

FleeceBACK[®] RL[™]

RapidLock Membrane

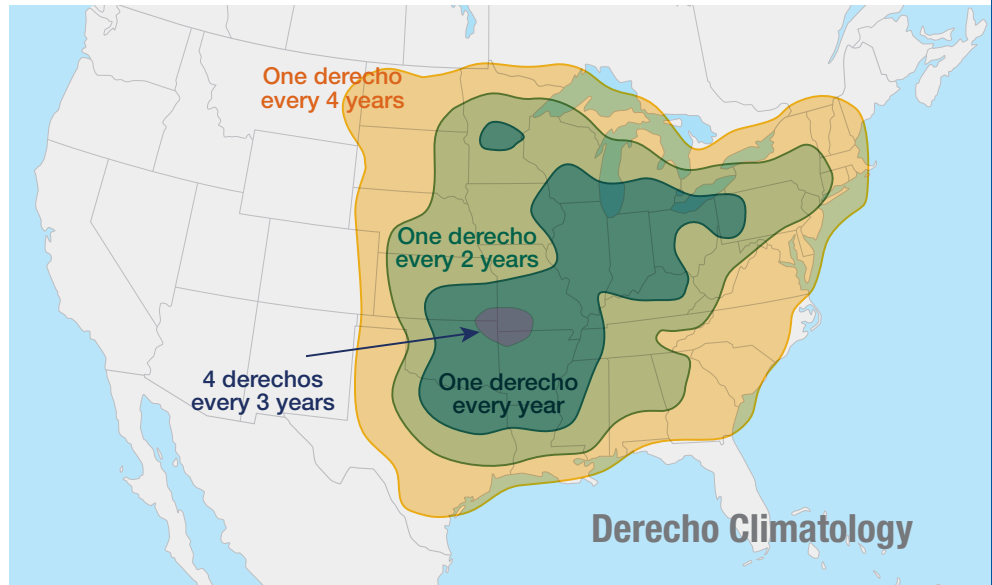
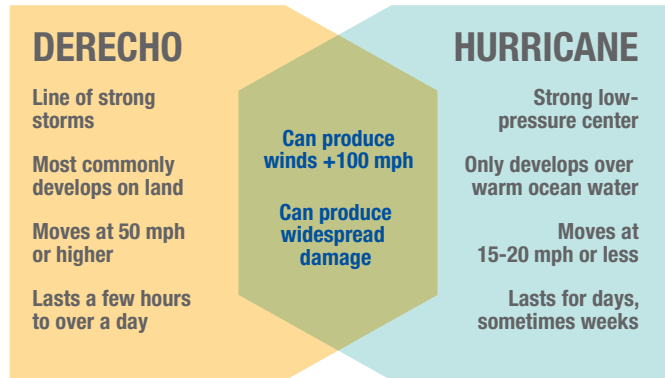
CASE STUDY

The Resilience of RapidLock: Derecho Winds Were No Match for RapidLock's Mechanical Bond.

On August 10, 2020, a devastating weather event known as a derecho ripped through parts of the Midwest, leaving behind large-scale utility disruptions, severe property damage, uprooted trees, and destroyed crops.

What is a Derecho?

A derecho is defined as a line of intense, widespread, and fast-moving storms that moves across a great distance. Derechos are characterized by their damaging winds and often generate thunderstorms that bring additional rain and hail. Unlike tornadoes, the damage produced by these storms typically occurs in one direction along a relatively straight path and covers hundreds of miles. Derechos are not uncommon and can produce catastrophic damages equivalent to tornadoes and hurricanes.



This map shows the frequency of derecho storms throughout the US.



CASE STUDY

PROJECT FOCUS

PROJECT LOCATION:
Marion, IA

CARLISLE APPLICATOR:
Black Hawk Roof Company

PROJECT SIZE:
75,000 square feet each

ROOFING SYSTEM:
RapidLock EPDM

STORM STATISTICS

- » Maximum wind speeds of 140 mph
 - Equivalent to an EF3 tornado
 - Equivalent to a Category 4 hurricane
- » Created 17 individual tornadoes throughout the Midwest
- » 1.9 million individuals without access to power and telecommunications
- » Covered 770 miles in 14 hours
- » Over \$7.5 billion in damages across the midwest



Carlisle's FleeceBACK RapidLock (RL) EPDM remains intact after derecho storm hit Marion, IA.

August 2020 Midwest Derecho

The derecho that occurred on August 10, 2020, was one of the most devastating natural disasters the Midwestern United States has experienced. Due to the catastrophic damage, recovery efforts in areas like Cedar Rapids, Iowa, continued for several weeks after the storm hit. Experts familiar with destructive storms believe this was one of the most intense of its kind, resulting in a state-level disaster proclamation for 27 of Iowa's counties.

The highest recorded wind speed during this event was clocked at 126 mph, with official estimates from the National Weather Service reaching 140 mph. The derecho storm had a 40-mile-wide path of destruction, maintaining consistent wind gusts lasting for 30 to 45 minutes as it tore through the Midwest. Adjutant General Benjamin Corell, Commander of the Iowa National Guard, compared the extensiveness of the damage to what he personally witnessed with Hurricane Katrina in 2005.

RapidLock vs. Derecho

With consistent wind speeds ranging between 70 and 140mph, the August 2020 Midwest derecho took its toll on commercial properties and their roof systems. Most existing roofing systems in the path of the derecho were compromised, with a portion of those resulting in blow-offs leaving the entire building exposed. After analysis of the impacted areas, it was discovered that all 29 roofs utilizing a Carlisle RapidLock System remained fully intact. While components of other systems were found in nearby parking lots and fields, Carlisle's RapidLock EPDM, TPO, and PVC all withstood the consistent and intense conditions generated by the derecho.

Project Focus

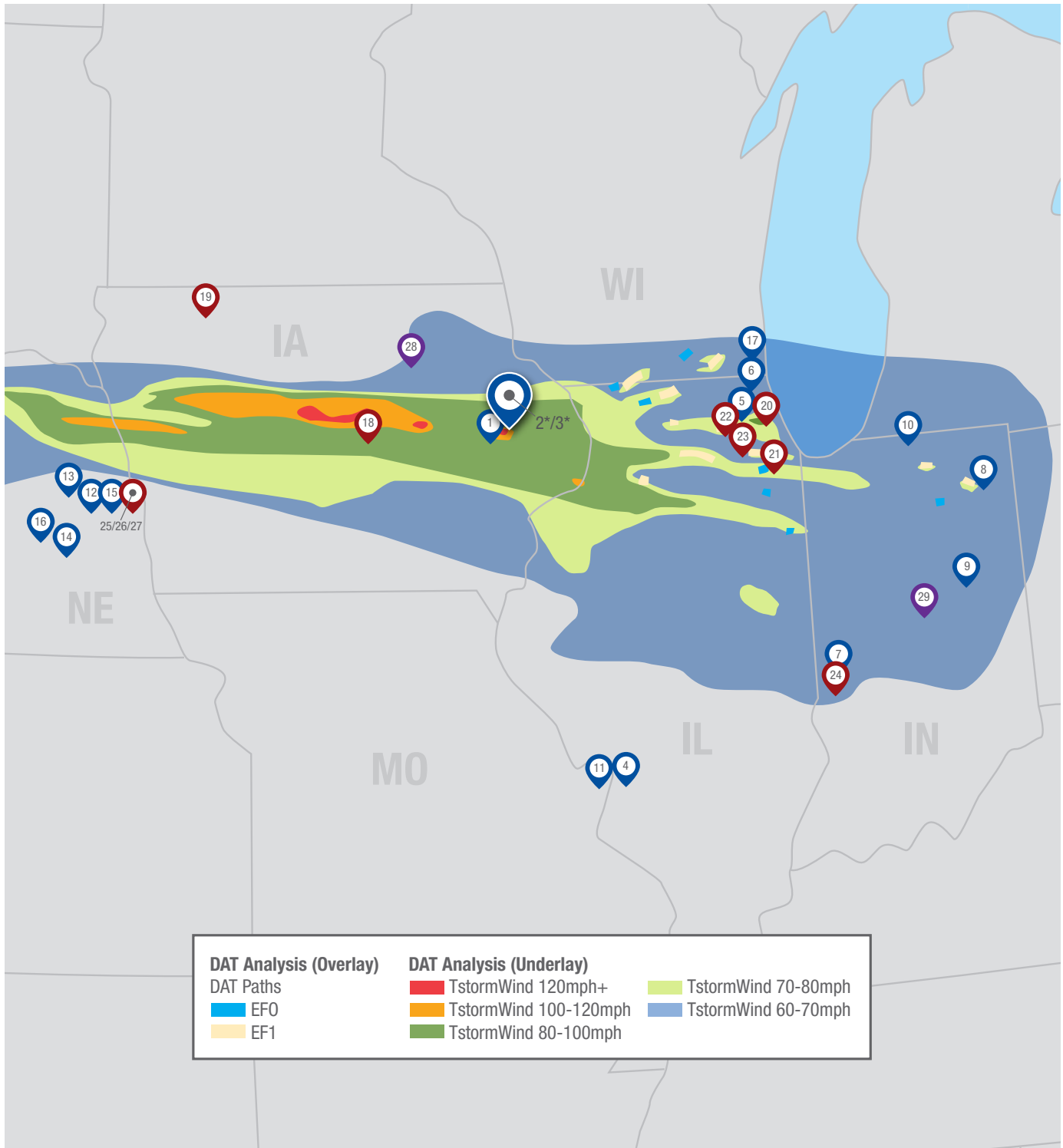
Several RapidLock projects in the derecho's path experienced the storm's most violent moments, including two schools in Marion, IA which withstood 130+ mph winds. These new construction projects were nearly identical in design, each measuring at roughly 75,000 square feet.

Both schools selected RapidLock EPDM for their roofing system due to its defense against hail and ability to withstand high winds commonly associated with the Midwest. Although sections of the metal edging were incomplete when the derecho arrived in Marion, RapidLock's superior mechanical bond held firm and outperformed other systems in the area.



This photo illustrates the severity of destruction caused by the August 2020 derecho.

DERECHO STORM MAP






This map shows areas of severity for the August 2020 Derecho. All RapidLock projects that received increased wind speeds from the Derecho are identified.

*Marion, IA is the location of the project featured in this Case Study.

CASE STUDY

“...Carlisle’s RapidLock (RL) EPDM, TPO, and PVC all withstood the consistent and intense conditions generated by the derecho.”

System Type	Location	State	City	Max Wind Speed of Derecho
RapidLock EPDM 	1	IA	Cedar Rapids	140+ MPH
	2*	IA*	Marion*	130+ MPH*
	3*	IA*	Marion*	130+ MPH*
	4	IL	Collinsville	60+ MPH
	5	IL	Geneva	90+ MPH
	6	IL	Ingleside	90+ MPH
	7	IN	Clinton	70+ MPH
	8	IN	Fort Wayne	70+ MPH
	9	IN	Muncie	60+ MPH
	10	IN	South Bend	70+ MPH
	11	MO	St. Louis	60+ MPH
	12	NE	Elkhorn	60+ MPH
	13	NE	Fremont	70+ MPH
	14	NE	Lincoln	60+ MPH
	15	NE	Omaha	70+ MPH
	16	NE	Seward	60+ MPH
	17	WI	Mount Pleasant	80+ MPH
RapidLock TPO 	18	IA	Marshalltown	100+ MPH
	19	IA	Spirit Lake	60+ MPH
	20	IL	Elk Grove Village	80+ MPH
	21	IL	Joliet	80+ MPH
	22	IL	Schaumburg	80+ MPH
	23	IL	Wheaton	80+ MPH
	24	IN	West Terre Haute	60+ MPH
	25	NE	Omaha	70+ MPH
	26	NE	Omaha	70+ MPH
	27	NE	Omaha	70+ MPH
RapidLock PVC 	28	IA	Clarksville	70+ MPH
	29	IN	Zionsville	70+ MPH