

Revised Design Standard Minimizes Fire Risks

SPRI updates VF-1 fire design standard for vegetative roofs

By Mike Ennis, RRC

The steady advance of vegetative (green) roof designs within mainstream construction under the International Building Code requires regular updating of key design standards. As part of this industry wide effort, the American National Standards Institute (ANSI) has reapproved the updated VF-1, “Fire Design Standard for Vegetative Roofs” as an American National Standard. The document was approved by ANSI on May 11, 2017.

Green Roofs for Healthy Cities (GRHC) and SPRI Inc., the trade association representing the manufacturers of commercial roofing systems and component suppliers, initially collaborated on VF-1. The standard was developed by SPRI in 2007 and first approved as an ANSI standard in 2010. The document was created to provide a design and installation reference for roofing professionals to help eliminate the risk of fire on vegetative roofs.

“Updates to the VF-1 Standard included collaboration between all industries and segments involved with vegetative roofing” says Brian Davis, chair of SPRI’s VF-1 Review task force. “This, in turn, helped to create the best, most comprehensive document possible for the industry to reference and design with.”

Vegetative roof designs continue to evolve, with plant types, growing media, system complexity and usage, such as rooftop gardens. When updating the VF-1 Standard, SPRI needed to consider changes relating to external fire design and fire spread based on American Society for Testing and Materials (ASTM) E108 – 17, “Standard Test Methods for Fire Tests of Roof Coverings.”

“Some of the key changes included new definitions and clarifying or removing some of the previous explanations and classifications, as well as additions to the VF-1 Commentary section,” says Davis. “Some of the most important changes revolved around firebreaks, fire barriers, border zones, and area dividers, to name a few.”

The updated standard describes the three main categories of vegetative roofs—extensive, intensive, and semi-intensive—and provides more in-depth definitions of each type. The standard also adds spread of fire requirements that include combustible features that are part of the vegetative roof design, but not part of the building structure. Roof planters are one example.

The section on “Spread of Fire, Protection for Large Area Roofs” is more robust, with specific references to FM Global recommendations (FM Global Loss Prevention Data Sheet 1-35—*Green Roof Systems*), which also coincides with the International Building Code “General Building Height and Area Limitations.” The new document also refers to German Landscape Research, Development and Construction Society (FLL) requirements. This includes FLL’s definition of a “hard roof” and its belief that a

vegetative “hard roof” can be considered to be equivalent to an ASTM E108 Class A Fire Classified roof assembly under certain conditions.

Vegetative roof technology has also been the subject of greater research efforts over the last seven years, as shown by the 14 references included in the new document, compared to only four in the 2010 version.

In conclusion, the 2017 version of ANSI/SPRI VF-1 provides clearer criteria for minimizing the risk of fire on green roofs through prudent design and mandatory maintenance requirements.

The updated VF-1 standard is available for free download at <https://www.spri.org>

Mike Ennis, RRC, joined the Single-ply Roofing Industry (SPRI) trade association in 1993. He has chaired various SPRI committees and task forces, and served as president from 2004 to 2006. He became the group’s technical director in 2007. Ennis can be reached at info@spri.org.