DuraRoof

The Patented spray applied protection system that protects and extends the lifecycle of asphalt shingles from high winds, Ultra Violet, and Freeze Thaw

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What is DuraRoof?

DuraRoof is a water-based acrylic sealer combined with an in-situ method of applying it to asphalt shingles that seals and prevents degradation and damage from UV exposure, algae growth, excessive wind, rain and naturally occurring disasters such as hurricanes and hail.

DuraRoof is registered with the United States Patent and Trademark Office and is protected under U.S. Patent No. 8,058,342.

DuraRoof is the *only* patented process of sealing and application method for protection of asphalt roof shingles or other porous roofing materials.

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Asphalt Shingle Degradation

Asphalt shingles are composed of three items, a base material, an asphalt mixture, and a surfacing material.

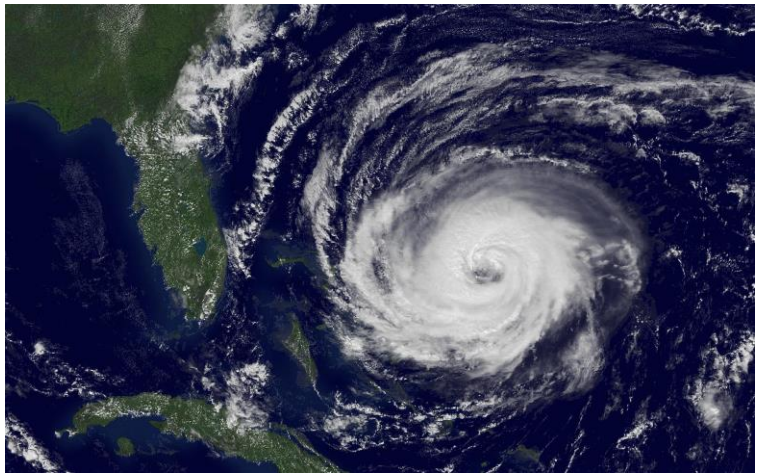
The base material provides support for the weather-resistant components and gives strength to the shingle. The asphalt mixture includes asphalt, limestone and other mineral stabilizers and is a complex mixture of aliphatic and aromatic hydrocarbons. The surfacing material is generally mineral granules which provide protection from impact, UV degradation, and improve fire resistance.

As asphalt ages from UV combined with expansion and contraction from daily temperature changes, it breaks down and degrades chemically and physically. As this weathering process continues, granule loss continues which exposes unprotected asphalt accelerating the rate of degradation. The result of all these challenges is that the shingles are weakened structurally and highly susceptible to further damage and/or failure.

What DuraRoof does

DuraRoof provides a simpler, faster, economical, and more versatile method to enhance wind resistance of existing structures and strengthens new roof construction.

DuraRoof eliminates algae growth, increases granular adhesion, provides additional UV protection, and significantly increases wind resistance of asphalt shingle roofs.



Asphalt shingles are susceptible to damage from high winds, especially winds in excess of 100 mph that often occur during hurricanes or tropical storms.

DuraRoof has successfully passed Florida Building Code TAS-100-95 wind tunnel testing up to 110 mph and proven to decrease wind uplift over 216%.

How DuraRoof Works

DuraRoof is a blend of acrylic polymers that is modified to promote adsorption into and wicking under asphalt shingles and along open edges to prevent water infiltration and curling. The method of applying DuraRoof promotes uniform distribution on the surface as well as enhances bonding between individual shingles.

DuraRoof acts more like a fully adhered functional membrane than merely a paint type coating. Heavier paints and elastomeric coatings have a higher viscosity and are unable to adsorb into the asphalt or wick upwards into the shingle. DuraRoof is a low viscosity film forming acrylic that seals pores, cracks, and other irregularities from moisture without affecting its ability to breathe allowing vapors to evaporate.

How DuraRoof Works

DuraRoof increases the longevity of asphalt shingles by three separate mechanisms; first by reducing the effects of asphalt degradation from UV radiation, second by providing a water-resistant barrier, and third by reducing wind uplift.

Long-term exposure to UV initiates a breakdown process in the surface of asphalt shingles. UV radiation speeds up the oxidation process, leading to the loss of volatiles and plasticizers in the asphalt which results in the shingle becoming brittle and susceptible to cracking. This cracking and degradation can lead to leaks and loss of weatherproofing, which is one of the primary roles of roofing.

DuraRoof eliminates contact of water with the asphalt membrane and prevents low molecular weight asphalt fractions from leaching.

Additionally, it prevents contact of water with the organic substrate layer which can eliminate ice and freeze thaw damage in the asphalt membranes.

Damage from high winds is also reduced because DuraRoof can form an in-situ applied monolithic membrane that allows winds to flow over the shingle thereby reducing the risk of damage caused by strong winds.

DuraRoof Wind Testing

PRI Asphalt Technologies, April, 2005
Florida Building Code TAS-100-95

1.8 Detailed Observations.

TAS 100 DATA AND OBSERVATIONS
Roofguard™ Protective Coating for Shingles
Test Date: April 28, 2005

Slope: 2" in 12" **Air:** 84°F **Deck Conditioning Shingles:** 16 hr@135°F
Deck Conditioning Coating: 7days outdoors

Air Velocity Condition	Simulated Rainfall Condition	Duration
35 mph	8.8 in/hr	15 min
No shingle movement	No water infiltration under deck	
0 mph	Off	10 min
No shingle movement	No water infiltration under deck	
70 mph	8.8 in/hr	15 min
No shingle movement	No water infiltration under deck	
0 mph	Off	10 min
No shingle movement	No water infiltration under deck	
90 mph	8.8 in/hr	15 min
No shingle movement	No water infiltration under deck	
0 mph	Off	10 min
No shingle movement	No water infiltration under deck	
110 mph	8.8 in/hr	5 min
No shingle movement	No water infiltration under deck	
0 mph	Off	10 min
No shingle movement	No water infiltration under deck	

Summary Observations: No shingle movement occurred during the test. No water infiltration on the underside of the deck was observed during the test.

TOP OF DECK 30 SECONDS PRIOR TO COMPLETION OF INTERVAL 7: 110 MPH

2.0 Result of Testing:

The shingles, which had been sealed by using the conditioning procedure in FBC (HVHZ) TAS 100-95 ***TEST PROCEDURE FOR WIND AND WIND DRIVEN RAIN RESISTANCE OF DISCONTINUOUS ROOF SYSTEMS***, and then coated with the Enviroseal Corporation, Roofguard™ Protective Coating for Shingles at a rate of 1.33 gallons per 100 square feet, did not lift during the testing. No water infiltrated through the sheathing during the test.

DuraRoof Wind Testing

Florida International University
Wall of Wind (WOW), March 2013

Untreated deck after 115 and 120 mph, 0 degrees. Shingles detach from adhesive strip and move back and forth with the wind until they rip.

Treated deck after 110 mph, 180 degrees. Missing shingle tabs close to the ridge and detached shingles on leading edge.

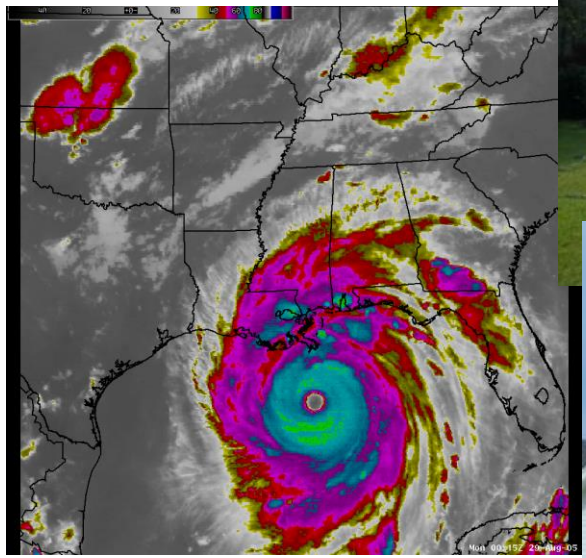
The WOW is powered by a combined 12-fan system capable of repeatable testing of up to 157 mph wind and wind-driven rain. This 16,000 square foot facility is a secure area to enable researchers to plan and perform destructive tests for up to Category 5 Hurricane wind speeds.

Untreated deck after 145 mph, 0 degrees.
Roof damage after the final test at the highest wind speed.

Treated deck after 145 mph, 180 degrees.
Roof damage after the final test at the highest wind speed. The middle of the field suffered less damage compared to untreated deck.

DuraRoof and Hurricane Katrina

Hurricane Katrina (August 2005) became a large and extremely powerful hurricane that caused enormous destruction and significant loss of life and is the costliest hurricane to ever hit the United States. One DuraRoof customer in Mobile, Alabama had treated their roof a few months prior and was surprised to see his house was the only home in his neighborhood without damage. All 25 homes in the community were built twelve years prior at the same time using the same materials. A forensic engineering study was performed and concluded that 22 homes in the community suffered significant roof damage and the customer's home treated with DuraRoof was spared from any significant damage.



Subject home Treated with DuraRoof

Damaged neighboring home

DuraRoof History

DuraRoof was originally developed in West Palm Beach, Florida by Andy Stevens in 1995 as a means to prevent mineral granule loss on the roof of his own home. After Hurricane Bertha in July, 1996, no damage was noticed on his roof and he began refining the formulation and installation process. In 2000, Enviroseal introduced DuraRoof commercially to local customers along the Treasure Coast of Florida and over the years DuraRoof grew in popularity.

In 2004, Two Category Four hurricanes named Francis and Jeanne made landfall near Port St. Lucie, FL and Enviroseal was contacted by many customers thanking us stating they felt DuraRoof saved their homes. Enviroseal began laboratory and wind tunnel testing in 2004 and expanded distribution and territories for exclusive distributors. To date, DuraRoof has been installed on over Twenty-Million square feet of roof surfaces in the State of Florida.

DuraRoof availability

DuraRoof is manufactured exclusively by Enviroseal using the same quality ingredients for over twenty years. We offer individual 5-gallon pails shipped direct to consumers for homeowner installation or for our commercial customers we package in 55-gallon drums and 275-gallon IBC totes.

275-Gallon IBC Tote

55-Gallon Drums

5-Gallon Buckets

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MADE IN THE USA