



FACILITIES & MAINTENANCE

Protect Campus Infrastructure with Tested Edge Metal

BY JONNIE HASAN, PE, BECP, CXA+BE

In higher education, where learning environments, research labs, and student housing must remain operational, facility managers across campuses are constantly evaluating infrastructure readiness—not just for daily wear and tear, but for increasingly severe weather threats. Yet one frequently overlooked failure point can cause major disruption: the roof perimeter.

Why is the roof edge the weakest link? It represents the most vulnerable point of any low-slope roofing system. Unlike the protected field of the roof, perimeter elements such as coping, fascia, and gravel stops are directly exposed to uplift forces, wind-driven rain, and pressure differentials. When those forces meet weak or poorly installed edge systems, failure is almost inevitable.

Independent studies by organizations such as FM Global, RICOWI, and FEMA consistently show that between 59 to more than 60 percent of all low-slope roof failures begin at the edge. Once flashing or coping is displaced, the roof membrane can billow and peel back in a matter of minutes, leading to progressive blow-off across large sections of roof.

The risk is amplified during hurricanes and derecho- or severe-convective storms—events that in recent years have been occurring more frequently and with greater intensity across the United States. In post-storm investigations

following Hurricanes Charley, Katrina, Ike, and Ian, perimeter failures were repeatedly cited as the root cause of catastrophic roof loss. Even moderate wind events, with gusts in the 40 to 50 mph range, have been shown to dislodge inadequately secured fascia and flashings.

For schools and universities, the consequences of edge failure go far beyond property damage. Roof leaks and blow-offs disrupt classroom schedules, expose valuable research and technology, and trigger costly emergency repairs. Investing in tested, ES-1 certified edge systems dramatically reduces that risk, ensuring that the roof's first line of defense can withstand future forces it may face.

Storm Trends & School Infrastructure Risk

Extreme weather disasters have been increasing dramatically. Between 2020 and 2024, the U.S. averaged \$23 billion in weather disasters per year, up from just nine billion per year in

the 1980s. These events, which include severe storms, hurricanes, and high-wind outbreaks, now cause nearly \$150 billion annually in damages.

Severe straight-line windstorms—such as derecho- and convective-wind events—are typically nearly a half-billion-dollar disasters. The U.S. experienced more than five times as many billion-dollar severe storm events during 2005 through 2024 compared to the period from 1985 to 2004, with total average costs rising from \$3.8 billion to \$21.8 billion per year.

Future projections show even greater risk. Climate research indicates the frequency and intensity of derecho- and severe-convective windstorms could double or triple in the Midwest, Great Plains, and Ohio Valley by the end of the century, heightening risks to schools and universities in those regions.

The Critical Role of Modern Envelope Integration

Modern building design prioritizes continuous performance from roof edge to walls. Custom edge metal systems that integrate directly with wall cladding and flashings create a seamless, watertight envelope—minimizing failure points and simplifying maintenance.

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For campuses, this integrated approach ensures:

- Drainage and weather barriers function universally across roof and wall transitions.
- Aesthetics remain unified across building façades.
- Maintenance responsibilities are

centralized—avoiding ambiguity in repair workflows.

- Systems that are prefabricated ES-1 tested systems rather than contractor-made.

Contractor-fabricated edge components formed in the field vary widely in thickness, bends, and anchorage methods, and they often lack formal wind-uplift testing. Depending

on field skill, there may also be higher installation risks, and the warranty/accountability may be fragmented and involve dealing with multiple parties. Prefabricated ES-1 systems, by comparison, offer engineered quality, documented compliance, stringent QC and consistent specs, lower installation risk, and accountability—all critical for minimizing risk on campus.

The Campus Lesson: Fortify the Perimeter First

For higher education facility managers, investing in tested, integrated edge systems is not just about weatherproofing—it's about institutional resilience. Edge metal may account for a relatively small portion of a roofing budget, but it addresses the largest point of failure in wind events and delivers unmatched protection against campus disruption. Proactive infrastructure stewardship begins at the edge—where small investments yield lasting resilience.

Jonnie Hasan serves as vice president of business and product development for Innovative Metals Company, Inc. (IMETCO).

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