AMS Short Course

Blown Away: A Meteorologists Guide To Wind Damage

13:00 EDT - Classroom session 1: How we measure and understand the wind [30 mins]

Learning objectives:

- Describe the basics of wind, including the components of wind.
- Explain how different observing systems measure the wind and identify similarities and differences in the observations.
- Identify how wind measurements apply to designing structures.
- Recite the basics of wind design levels and building codes.
    - Show FEMA/Stantec code tool… FLASH "inspect to protect."

13:30 - Lab session/demonstration: Using multiple type of wind instruments we will explore how sustained winds and gusts are calculated [15 mins]

13:45 - Classroom session 2: Wind flow around structures and the basics of bluff-body aerodynamics [30 mins]

Learning objectives:

- Explain how wind flows around a structure
- Describe how wind creates areas of positive and negative pressure around and inside buildings.
- Describe how wind loads are determined, including pressurization in and out of buildings.

14:15 - BREAK [5 mins]

14:20 - Lab session/demonstration: Fan-flow around 3-d print house? (videos from IBHS and other simulations) [15 mins]

14:35 - Classroom session 3: Common failure modes & damage amplifiers [30 mins]

Learning objectives:

- Recall the progression of damage and failures as wind increases in speed.
- Classify the components of a building structural load path, including the anchoring.
- Explain the danger of damage amplifiers.
- Describe the drivers that exacerbate loss of building function that may not include structural components.

15:05 - Lab session demonstration: Assembling a load path & ring shank nail demonstration. [30 mins]

- 2x4 connections, straight nail… v straps
- Ring shank v. smooth (3x3 panel)
- Load path assembly

15:35 - BREAK [5 mins]

15:40 - Classroom session 4: What Can We Do? Mitigation & Resilience [20 mins]

Learning Objectives

- Identify building resilience issues that have been solved by engineering.
- Describe the FORTIFIED Home Program.
- Explain mitigation measures to address resilience to hurricanes and tornadoes.

16:00 - Lab session/demonstration: Assembling and testing an IBHS FORTIFIED Sealed Roof deck [20 mins]

16:20 - Classroom session 5: Messaging: Busting Myths [35 mins

Learning Objectives

- Explain the economics of resilient construction.
- Describe how to message about damage states and their causes.
- Recall the barriers around building better.
- Discuss what can be done to dispel barriers through communication.

16:55 - Wrap-up [5min]

discussion Q&A "Ask the expert"