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Latest edition of ANSI/SPRI edge metal standard is released

Waltham, MA, December 2003 — The updated edition of SPRI's "Wind Design Guide for Edge Systems Used with Low-Slope Roofing Systems" has been officially canvassed and re-approved as a national standard in accordance with protocol established by the American National Standards Institute (ANSI). The standard is designated ANSI/SPRI ES-1 2003.

SPRI, the association representing sheet membrane and component suppliers to the commercial roofing industry, had initially developed this wind design guide recognizing that edge metal systems are a key line of defense in maintaining roof system integrity.

ANSI policies require that all its national standards must be re-evaluated every five years, so SPRI has been diligent in updating and re-canvassing its ANSI/SPRI standards as publication schedules demand. This re-canvassing process included representatives of the manufacturing industry, the design community, testing laboratories, academic organizations and other members of the construction industry.

This updated ANSI/SPRI ES-1 standard incorporates adjustments to its wind tables based on revised data from the ASCE (American Society of Civil Engineers) guidelines, explains SPRI Technical Director Dave Roodvoets. This document's maps and wind load requirements now conform to ASCE 7-2002, "Minimum Design Loads for Buildings and Other Structures."

ES-1 is now referenced in both the ICC Building and Residential Construction Codes as well as in the NFPA 5000 Building Code. The ICC codes are being adopted in many states and enforcement of the ES-1 provisions will result in improved edge securement of roofing membranes, which will improve the wind stability of roofing systems. Code enforcement will require proof of the testing results. The easiest option for contractors for compliance is purchase of tested products from metal edge suppliers, such as SPRI members W.P. Hickman Co., Asheville, NC, and Metal-Era Inc., Waukesha, WI.

Plus, testing has shown that certain standard edge details, shop-fabricated by contractors, can also meet the requirements of ES-1. NRCA has provided a mechanism to have shop-fabricated details approved through testing by an independent lab.

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While roof edge systems provide aesthetically pleasing finishing touches to a building's appearance, their performance functions have been dramatically highlighted in recent years. In fact, investigators had discovered that a majority of the buildings damaged in Hurricanes Andrew and Hugo experienced roof edge system failures, which galvanized industry attention. They found that relatively simple steps in edge system securement can potentially head off millions of dollars worth of windstorm damage.

SPRI's "Wind Design Standard for Edge Systems Used with Low-Slope Roofing Systems" deals with the whole range of edge system design, composition, performance and installation. This comprehensive standard recommends metal gauges, keeping in mind both structural and aesthetic considerations. It also outlines the sometimes-little-understood factors governing when to put dissimilar metals together, and when to avoid that in order to head off corrosion problems.

Essential factors like security of the substrate anchoring the edge, the edge detail's holding power, and materials specifications are also highlighted. The document analyzes as well the role of building height and location, along with the importance of roof edge regions. It is a well-accepted fact, the ANSI/SPRI Standard notes, that "wind forces near corners have greater intensity than in perimeter regions."

Also included are individual pull-off test protocols for fascia and coping along with a test method to measure the minimum load of a roof edge termination of flexible membranes; a wind speed map of the U.S. based on ASCE data; tables of velocity pressures (in psf) at roof edges; and an explanation of the formula to calculate design pressure.

Roodvoets notes that the initial issue of ES-1 had been published in 1998 before ASCE had updated its wind maps and wind load requirements in 1998. ASCE made further modifications in 2002. All of these are incorporated in the 2003 edition of ES-1.

In addition to the ASCE-related revisions, ES-1 now contains modified provisions that address the wind loads on edge metal for mechanically attached systems. The provisions for ballasted systems and fully adhered systems remain as before. The new provisions require calculation of the wind load on the perimeter attachment of mechanically attached systems. This load will vary depending on the distance of the initial rows of fasteners from the perimeter of the roof.

SPRI earned its certification as an official ANSI canvasser in 1994. Since then, it has seen the acceptance of three of its design documents, including this one, as ANSI standards. The others are: "ANSI/SPRI FX-1 2001, Standard Field Test Procedures for Determining the Withdrawal Resistance of Roofing Fasteners" and "ANSI/SPRI RP-4 2002, Wind Design Standard for Ballasted Single-Ply Roofing Systems." Yet another one, on retrofit roof drains, is expected to be approved shortly.

Copies of these useful standards can be downloaded for free from the association's web site, www.spri.org.

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