for membranes made of electrically insulating materials and is used on certain moderately conductive membranes (see Test Method D4496).

1.7 This practice provides a description of the scanning method and equipment for locating membrane breaches using electric conductance and is intended to be used in conjunction with the manufacturer's instructions for the proper operation and use of the equipment.

1.8 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1079 Terminology Relating to Roofing and Waterproofing

D4496 Test Method for D-C Resistance or Conductance of Moderately Conductive Materials

D7877 Guide for Electronic Methods for Detecting and Locating Leaks in Waterproof Membranes

2.2 *NFPA Standards:*[3]

NFPA 70 National Electrical Code

3. Terminology

3.1 For definitions of terms, see Terminology D1079 and the terminology section of Guide D7877.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *membrane scanning, n*—a method for locating membrane breaches by passing a leak detection sensor over the entire surface of the membrane being tested.

3.2.2 *moderately conductive, adj*—materials that exhibit a surface resistivity in the range of 10^3 to 10^7 ohms-per-square.

3.2.3 *ohms-per-square, n*—the unit of measurement when measuring the resistance of a thin film of a material using the four point probe technique. It is equal to the resistance between two electrodes on opposite sides of a theoretical square. The size of the square is unimportant.

NOTE 1—Waterproofing membranes tested by electrical conductance methods may be horizontal, sloped, or vertical.

NOTE 2—Examples of waterproofing membranes included in this

[1] This practice is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.22 on Waterproofing and Dampproofing Systems.

Current edition approved July 1, 2019. Published July 2019. DOI: 10.1520/D8231-19.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, http://www.nfpa.org.

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