

WHAT IS ANSI/SPRI ES-1

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In the medical field, each medical discipline has rules and acceptable methodologies that are followed by medical practitioners. There are drugs designed for specific calamities, and specific surgeries designed to correct certain body ailments. In the legal field, there are laws that are created to establish how the courtroom functions and how those within it should operate.

The construction industry is no different. There are rules, accepted means of construction and codes that dictate how a building is supposed to be built and how each of the contributing trades are supposed to function within the confines of that particular project. Within each trade there are building codes that apply directly to them that provide the basis for how their work is to be installed.

Roofers also follow building codes that include installation methodologies as well as the type of material or systems that should be used. No matter how expensive or grand a building may appear to be, if the roofing system isn't properly designed and installed, that building will ultimately fail because the roof will eventually underperform and cause severe damage to the work and contents it was supposed to protect. What often gets lost in all of that is that it's not always the installing roofer's fault. A roof's failure isn't always a result of the roofing contractor's improper installation methods or an attempt to cut corners to save money. Unfortunately, people often assume that if a roof failed that the roofer should be blamed. That building owner wants immediate answers as to why his roof is no longer performing; "Why didn't my roof stand up to that storm"? The problem here is that the roof system itself isn't the only defense mechanism in place that is supposed to help defend the building

against the elements. When a new building is finished and turned over to the owner, all that can be seen regarding the roof and its components is the roof's actual surface and the edge termination material; in commercial applications, typically, the edge termination is a Fascia or Coping that is fabricated out of sheet metal. Hopefully, for that architect and ultimately for that roofing and sheet metal installer, the edge metal is free of ripples (often referred to as "oil canning") and appears to be secure. Without prior testing and the utilization of formalized installation methods, all the contractor and building owner have to go on is nothing but hope; hope that the roof edge's aesthetically pleasing appeal is just as good as its performance capabilities. This is where the ANSI/SPRI ES-1 Standard comes in.

What is ANSI/SPRI ES-1?

Over the years, metal roof edge trim has been overlooked as just that, trim. In reality though, on low slope commercial roofs, edge metal plays a much more important role. The edge metal on low slope commercial roofs acts as a termination of the roof membrane, and is really the most vulnerable material to weather events. A poorly or improperly installed roof edge metal could prove extremely costly to building owners, contractors, and membrane

manufacturers through warranty claims. A significant wind event capable of causing a blow off of the edge metal can cause further damage in the field of the roof, property and even to the pedestrians below. Water intrusion into a building can also cause significant damage to wall assemblies, electronic equipment, inventory, and so on.

In prior years, guidelines were created to prescribe fabrication and installation methods of sheet metal, but there was nothing that really placed any true accountability on the installers and/or fabricators. Furthermore, there were no codes or guidelines in place

to adequately assist the building's designers on how to create a roof edge system that would stand up against high wind events.

In recognition of the existing issues, SPRI in the mid 1990's began to embark on a new standard that would help protect a building owner from an improperly designed or installed roof edge system. SPRI formed a committee of industry professionals which eventually created a standard called, ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems. This standard was sent through the ANSI (American National Standard Institute) process and was completed and approved by ANSI in 1998. The standard is available for free download at spri.org.

In 2003 the ICC (International Code Council) recognized the importance of the standard, and

adopted it into the International Building Code. At the date of this article all states as well as Guam, Northern Marianas Islands, Puerto Rico and the US Virgin Islands have adopted the 2003 or later code including the requirements for ANSI/SPRI ES-1.

Excerpt from the International Building Code:



1504.5 Edge securement for low-slope roofs. Low-slope membrane roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with ANSI/SPRI ES-1, except the basic wind speed shall be determined from Figure 1609. It is important to note

in the code that the edge product must be installed as it is designed and was tested for. The design phase considers the application of the product, the location of the project, the roof system type, the use of the building involved and where the building is located within the wind zone maps. The installation method is then examined in a testing facility (or in the presence of a certified engineer) so that the expected finished installed system can meet the results of the tests that were conducted. Once the system is manufactured, it must be installed in the same method in which the test was conducted, in order for the system to be in accordance with the code. Therefore, the utilization of a prescriptive method of edge fabrication that doesn't directly follow these specific parameters creates a product that doesn't automatically fall within the code's requirements.

Why a performance tested edge metal?

To better put this issue into an objective prospective, let's look at some numbers. On average, the roof represents about 10% of the total cost of the building. The perimeter metal accounts for approximately 1% of the building costs. Conservatively, let's estimate that 60% of litigation claims originate from the roof, and of that, 60% of roof warranty claims are attributed to failure of the roof edge. So, by extension, 36% of litigation is attributed to failure of the roof edge. This means that the relatively small 1% of the entire cost of the building carries 36% of the risk for litigation.

The use of ES-1 performance tested roof edge products for edge securement provides protection for the building owner, the design community, as well as the installer by minimizing the risk of litigation.

The standardization of performance tested edge metal provides consistency and accountability that often exceeds the capacity and capability of non-tested edge metal providers. In non-performance tested product, the installing contractor is able to install the fasteners in a subjective manner; however, in a performance tested edge system, the system dictates the type and location of each fastener. This creates, not only an objective approach

to the installation process, but an assurance that the finished system meets the code as well as eliminating the need for the installing contractor to carry the burden of risk. Ultimately, that reduced contractor risk becomes a benefit to the building's owner and design team. Without a performance tested system, the roof system is only secured by sheet metal, as opposed to a complete system. In this instance, the finished product typically only comes with a paint finish warranty and a one to three year labor/workmanship warranty; there is no long term or substantive warranty protection. A company that specializes in performance tested roof edge products delivers warranty protection that adds peace of mind as well as accountability that has long been absent in this regard.



The building shown on the left installed Edge Systems One Fascia by Metal-Era. When an F3 tornado hit this US Foods Warehouse in Pearl, MS the building with Edge Systems One was still intact while the other building suffered complete failure, causing significant damage.

Additional advantages of using performance tested edge products are the availability of various services and documentation that are provided.

These services include:

- on staff engineering that provides immediate solutions to the limitless variables that can be found on any given project,
- high level technical customer services that provide immediate product and installation assistance, including detailed administrative support,
- and regional representation that provides hands-on project assistance and communication with all parties involved throughout the project.

By partnering with a company that specializes in performance tested edge systems, roofing contractors have better opportunity to focus on their core competencies, which allows them higher profitability.