



In-Station Training

TM 18-27 Wind Driven Residential Fire



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Training Code: TBD

Validated by:

Training Hours: 0.2

Purpose

The wind can be a significant influence on structural fire conditions. Wind may increase the threat to exposures or it can substantially worsen fire conditions on the interior by increasing heat release rate and gas velocity in the flow path. This week's 10-Minute Training examines a residential fire in Belgium. Despite this fire occurring in a different country half way around the world there are several elements (fire behavior, access challenges, etc.) that are common to our operational environment.

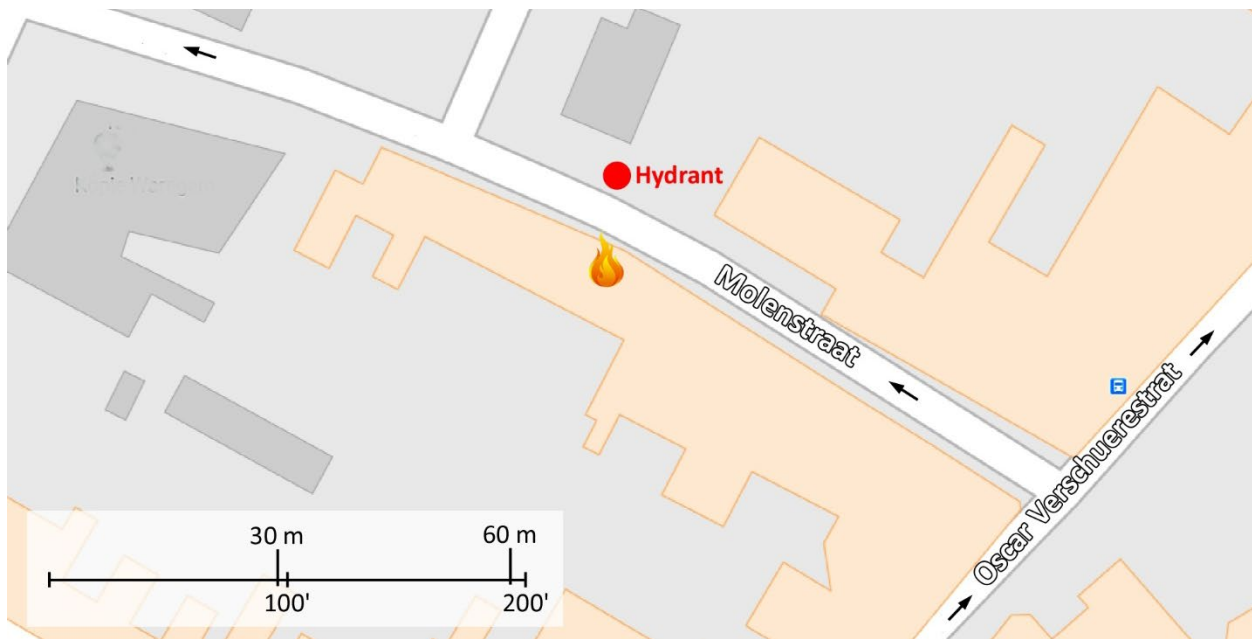
Learning Outcomes

Firefighters and Officer recognize the effects of wind on structure fires and safely and effectively apply appropriate tactics.

Conducting the Drill

This incident involved a fire in a small, two story row house at 21 Molenstraat, 8790 Waregem in Belgium at approximately 13:30 on January 17, 2018. Review the map and photos (Figures 1-5) to gain an understanding of area and building involved.

Figure 1. Map of the Incident Area



Note: Adapted from [Google map 21 Molenstraat, 8790 Waregem, Belgium] <http://bit.ly/2MQtA7V>.

There is a hydrant on Molenstraat directly across the street from the fire occupancy. The flow available from the hydrant is approximately 800 lpm (211 gpm).

Figure 2. Aerial View of the Fire Occupancy and Exposures



Note: Adapted from [Google aerial view 21 Molenstraat, 8790 Waregem, Belgium]
<http://bit.ly/2MVakq7>.

Figure 3. Alpha/Bravo Corner



Note: Adapted from [Google street view 21 Molenstraat, 8790 Waregem, Belgium]
<http://bit.ly/2NtesPb>.

Figure 4. Aide Alpha



Note: Adapted from [Google street view 21 Molenstraat, 8790 Waregem, Belgium]
<http://bit.ly/2u9koE8>.

Figure 5. Alpha/Delta Corner



Note: Adapted from [Google street view 21 Molenstraat, 8790 Waregem, Belgium]
<http://bit.ly/2KySWKZ>.

You are responding to this incident as the company officer or AIC of the first arriving engine and have a crew of three. Wind speed is approximately 26 mph (42 kph) from the southwest (Weather Underground, 2018; Phyfferoen & D’Haeveloose, 2018). Your dispatch information indicates a residential fire at 21 Molenstraat. You are responding from the east on Molenstraat. A water tender with a staffing level of two will arrive within four minutes after you. A command officer will arrive approximately two minutes later.



Time starts now! Answer the first eight questions within the next 10 minutes. Save discussion until after you have answered these questions.

1. What critical factors would you consider when dispatched and during response and what conversations would you have with the members of your crew while responding?
2. Based on the dispatch information and what you know about this occupancy and response area, what do you anticipate finding on arrival?



Important! Answer questions 3 through 8 in the form of communication you would have with your crew, dispatch, other companies, and the first arriving command officer. State the communications exactly as you would say them face-to-face or over the radio. Save explanation or discussion until after you have completed these questions.

Figure 6. Conditions on Arrival Side Alpha



Note: Adapted from Phyfferoen, G. & D’Haeveloose, W. (2018). Brandweerzone FLUVIA woningbrand 17.01.2018 te Waregem.

3. State your initial radio report (IRR) exactly as you would transmit it to ICOM.

4. What specific actions would you take (as the company officer) immediately upon arrival and exiting the apparatus?

As you do your 360° reconnaissance, you determine that the narrow alley on Side Bravo provides access to Side Charlie of the fire occupancy. You observe that the building is two stories in the rear and that there is no basement. Flames are visible from several windows as illustrated in Figure 7.

Figure 7. Conditions on Side Charlie



Note: Adapted from Phyfferoen, G. & D’Haeveloose, W. (2018). *Brandweerzone FLUVIA woningbrand 17.01.2018 te Waregem*.

5. State your update report exactly as you would transmit it to ICOM.
6. Would you modify the assignments given to members of your crew? If yes, state the task orders you would give them at this point.
7. State the tactical assignment you would give the water tender exactly as you would transmit it?
8. Based on 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 one through eight before answering the next eight questions. Think about what cues, patterns, or anomalies (differences from conditions that you would anticipate) informed your answers.

9. What information most influenced your expectations?
10. Did anything in the incident post-arrival challenge your initial expectations?
11. What was the actual problem once you arrived?
12. What were your tactical priorities and what was getting in the way of achieving them?
13. During initial operations, was there an immediate threat of serious injury or death to you, your crew, or other companies?
14. Was it reasonable to believe that the building was occupied?
15. Was there searchable space?
16. If you believed there was searchable space and that it was reasonable that the building was occupied, what could you do about it?

The first arriving engine from Brandweerzone FLUVIA (FLUVIA Fire Service Zone) stretched a 45 mm (1-3/4") attack line on Side Alpha with the intention of making entry through the door for fire control and primary search. When opening the door to check interior conditions prior to entry, miscommunication between the firefighters on the attack line resulted in the door remaining open. The company officer (IC #1) did not initially perform a 360° reconnaissance (most of the buildings along this street do not have

access to the rear without going through the interior). However, after the attack line was stretched and the door was opened, he discovered the small alley on Side Bravo, leading to Side Charlie.

Watch the short [video](#) (Nuyttens, 2018) taken shortly after the first arriving engine opened the door on Side Alpha. Click the link above or scan the QR code to access the incident video.



17. Examine the arrival photo of Side Alpha (Figure 6) and conditions on Side Charlie (Figure 7). What did the Building, Environment, Smoke, Air Track, Heat, and Flame Indicators tell you about the building, fire location and extent, stage(s) of fire development, and burning regime (fuel/ventilation limited)? How did the BE-SAHF indicators change after the door was opened (incident video and Figure 8)? What does this additional information tell you about fire conditions?

Figure 8. Initial Operations



Note: Adapted from Nuyttens, K. (2018). Wind driven fire [Video]. <http://bit.ly/2uekLNx>.

18. How would closing the front door at the point illustrated in Figure 8 have impacted fire conditions? If you lost control of the door and had hot smoke exiting at high velocity as illustrated in this photo, how could you regain control of the door and establish door control?

After IC #1 completed 360° reconnaissance, he redeployed the attack line to Side Charlie and initiated an exterior attack through the windows. Shortly after application of water from Side Charlie, companies were able to make entry, establish fire control, and complete primary search of the remainder of the house.

For more information on strategies and tactics related to wind driven fires review East County Fire and Rescue Standard Operating Guideline (SOG) 4.3.1 Structural Firefighting Under Wind Conditions (CWIFR, 2024).

References

East County Fire and Rescue (ECFR). (2024). *Standard operating guideline 4.3.1 structural firefighting under wind conditions*. Retrieved June 5, 2026, from <https://bit.ly/4e6Cnr1>.

Google. (2009). [Google street view 21 Molenstraat, 8790 Waregem, Belgium]. Retrieved July 8, 2018 from <http://bit.ly/2NtesPb>.

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