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Thunderstorms and Hurricanes

Both powerful – both potentially deadly

The old saying, “It’s an ill wind that blows no good,” certainly applies to hurricanes. Wherever they come ashore, property damage, injuries and fatalities often result. And while most spring and summer thunderstorms are a far cry from the fury of a tropical storm, occasionally a severe thunderstorm can rival the effects of a Category 1 hurricane.

Whether your business is on the coast or a thousand miles inland, protecting your facility and people against an “ill wind” is a top priority.



Thunderstorms

Formation

Convection currents rising vertically throughout a warm spring or summer day, carrying humid air to higher, colder altitudes.

Wind speeds

Beaufort scale¹
(thunderstorms, gales)

Force 0-3	0-12 mph
Force 4-6	13-31 mph
Force 7-9	32-54 mph
Force 10-11	55-72 mph
Force 12	73-83+ mph

Frequency

On average, 100,000 thunderstorms hit the U.S. each year, with 10,000 “severe thunderstorms” annually.³



Duration

Average 30 minutes⁶

Major hazards

- High winds, microbursts
- Heavy rain, short duration
- Hail, lightning
- Flash flooding
- Tornadoes



Hurricanes

Formation

Air pressure gradients and cyclonic motion from Earth’s rotation, energized by balmy, moist air from warm ocean waters during summer months.

Wind speeds

Saffir-Simpson scale²
(hurricanes)

Category 1	74-95 mph*
Category 2	96-110 mph
Category 3	111-130 mph
Category 4	131-155 mph
Category 5	155+ mph

(* A severe thunderstorm can rival a Category 1 hurricane!)

Frequency

Normal season – 12 named storms/6 hurricanes⁴
2017 – 17 named storms/10 hurricanes
2005 – 28 tropical storms/15 hurricanes
(record for most Atlantic storms in one season)⁵



Duration

Average 12 days, but can last up to three weeks⁶

Major hazards

- Extreme, life-threatening winds
- Wind-driven rain for hours
- Storm surge, rip currents
- Flash flooding
- Tornadoes



Major causes of structural damage due to thunderstorms and hurricanes

Deficient roof systems

Is your building roof built to withstand the aerodynamic pressure of a severe thunderstorm or hurricane?

Roof-mounted equipment

Are air-conditioning units, telecommunication equipment and other pieces of roof-mounted equipment secured well enough to stand up to the wind?

Roof drains

Both types of weather events can generate powerful downpours resulting in ponding loads on flat roofs. Are all roof drains open and unimpeded?

Building openings

If high winds enter through a dock door or other opening, wind pressure on the roof deck can increase up to 40 percent. Whether facing an oncoming thunderstorm or hurricane, button up your building!

Edge metal

Edge metal flashing is often used to seal structures where walls meet rooflines. High winds can peel it back as if unzipping, allowing ingress of wind-driven water.

For more information on preparing for severe weather-related events, visit:
zurichna.com/severeweather

1. National Weather Service. "Beaufort Wind Scale." National Oceanic and Atmospheric Administration. <https://www.weather.gov/mfl/beaufort>
2. National Weather Service. "Saffir-Simpson Hurricane Scale." National Oceanic and Atmospheric Administration. <https://www.weather.gov/mfl/saffirsimpson>
3. Cornell Cooperative Extension. "Severe Summer Storms." New York EDEN – Extension Disaster Education Network. 2018 Cornell University. <http://emergencypreparedness.cce.cornell.edu/disasters/Pages/SevereSummerStorms.aspx>
4. Weatherbug. "Forecasters: Average Hurricane Season Expected." June 4, 2018. <https://www.weatherbug.com/news/Forecasters-Average-Hurricane-Season-Expected>
5. Chris Dolce, Hurricane News. "2005's Record-Breaking Hurricane Season: By the Numbers" The Weather Company, An IBM Business. June 8, 2015. <https://weather.com/storms/hurricane/news/2005-hurricane-season-by-the-numbers>
6. Tiffany Means, "Which Is Worse, Thunderstorms, Tornadoes, or Hurricanes?" Thought, Co. June 7, 2018. <https://www.thoughtco.com/thunderstorm-vs-tornado-vs-hurricane-3444281>

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