



In-Station Training

TM 23-31 Big Box Fire



Author

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Purpose

Fires in big box stores and other large volume buildings present significant challenges. If the fire has progressed beyond the incipient stage, first arriving companies may encounter a cold smoke, sprinkler-controlled fire or a rapidly growing fire that is not being controlled by the fixed fire protection systems. Pumping the fire department connection to support the sprinkler system is a priority!

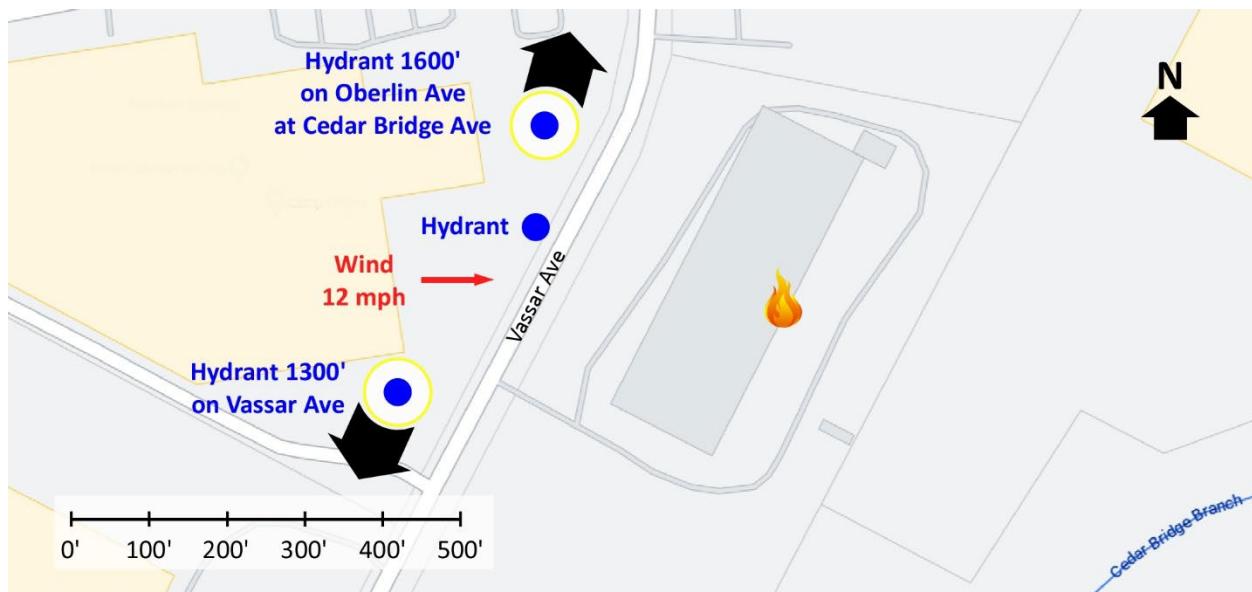
Learning Outcomes

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

Conducting the Drill

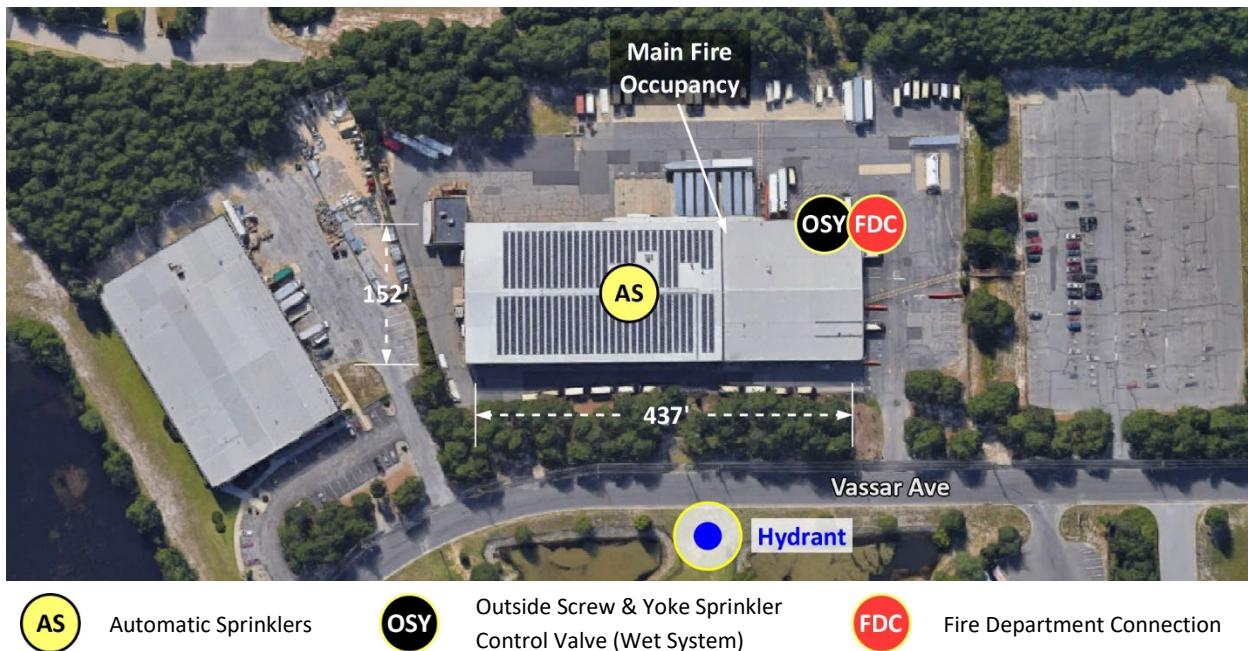
This incident involved a fire at the UPS Distribution Center located at 710 Vassar Avenue, Lakewood, New Jersey on June 28, 2023, at 18:45 (Alexander, 2023; Jersey Shore Fire Response, 2023; & Lakewood Alerts, 2023). Review the map and photos (Figures 1-9) to gain an understanding of the area and building involved.

Figure 1. Map of the Incident Area



Note: Adapted from Google. (2023a). [Map, 710 Vassar Avenue, Lakewood, NJ]. <https://bit.ly/3NWCbae>.

Figure 2. Aerial View



Note: Adapted from Google. (2023b). [Aerial view 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/3pU65ny>.

There is a hydrant on Vassar Avenue in front of the main fire occupancy. Additional hydrants are located 1300' to the south southwest of the main fire occupancy on Vassar Avenue and 1600' to the northeast of the main fire occupancy at the intersection of Oberlin Avenue and Cedar Bridge Avenue.

Figure 3. Alpha/Bravo Corner



Note: Adapted from Google. (2019a). [Street view, 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/3OhM3wl>.

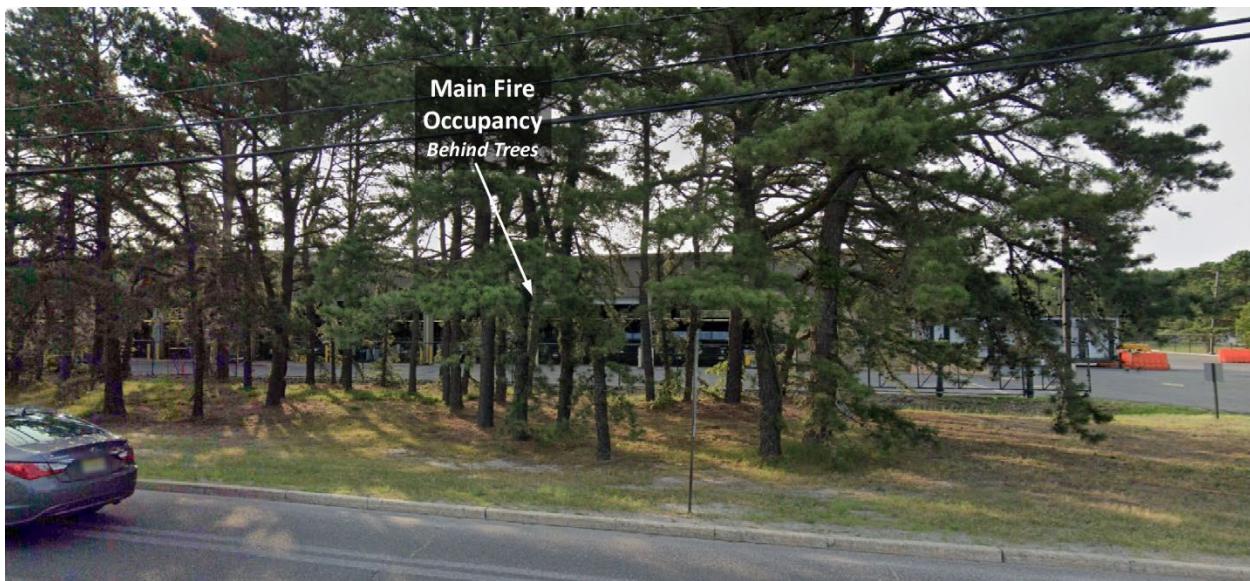
Figure 4. Side Alpha (towards Side Bravo)



Note: Adapted from Google. (2019b). [Street view, 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/3NXWrZ4>.

Figure 5. Side Alpha (towards Side Delta)



Note: Adapted from Google. (2019c). [Street view, 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/3XWfsQn>.

Figure 6. Alpha/Delta Corner (facility entrance)



Note: Adapted from Google. (2019d). [Street view, 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/3XXg9bW>.

Figure 7. Side Delta



Note: Adapted from Google. (2023c). [3d aerial view, 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/3K0RUUx>.

Figure 8. Charlie/Delta Corner



Note: Adapted from Google. (2023d). [3d aerial view, 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/3Kk3Ssy>.

Figure 9. Side Bravo



Note: Adapted from Google. (2023e). [3d aerial view, 710 Vassar Avenue, Lakewood, NJ].

<https://bit.ly/43oemOo>.

You have been dispatched to the UPS distribution facility at 710 Vassar Avenue for a commercial fire at 18:45. You are the company officer or AIC of the first arriving engine and have your company's typical staffing. The temperature is 77° F with wind from the west at 12 mph (Weather Underground, 2023).

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

While responding you hear a command officer, another engine and advanced life support ambulance with typical staffing for your agency go enroute. The second engine and ALS ambulance just cleared another incident and are out of position. The second engine and ambulance will arrive approximately seven minutes after you, followed by the command officer. All other units dispatched on the first alarm will arrive after the command officer. You are responding from the north northeast on Vassar Avenue. As you approach, you observe a large column of dark grey smoke in the area of the reported incident location.

In the actual incident, a chief officer arrived first (as indicated in the incident video). However, in this 10-Minute Training your engine will arrive first. Watch the [incident video](#) (Jersey Shore Fire Response, 2023) from 00:35 to 01:20 and examine Figure 10 illustrating conditions on arrival.

Figure 10. Conditions on Arrival



Note: Adapted from Jersey Shore Fire Response. (2023). Pre arrival two alarm commercial structure fire UPS warehouse Lakewood New Jersey 6/28/23 [video]. <https://bit.ly/46TBcR6>

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 would you give your crew?

You observed the address side of the main fire occupancy (through the trees) while approaching on Vassar Avenue. No smoke was visible on that side of the building. Multiple trailers are involved along with extension to the interior of the building.

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?

Figure 11. Changing Conditions



Note: Adapted from Jersey Shore Fire Response. (2023). *Pre arrival two alarm commercial structure fire UPS warehouse Lakewood New Jersey 6/28/23* [video]. <https://bit.ly/46TBcR6>

5. State your update report exactly as you would transmit it to dispatch.

6. State the tactical assignment you would give the next arriving engine 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?

Watch the [incident video](#) (Response Videos, 2023) from 02:50 to 06:50 and examine Figure 11 illustrating conditions as Engine 5 arrived and began deployment of an attack line.

8. The IC in this incident directed Engine 5 to lay into Side Charlie. What are the advantages and disadvantages of operating from this attack position? Identify what critical factors lead you to these conclusions.

9. In this incident, Engine 1 is tasked with establishing a second water supply and stretching a second 1 ½" attack line to back up Engine 5. Given the location of additional hydrants, what water supply challenges may be encountered by Engine 1. Given the capabilities of your engine company, if you were given this assignment by the IC, how would you respond.

10. Neither of the first two engines was tasked to supply the sprinkler system by pumping to the fire department connection (FDC). Given the critical factors in this incident, what priority would you place on this tactical assignment (the sprinklers activated at 06:55 in the incident video).

Additional Learning

Big box occupancies are 50,000 square feet or larger and often have large undivided areas, rack storage, and diverse contents. These occupancies are protected by sprinkler systems meeting the requirements of National Fire Protection Association (NFPA) 13 Standard for the Installation of Sprinkler Systems (2022). It is essential that firefighters understand how sprinkler systems function and what action is required to support the sprinkler system during firefighting operations.

- Watch [*Know More Risk: Four Types of Water Based Sprinkler Systems*](#) (FM Global, 2015) for an overview of four types of sprinkler systems.
- Listen to the podcast [*Sprinkler Systems and Firefighters: A Powerful Partnership with Shane Ray*](#) (B Shifter, 2023) for a discussion of firefighting operations in sprinklered buildings, with a particular emphasis on big box occupancies.

Review procedures for operations at fires in sprinklered buildings:

Sprinkler System Support: If responding to a fire in a building equipped with a sprinkler system, the second or third arriving company should be tasked with supporting the sprinkler system. The tactical order for this assignment would be to supply the FDC for the automatic sprinkler system on (specify the location). The engine given this tactical assignment will: 1) Connect to the hydrant closest to the FDC. 2) Stretch two 3" lines or a single 5" line to the FDC (depending on type of connections available).

However, do not charge the system until receipt of orders from command.

Activation of one or two heads will frequently control an incipient fire, eliminating the need to augment sprinkler system water supply with a fire apparatus pump. Command should determine the extent of fire conditions prior to ordering support of the sprinkler system. However, if there are obvious building, smoke, air track, heat, and/or flame (B-SAHF) indicators of an uncontrolled fire, command should order system support without delay.

Fire in a Sprinkled Building: If Command orders supply of the sprinkler system, the apparatus operator should pump to the system at 150 psi.

Shutting Down Sprinkler Systems: Once it has been determined that the sprinklers have controlled the fire and an attack line is in place to complete extinguishment and overhaul, a firefighter or crew (depending on conditions and location of the valve) should be assigned to close the sprinkler control valve if instructed to do so by command. The firefighter or crew assigned to this task must remain at the sprinkler control valve until fire control has been established. After closing the sprinkler control valve, the main drain may be opened to reduce and stop further flow from activated sprinklers.

If the system has activated because of mechanical damage (e.g., broken head or pipe), the sprinkler control valve should be closed, and the main drain opened to minimize water damage.

Returning Systems to Service: Returning a sprinkler system to service may be simple or complex depending on the type of system involved. The responsible party must contact their fire protection systems maintenance company for this task. If the occupancy requires a sprinkler system, the responsible party should be advised to maintain a fire watch until the system is returned to service.

Provide complete documentation of actions taken in response to automatic alarms resulting from automatic sprinkler system activation in the narrative section of the National Fire Incident Reporting System (NFIRS) report.

References

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