



A Win-Win Wind Situation

FM Global, clients and roofing professionals join forces to protect the envelope, prevent windstorm damage

Windstorms contribute significantly to the overall losses of FM Global clients—an average of US\$100 million per year. Most notable are the losses from catastrophic wind: hurricane, tornado, typhoon or cyclone. Indeed, no matter how you safe think your facilities are from catastrophic wind, nearly every FM Global client is susceptible to wind's destructive force, particularly those businesses expanding or moving operations into Asia.

"An increasing number of our clients are expanding into the Asia marketplace," said FM Global's Sergio Prete, vice president and manager, catastrophe exposures. "That could mean they are moving operations into Asia, relying on suppliers and vendors that operate in Asia, or distributing goods in Asia. As our clients move to this region, they put themselves in typhoon territory, and therefore need to address wind peril—from every point in their supply chain."

According to the Economic and Social Commission of the Asia-Pacific (ESCAP), tropical cyclones, or typhoons, are common in Asia and the Pacific, and occur most frequently over the northwest Pacific, just east of the Philippines, during June and

November. An average of 30 typhoons develop each year in that region (38 percent of the world's total).

Still, said Prete, "FM Global's approach to the wind peril there doesn't differ from our approach anywhere else in the world. Be it North America, Europe or Asia, the hazard is the same and our suggestions are the same: protect your building's envelope—that is, don't let wind or rain into your facility."

David Cox, FM Global's senior staff engineering specialist, underwriting and reinsurance, said 90 percent of the yearly wind losses experienced by FM Global clients are related to flashing, which is the single most important component of a roof system. "It's also a relatively simple hazard to address with cost-effective measures," he said.

Flashing acts as a weather seal along the edge of the roof, where roof meets wall. FM Global studies indicate strong wind loosens improv-

erly designed and fastened perimeter flashing, which can then peel back and expose the building's contents to rain and wind.

"'Strong wind' doesn't have to mean a hurricane or a typhoon," cautioned Cox. "Even wind gusts well below hurricane intensity can cause damage to inadequately secured flashing. The good news, however, is that flashing can be properly secured for the cost of a few galvanized screws."

A less than uplifting discovery

Cox and other FM Global engineers are working with roofing manufacturers and industry associations to present educational seminars on wind and its threat to roofing systems. Highlighted at these seminars is FM Approvals' Web-based roofing tool, RoofNav®, formerly a subscription-based service now available free of charge. "We believe free access to RoofNav will help roofing professionals simplify

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the configuration and construction of FM Approved roofs, which will ultimately prevent costly roofing-related property losses for clients,” said Cox.

Also featured at these seminars are new property loss prevention standards and guidelines FM Global has developed to ensure quality roofing installation and testing. “We were seeing, over and over again, buildings around the world that were not constructed to withstand even expected wind forces, due to poor workmanship or lack of appropriate codes,” said Prete. “We decided to launch uplift tests to address this exposure.”

FM Global’s Neal Bear, assistant vice president and group manager, field engineering, Dallas operations, headed up the effort in San Juan, Puerto Rico. “We initiated uplift testing of existing roof systems to give our clients physical evidence of the capabilities of their in-place systems,” explained Bear. “A vast majority failed.”

According to Bear, most failures owed to weathered roofing material, or to poor workmanship or design. “We worked with many clients to address these problems via retrofits, reproofs and recovers,” he said. Following each installation, a test was conducted if possible; when the first eight out of eight “new” installations did not pass the uplift testing, the poor results were attributed to poor workmanship. “This was unacceptable,” said Bear. “Our clients invested a significant amount of money, and yet still had a significant exposure. The contractors were encouraged to correct these installation defects, and did so at their own cost.”

Neither clients nor their contractors wanted to go through this process for each new installation. Said Bear: “We spent a lot of time in seminars teaching installers, our clients and

Sealing the Deal

Why your perimeter flashing is of central importance

The most important part of a roof system is the perimeter flashing, which acts as a weather seal along the edge of the roof. If it is inadequately secured at its lower edge, it can peel back in a windstorm, leading to the peeling off of several thousand square feet (several hundred square meters) of the roof covering—even if the covering itself is well-secured. Once the roof is off, wind-driven rain can enter, damaging the interior and its contents. But with proper preparation, extensive wind damage can be avoided during even the most severe storm. Here are three steps you can take to prepare:

- **Screw down the flashing.** If you pull on the flashing and it moves away from the building, it’s too loose. The general requirement for screw spacing is every one foot (30.5 cm) on center, depending on local conditions.
- **Know your weaknesses.** If your roof covering is suspect, build a contingency plan in advance of a storm. The corners of the roof will likely fail first, so plan to move or cover any stock that resides under these areas.
- **Contact your local FM Global engineer** for fastening details, or with any questions regarding this or other building enhancements.

third-party inspectors what to look for—for example, placement of fasteners; storage of roofing material; closing in the system after each day to protect against the elements; and testing intermittently to determine that installations are progressing properly. Through these efforts, the number of failed tests at the end of a project has dropped to only a small percentage. Today, nearly every new roof installation is successfully installed and tested.”

No company is an island

As to these roofing installations, Prete said feedback from members of the Puerto Rico government responsible for business development—as well as that from members of local area construction groups—has been positive. “They take pride in recognizing the improvements in the installation of roofing systems islandwide, and are

promoting the industry’s capabilities. We, meanwhile, take satisfaction in knowing we’ve helped our clients better protect themselves from wind’s destructive forces. And our clients take home peace of mind.”

The success in Puerto Rico has led to similar collaborative efforts to address the wind peril in other parts of the world where catastrophic wind is likely to occur. But the efforts shouldn’t be limited to traditionally wind-prone areas, stressed Prete. “Every FM Global client across the globe is at risk for wind damage. But with little cost and minimal effort, much can be done to protect a building’s envelope from rain and wind invasion. Take some time now to determine your facility’s susceptibility to wind damage, then make the corrections necessary. Otherwise, your profits could be gone with the wind.” [1]