



In-Station Training

TM 24-31 Structural Collapse



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Purpose

Firefighters and fire officers can encounter structural collapse in a variety of contexts including structure fires, vehicles into buildings, collapses during construction, severe weather events, and earthquakes.

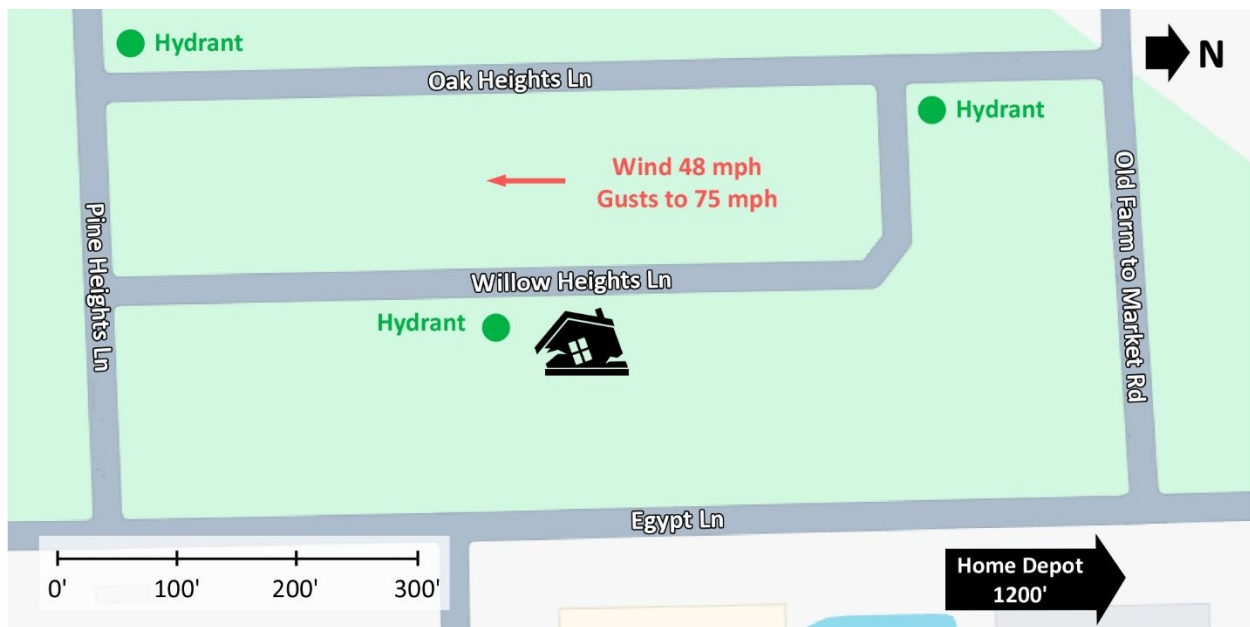
Learning Outcomes

Firefighters and officers perform an effective size-up, select an appropriate strategy, and implement tactics based on the strategic decision-making model when confronted with a structural collapse.

Conducting the Drill

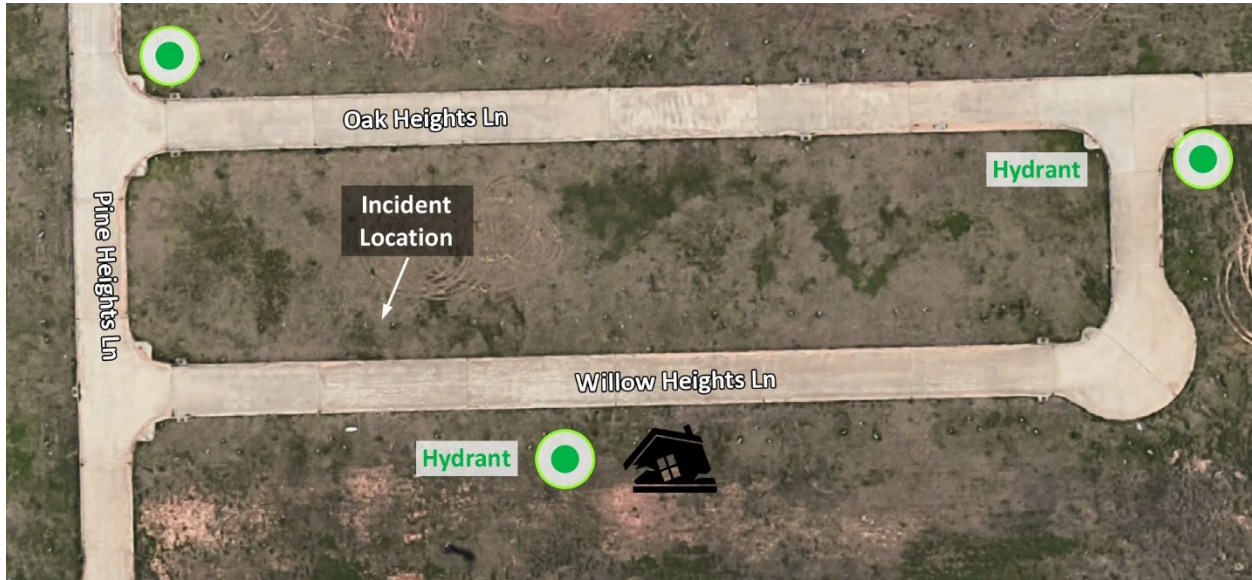
This incident involved a structural collapse in the 33000 block of Willow Heights Lane, Magnolia, TX on May 28, 2024, at 13:15 (Fox 26 Houston, 2024; KRPC 2 Click2 Houston, 2024a, 2024b; Nguyen & Jones, 2024, & Magnolia Fire Department, 2024). Review the map and aerial photos (Figures 1-3) to gain an understanding of the area and building involved. There are no pre-incident building photos.

Figure 1. Map of the Incident Area



Note: Adapted from Google. (2024a). [Map 33000 block of Willow Heights Lane, Magnolia, TX]. <https://bit.ly/3W9QLk6>.

Figure 2. Aerial View



Note: Adapted from Google. (2024b). [Aerial view 33000 block of Willow Heights Lane, Magnolia, TX]. <https://bit.ly/45QFV5M>.

Hydrant locations are illustrated in Figures 1 and 2.

Figure 3. Area Overview Aerial Photo



Note: Adapted from Google. (2024c). [Aerial view 33000 block of Willow Heights Lane, Magnolia, TX]. <https://bit.ly/45ZuKrt>.

The temperature is currently 68° F with wind from the north at 48 mph with gusts to 75 mph (Weather Underground, 2024). You have been dispatched to the 33000 block of Willow Heights Lane for the collapse of a house under construction with entrapment. You are the company officer or AIC of the first arriving engine and have your company's typical staffing.

1. What critical factors would you consider when dispatched and during response and what conversations would you have with your crew while responding?

You hear a command officer, another engine, heavy rescue, and an advanced life support ambulance with typical staffing for your agency go enroute. You will arrive from the north on Egypt Lane. The second engine will arrive from the same direction three minutes after you. The command officer will arrive shortly after the second engine. All other units dispatched on the first alarm will arrive after the command officer.

Dispatch provides an update reporting that there are multiple people trapped.

Examine Figure 4 illustrating conditions as you arrive on Willow Heights Lane from Pine Heights Lane and observe the Alpha/Bravo Corner of the incident area.

Figure 4. Conditions on Arrival-Alpha/Bravo Corner



Note: Adapted from Fox 26 Houston. (2024). Houston weather: Worker killed after homes collapse [video]. <https://bit.ly/3RW3RPD>.

2. State your initial radio report (IRR) exactly as you would transmit it to dispatch.
3. What specific actions would you take (as the company officer) immediately upon arrival and exiting the apparatus and what task orders you would give your crew?

As you exit the apparatus, bystanders report two houses collapsed and that at least one worker is trapped. Examine Figure 5 illustrating conditions on Side Alpha of the collapsed structures.

Figure 5. Conditions on Side Alpha



Note: Magnolia Fire Department. (2024). [Facebook post, May 28, 2024, structural collapse].
<https://bit.ly/3W9SMgh>.

4. Would you change the action you are taking or modify the assignments given to your crew? If so, what task orders would you provide?
5. State your update report exactly as you would transmit it to dispatch.

6. Engine 2 arrives and reports that they are Level 1 on Egypt Lane. State the tactical assignment you would give them exactly as you would transmit it.

7. Based on the anticipated effectiveness of your tactical operations, state your conditions, actions, and needs (CAN) report that you would provide to the first arriving command officer as part of command transfer to IC #2.

Reflect on your strategic decision-making and responses to questions 1 through 7 before answering the next six questions.

8. What was the problem?

9. What was getting in the way of achieving your tactical priorities?

10. Was there anything in this incident that could have hurt or killed you (right now)?

11. Was it reasonable to believe that the collapsed structures were occupied?

12. Was there searchable space?

13. If you believed it was reasonable that the building was occupied and there was searchable space, what could you do about it?

14. Structural collapse rescue often requires technical level resources. What technical level structural collapse resources are available to your agency?

Additional Learning: Read [Building Collapse Basics](#) (Daley, 2018) and [Staying Safe at Structural Collapse Operations](#) (Lee, n.d.). With your crew, discuss how you would approach the arrival and surface rescue operations phase of structural collapse if confronted with a structural collapse of a wood frame building under construction. After this discussion, identify if you would do anything different than you did when completing this 10-Minute Training?

References

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