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Asphalt Roofing... A Common Sense Choice

When we think about enduring roof technology, few would argue that asphaltic roofing sets the standard for economical and lasting performance. The innate redundancy of built-up or multi-ply modified bituminous systems is the key element in the membranes' continued reliability. By design, the repeated application of reinforcement and waterproofing builds a system designed to stand up to and handle difficult weather challenges.

Data collected in the Hurricane Katrina Wind Investigation Report released by the Roofing Industry Committee on Weather Issues (RICOWI) in September 2007 documents asphaltic roofing's outstanding performance. The RICOWI team investigated approximately 30 commercial asphaltic roof systems (comprised of both built-up and modified bituminous systems) and concluded the systems performed well. The fierce storm ranged in intensity from category one to category five. The coastal area in Mississippi that was studied sustained recorded winds in the range of 120-130 mph. The study concluded that in general, little or no damage was recorded. Where damage was observed, it was limited to edge details and minor scouring of aggregates surfacing. When major damage was observed it was found typically to be due to poorly attached system components, such as the structural deck or cementitious roof panels.

Despite the teams positive findings, some on the local codes front have tried to limit the use of gravel surfaced built up roofs, which have for years been widely respected as the workhorse of the industry. In 2006, the National Council of Structural Engineers Association introduced to the International Building Code the beginning of what amounts to an outright ban of gravel surfaced built up roofing, a roofing system which in the past has provided decades of proven performance. Driven by a desire to limit damage caused wind driven debris, the IBC began a push to ban gravel surfaced roofs in hurricane and wind-borne debris prone areas.

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Thanks to the work of Jay Crandall (ARES Consulting) and Mike Fischer (Asphalt Roofing Manufacturers Association) in their recent paper "Winds of Change: Resolving Roof Aggregate Blow Offs", presented at the 2010 RCI convention in Orlando, Florida, a common sense approach along with some good roofing practice appears to be raising its head above others to be heard. The team suggests that perhaps in response to the catastrophic challenges of several years of severe storms, that regulatory agency may have overlooked information in the previously published K-W design method (Kind Wardlaw, 1976) that demonstrates "good and bad" performance in real world wind events. They continued to demonstrate that today's code limitations are based on factors like variation in surface pressure in consideration of building height and yet omits information critical to the overall performance like parapet wall height and aggregate size.

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In today's ever litigious society it's not uncommon to see overreaction as a counter measure to devastation, but at the same time code officials need to stay focused on the facts and not "throw out the baby with the bath water". The long history of reliable performance of built-up roofing speaks volumes. The paper reminds us that in a hurricane almost everything, "from barbecue grills to lawn furniture" and even vehicles, have the potential to become damaging wind borne debris. When looked at from that perspective, considerations like embedding a second pour of gravel at roof perimeters and overall building design seem to be an easy fix to assure that gravel surface BUR's continue to provide years of reliable service.

Even more recently, doubt has been cast on the ban of gravel surfaced roofs in wind-borne debris and hurricane prone regions. This is a result of the Florida Building Commission Structural Technical Advisory Committee's recent rejection of a proposal that would have banned gravel on roofs in Florida. The committee members expressed concerns about the IBC ban, given the lack of data to support the proposal and the long history of successful installations in Florida.

Common sense is paramount in understanding other aspects of why asphalt roofing systems perform so well. No matter what surfacing is selected -- gravel, coating or granule -- the key to success is in the redundancy. A standard external door is equipped with two locks... why? ... to deter unwanted entry. The same holds true for the roofing membrane you select. Roof leaks can occur from a variety of reasons. Even something as simple as a dropped screwdriver can damage some roof systems. Why would you trust the continued operation of your business or risk employee safety to a single ply of roofing when it can be deterred with redundant protection?



Terry Glidewell, Owner of Greensboro Roofing in Greensboro, NC, shares one example of the endurance and outstanding performance of gravel surfaced BUR. "The roof was already over 25 years old in the spring of 2008 when a tornado came through town," recalls Glidewell. "The I.H. Caffey beer distribution warehouse complex saw the brunt of the storms' ravage. The tornado cut through the industrial complex wreaking havoc on the loading dock area. A wall collapsed covering two dozen trucks in the area with rubble and twisted I-beams. Areas of loading dock peeled up, deck and all, but remarkably the adjacent gravel surface BUR remained intact. I was amazed to see the condition of the gravel roof, the truck bay roof ripped off the building and landed on the gravel roof, there was debris everywhere, but the gravel roof was still performing keeping the inventory in that warehouse dry. The gravel surface actually protected the roof from the debris. The images of that day demonstrated to me that a gravel surfaced BUR will protect a building through the worst of storms."

When considering which roof is right for your property several factors must be considered. Building location and use, the frequency of rooftop traffic, the presence and service requirements of mechanical equipment, life cycling costing, the real cost of roof leaks, will a leak impact or stop your ability to manufacture and ship material, will your employees be inconvenienced or, worse yet, endangered by frequent roof leaks? Jim Baker, Director of Industry Affairs at the Asphalt Roofing Manufacturers Association (ARMA), is confident that asphaltic roofing will hold its own in any detailed evaluation of roofing systems. "There are built-up and modified bituminous options for virtually any roofing application," says Baker." He continues, "Today's options are limitless . . . cold adhesives, reflective surfacings, hot asphalt, heat -welded installations, a property owner doesn't have to compromise quality to meet whatever challenge their roofing project poses."

Information courtesy of Asphalt Roofing Manufacturers Association (ARMA)

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