



In-Station Training

TM 24-42a Residential Attic Fire



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Purpose

Attic fires are generally ventilation-limited and present potential for rapidly changing fire conditions as well as ceiling or roof collapse. These fires can be challenging due to building construction characteristics and limited access.

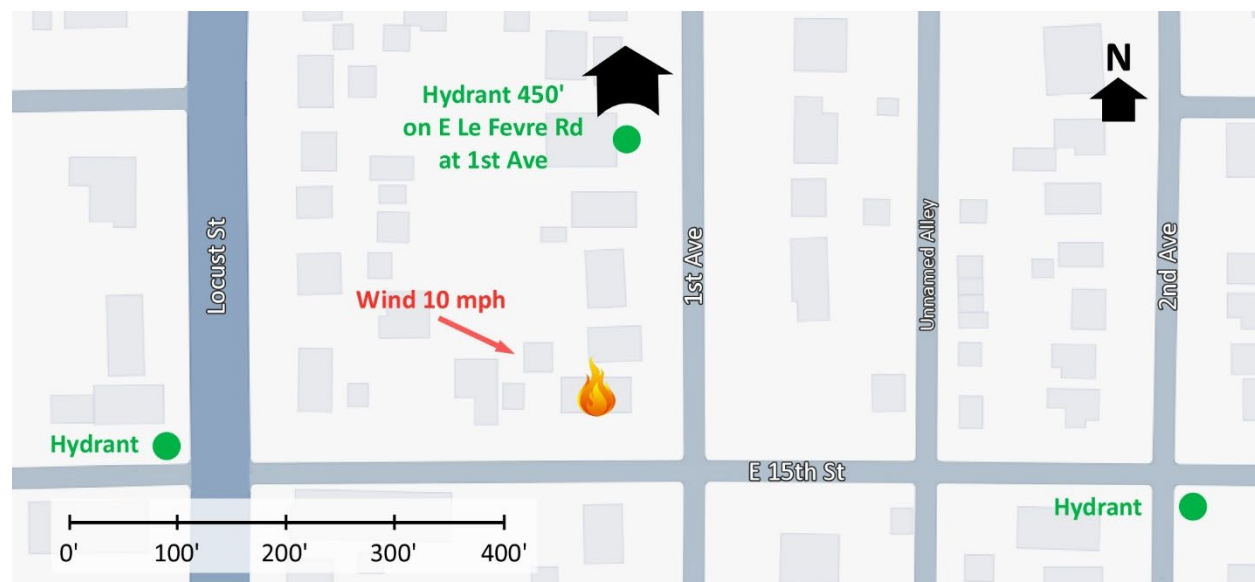
Learning Outcomes

Command officers perform effective ongoing size-up; select an appropriate strategy, and implement tactics based on the strategic decision-making model.

Conducting the Drill

This incident involved a residential fire at 1501 1st Avenue in Sterling, Illinois on June 26, 2024, at 19:22 (Eye on News, 2024 & Wren, 2024). Review the map and photos (Figures 1-6) to gain an understanding of the area and building involved.

Figure 1. Map of the Incident Area



Note: Adapted from Google. (2024a). [Map, 1501 1st Avenue, Sterling IL]. <https://bit.ly/3ZYe7el>.

Multiple hydrants are located near the incident location as illustrated in Figure 1.

The address of the main fire occupancy is 1st Avenue, but the main entrance to the house faces East 15th Street.

Figure 2. Aerial View



Note: Adapted from Google. (2024b). [Aerial view 1501 1st Avenue, Sterling IL]. <https://bit.ly/4eDRsZG>.

Figure 3. Alpha/Delta Corner



Note: Adapted from Google. (2023a). [Street view 1501 1st Avenue, Sterling IL]. <https://bit.ly/483Ee5Z>.

Figure 4. Side Alpha



Note: Adapted from Google. (2023b). [Street view 1501 1st Avenue, Sterling IL]. <https://bit.ly/4dG8DbX>.

Figure 5. Alpha-Bravo Corner



Note: Adapted from Google. (2023c). [Street view 1501 1st Avenue, Sterling IL]. <https://bit.ly/3Nn9WSp>.

Figure 6. Charlie/Delta Corner



Note: Adapted from Google. (2023d). [Street view 1501 1st Avenue, Sterling IL]. <https://bit.ly/3NISVYS>.

You have been dispatched to a report of a house fire at 1501 1st Avenue. You are responding to this incident as the first arriving command officer. The temperature is 83° F with wind from the west northwest at 10 mph (Weather Underground, 2024). While responding you hear four engines, an advanced life support (ALS) ambulance, and a second command officer go enroute. The engines have staffing typical of your agency.

The first engine will arrive from the south on 1st Avenue. The second engine and ALS ambulance will arrive from the north on 1st Avenue approximately one minute after the first engine. Make a note of your resource and staffing assumptions prior to continuing with this 10-Minute Training. **You will arrive from the north on 1st Avenue after the second engine.** Additional resources on the first alarm will arrive later in the incident.

1. What critical factors would you consider when dispatched and during response?

While responding, dispatch provides an update reporting multiple calls for a house fire at the intersection of 1st Avenue and E 15th Street.

As you were responding Engine 1 provided the following initial radio report:

On-scene of a small, two-story house with a working attic fire. Stretching an attack line through Side Alpha to Floor 2 for fire control and primary search, offensive strategy, give me two additional engines, Engine 1 is 1st Command.

1st Command provides the following update report:

360 complete, two stories all sides, window well basement not involved, strong wind from the west northwest, continuing offensive, Engine 1 is accountability on Side Delta, Side Alpha is East 15th Street.

Engine 2 and Medic 2 report Level 1 on a hydrant at East Le Feyre Road and 1st Avenue. 1st Command provides the following orders to Engine 2 and Medic 2.

Medic 2, park out of the way, primary search on Floor 1 and the Basement, control electric utility at the panel.

Engine 2, forward lay to Engine 1, stretch a second attack line off Engine 1, control gas utility, go on deck Side Delta.

Watch the [incident video](#) (Eye on News, 2024) from 00:25 to 01:15 and examine Figure 7 illustrating conditions as you arrive from the north on 1st Avenue.

Figure 7. Conditions on Sides Charlie and Delta



Note: Adapted from Eye on News. (2024). Structure fire: 1st Avenue, Sterling IL 6/26/24 [video]. <https://bit.ly/3ByM2AA>

2. What actions will you take prior to contacting IC #1 (Engine 1) to begin command transfer?

3. State your command transfer communication after IC #1 acknowledges your radio contact (exactly as you would transmit it).

Following your confirmation of the location and assignment of Engine 1, Engine 2, and Medic 2 and request for a conditions, actions, and needs (CAN) report, IC #1 provides the following CAN:

That is correct, Engine 1 has a primary all clear on Floor 2, pulled ceilings, working fire in the attic, need a second company with an attack line and hooks to Floor 2 to assist with fire control.

4. State the communication you would have with IC #1 and dispatch to complete the command transfer (exactly as you would transmit it).

5. What action would you take based on the CAN from Engine 1 (IC #1). State the communications you would have with the operating companies exactly as you would transmit them.

Engine 3 arrives and reports that they are Level 1 on a hydrant at East 15th Street and 2nd Avenue.

6. State the tactical assignment that you will give Engine 3 exactly as you would transmit it.

7. Chief 2 arrives and advises that they are Level 1. State the assignment you will give Chief 2 exactly as you would transmit it.

Engine 4 arrives and reports that they are Level 1 on a hydrant East 15th Street and Locust Avenue.

8. State the tactical assignment that you will give Engine 4 exactly as you would transmit it.

Reflect on your strategic decision-making and responses to questions 1 through 8 before answering the remaining questions.

9. What was the problem?

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

11. Was there anything in this incident that could have hurt or killed the companies operating at this incident (right now)?

12. Was it reasonable to believe that the building was occupied?

13. Was there searchable space?

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

Engines 5 and 6 are Level 1. Companies operating on Floor 2 report that they have the fire knocked down and state the need for ventilation to aid in the completion of fire control.

15. How will you address the need for ventilation? State your answer in the form of communications to the company requesting ventilation or the tactical order to the company given this assignment.

16. The attic had a single window in the gable on Side Delta. Given the limited ventilation options, the IC at this incident opted to have a company perform vertical ventilation. Was this consistent with your approach to tactical ventilation? If your approach was different, what factors influenced your decision? If you also selected the tactic of vertical ventilation, why did you make this choice?

Watch the [incident video](#) (Eye on News, 2024) from 05:30 to 6:30 before answering the remaining questions.

17. What influenced the change in fire conditions as vertical ventilation was completed? If you observed this change in conditions, what communication would you have with the companies operating on Floor 2 (or the Division Supervisor if one had been assigned to supervise those companies)?

Watch the remainder of the [incident video](#) (Eye on News, 2024) and give some thought the alternative approaches to gaining fire control in the attic, the influence of ventilation on fire behavior, and coordination of fire control and tactical ventilation.

Additional Learning: Underwriters Laboratories Fire Safety Research Institute conducted a research project examining residential attic and exterior fire hazards. One element of this research was to assess the effectiveness of different tactics for controlling attic fires. Tactics examined included:

- Fire attack through a gable opening.
- Water fog applied through a small opening in the ceiling below the attic.
- Water fog and straight stream application applied through a large opening in the ceiling below the attic.
- Eave attack through a soffit.

In this incident, companies were operating from the interior and then transitioned to the exterior (with one stream through the window in the gable end). Discuss the advantages and disadvantages of each of these methods with the crews that you work with. Focus on how the location and method of attack influences distribution of water application within the attic. The UL FSRI research discovered that the eave attack was extremely effective if the soffit could be opened (often easy on a one-story house, but a somewhat more difficult challenge on multi-story houses). This house had vinyl soffits (which appear to have been opened on the Charlie/Delta corner). If fire control from the interior proved difficult or ineffective, could an eave attack have been made at this fire? If so, how? Present this as a challenge to your crews?

If you are not familiar with this study, consider completing the [Attic and Exterior Fires On-Line Course](#) (UL FSRI, 2024) and dig into the [technical report](#) (Kerber & Zevotek, 2014) from this research project.

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