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ABSTRACT:
Low-slope roof edge systems must be designed and installed to resist wind loads and must be tested to ensure they comply with the building code. A variety of configurations and methods of manufacture for tested roof edge systems are available. Understanding the available choices may help the decision process.

FILING:
UniFormat™
B3010 - Roofing
B3010.90 - Roofing Supplementary Components

MasterFormat®
07 62 00 - Sheet Metal Flashing and Trim
07 71 00 - Roof Specialties

KEYWORDS:
Roofing, coping, fascia, ES-1, wind, uplift

REFERENCES:
International Building Code, 2015 edition.
ANSI/SPRI/FM 4435/ES-1, 2011.

Edge Securement for Low-Slope Roofs

By Elias Saltz, CSI, CCS, SCIP

Background

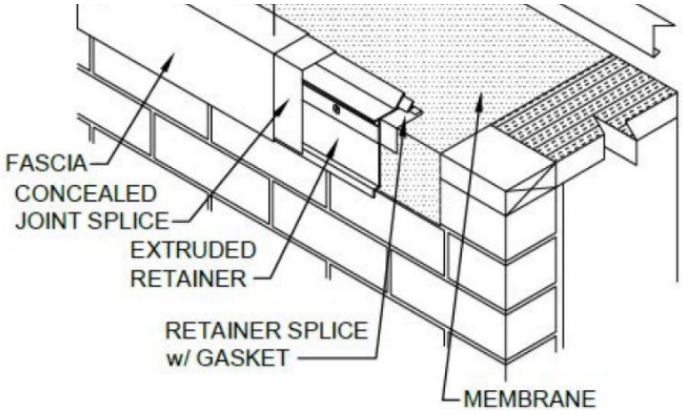
One of the most common ways that low-slope roofs (roofs with slope less than 2:12) fail is for wind to tear off the edge metal fascia or coping, leaving the membrane unprotected against blow-off. Having recognized this avenue for failure, the International Building Code, beginning in the 2006 edition, requires all low-slope roofs to have edge securement devices designed and installed to resist site-specific wind loads. These devices, be they copings or fasciae, must be tested for wind resistance in accordance with methods published in ANSI/SPRI/FM 4435/ES-1.

SPRI ES-1 was originally published by the Single Ply Roofing Industry and approved by ANSI in 1998 as a consensus standard in response to the growing popularity of single-ply roof systems and the realization that roof edge terminations were a weak component in those systems.

Edge Systems

Edge securement systems generally are available in two configurations: fascia systems and copings. Fasicae, also called gravel stops, are installed on roof edge conditions where there is no parapet wall. The metal roof edge securement system turns down the wall and a decorative metal cover is applied over the securement. To resist wind uplift, these systems usually feature continuous cleats or retainers that are installed over and fastened through the membrane into the roof edge blocking. The fascia component, which is decorative, is clipped to the retainer. It's important to note that the membrane must turn down the face of the wall, allowing the retainer to engage the membrane and help resist uplift forces.

The diagram below shows a manufactured fascia system that features an extruded retainer; some tested fascia systems use a formed metal cleat instead.



Metal copings are roof edge securement systems that are installed on top of parapet walls. They feature either wind-resistant clips intermittently installed or a continuous cleat that is fastened to parapet wall blocking. A decorative metal coping cap is installed over the clip or cleat. The bottom of the outside (exposed) face of the coping cap is hooked over a concealed lip of the cleat and the back is either fastened directly to blocking or hooked to the cleat as well.

Like with fascia, the roof membrane must wrap up and over the parapet wall so that the securement system engages the membrane. The membrane turning down the wall may also connect to the air/water barrier.

The diagram below shows a manufactured coping system that features an intermittent cleat under a snap-on coping without back-side fasteners.

Shop-Fabricated or Premanufactured

Edge securement systems can be specified in Section 07 62 00 - Sheet Metal Flashing and Trim or in Section 07 71 00 - Roof Specialties.

Sheet metal flashing specifications allow roofing installers' metal shops to form sheet metal into edge systems, while roof specialties refer to pre-manufactured systems that can be selected by the architect from available manufacturers' products or private labeled by the roofing membrane manufacturer. Either way, code mandates that they be designed and installed and tested for wind resistance.

Conclusion

There are numerous factors in play when it comes to selecting the edge securement system, beginning with performance and appearance, and followed by several pros and cons for each type:

Pros of Manufactured Systems:

- All manufactured systems being marketed have ES-1 test reports, and multiple configurations and materials are available
- Systems that are private labeled by roofing membrane manufacturers can be included in their total system warranties
- Some systems carry FM approvals and are listed in RoofNav.
- Some manufacturers offer appealing design features like reveal profiles, curves, welded corners, and watertight joints
- Profiles will be very consistent across entire roof

Cons of Manufactured Systems:

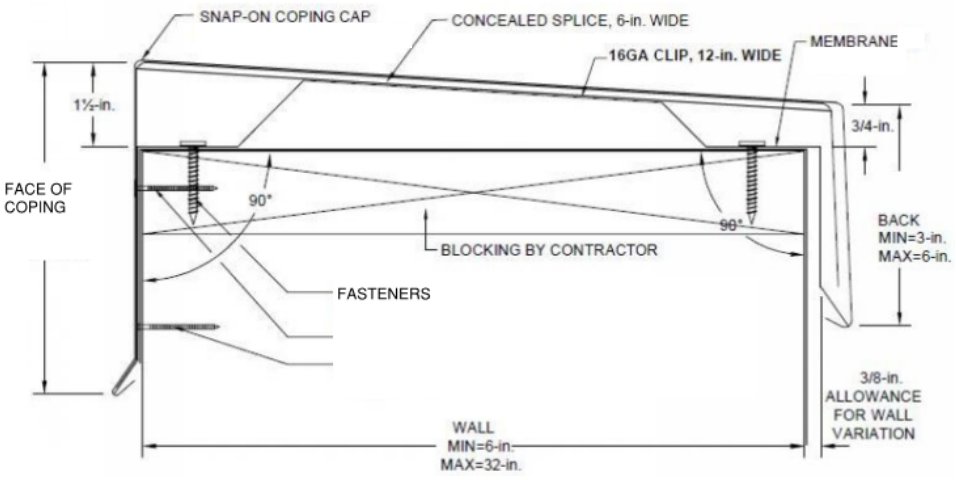
- Configurations are not unlimited so selections must be made early and included in design documents

Pros of Shop-Fabricated Systems:

- A larger variety of configurations may be achievable
- Local to project site

Cons of Shop-Fabricated Systems:

- ES-1 testing is mandatory for every roof edge configuration and many roofing companies will not have testing apparatus or the financial means to run the tests.
- There are a limited number of pretested configurations
- Profiles may be inconsistent depending on braking equipment and thickness of material
- Most copings have continuous cleats which require more labor to install



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