



# 10 Guidelines for Coordinating Ventilation

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## **#1: Communicate with the officer in charge of the fire floor (and the incident commander) prior to executing ventilation operations.**

- Incidents necessitating I.C. authorization for additional accountability:
  - Wind-impacted
  - Hoarding conditions
  - Deep-seated/Below-grade fire
  
- Vent prompts:
  - “In position.” (venting firefighter announcing they are ready and where)
  - “Hold off.” (fire floor officer announcing they are *not* ready for vent)
  - “Vent. Vent.” (fire floor officer requesting/confirming vent)

## **#2: Control the door to the fire area until the nozzle team is ready to make entry with a charged handline, and quickly scan/sweep the immediate area prior to advancing.**

- Perform a rapid entry scan (“belly down” inside the doorway) to look for the 3 L’s:
  - Life
  - Location
  - Layout
  
- Thermal imager sequence:
  - Scan the ceiling and assess the velocity of the thermal currents
  - Trace the ceiling to the far wall
  - Rotate 90° (orienting the screen vertically) and assess the thermal balance
  - Scan to the left, to the right, and down at the floor ahead
  - Identify your travel path and put the TIC down before you advance
  - Scan the entryway at about the hallway point to re-assess conditions
  
- Search crews can enter ahead of the handline if conditions allow:
  - Door must be controlled after entry is made – restricting the intake
  - Ensure the door does not latch shut to prevent forcible entry issues
  - Place a spring-clamp on the knob-side or engage the deadbolt to do so
  - Should have a 2.5-gallon pressurized water can to knockback/confine fire
  
- Prop the door open when the nozzle team is ready to advance in on the fire
  - Maximize the intake and air exchange to aid in suppression/tenability
  - Ensures unobstructed movement of the handline through the entryway
  - Move the spring-clamp to the hinge-side or place a chock to do so
  
- Replace the door to the fire room if it is burning through or one is not present
  - Remove an adjacent door from its hinges and prop it up in the doorway
  - Hang a hook on the top hinge and slam the door closed to force it off

**#3: Access the fire on its level and from the upwind side, operating within the intake path, whenever feasible.**

- Impact of sustained wind speeds on fire conditions:
  - o 10-15mph = moderate
  - o 20-25mph = severe
- Gauging wind speed by flag angle (check when leaving quarters):
  - o Half extension (45°) ≈ 10mph
  - o Full extension (90°) ≥ 20mph
- Alternative measures when access is limited:
  - o Wall breaching (i.e., adjacent apartment)
  - o Wind control devices (e.g., KO Fire Curtain, smoke curtain)
  - o Exterior stream (e.g., High-Rise/Floor-Below Nozzle, blitz attack)

**#4: Use the downwind side of the building when venting for extinguishment.**

- Ensures the wind is not blowing into the opening (towards the advancing crews)
- The sides adjacent to the upwind side can easily become affected if the wind shifts
- Using the downwind side of a peaked roof provides cover from the wind

**#5: Vent in a manner that does not create an exposure problem.**

- Vent openings should not impinge on any exposures, victims, or firefighters
- Avoid venting below areas of refuge and access/egress
  - o Exhausting heat and smoke can endanger victims or firefighters operating
- Exposure hazards:
  - o Buildings in close proximity
  - o Combustible siding
  - o Windows directly above or across
  - o Fire escapes and open porches
- Radiant heat can pass through glass and ignite combustibles before window failure

**#6: Ensure suppression is initiated or imminent prior to horizontally venting for extinguishment.**

- Nozzle team must be moving in – capable of flowing water to the seat of the fire
- Verbal confirmation is ideal, but signs of extinguishment are sufficient
- Vent the top pane of the window first (assessing the conditions) then the bottom
  - o Where the heat/smoke are accumulating – venting them immediately
  - o Weakest area of the glass (subjected to the highest heat)
  - o Prevents large sections of glass from being dislodged at once

- Trim out the entire opening (remove sash, window treatments, A/C unit, gates, etc.)
  - o Maximize the opening size and exhaust capacity

**#7: Ensure suppression is initiated or isolation of the targeted area is achieved or imminent prior to horizontally venting for search, unless required to affect a rescue.**

- Window-initiated (“targeted”) search procedures:
  - o Place the ladder just beneath the sill
  - o Position head-level with the sill in full PPE
  - o Use the length of the hook to take the top corner of the window first
  - o Briefly evaluate and determine tenability
  - o Trim out the remainder of the opening
  - o Sweep and sound the floor for victims and integrity
  - o Make entry and immediately locate the doorway (use TIC if available)
  - o Use the “Corner Trick” – traveling opposite the outside corner to do so
  - o Briefly scan the hallway for victims and assess the conditions
  - o Control the door to isolate the room
  - o Search the space and report the findings
  - o Extend the search beyond if feasible and authorized
  - o Control the door when exiting if the fire is not in check
  
- Door-initiated (“conventional”) search procedures:
  - o Enter the room
  - o Control the door to isolate the room
  - o Search the space and report findings
  - o Feel up the outside walls for windows
  - o “Vent as you go” if the room is isolated from the fire
  - o Windows can serve as an alternative means of victim removal
  - o Remove victims in the manner that will maximize survivability
  - o Control the door when exiting if the fire is not in check

**#8: Ensure suppression is initiated or imminent, or isolation of the targeted area is achieved prior to vertically venting, unless there is potential for a wind-impacted condition or a deflagration.**

- Venting for extinguishment over the fire:
  - o Nozzle team must be moving in – capable of flowing water to the seat
  - o Verbal confirmation is ideal, but signs of extinguishment are sufficient
  
- Venting for access/search over an enclosed stairway:
  - o Can be done preemptively if there is control over the fire apartment door
  - o Shall not be performed until the fire is in check if wind-impacted
  
- Bulkhead doors should be accessed to search the top-floor landing for victims
  - o Door integrity and control must be maintained until authorized to vent
  
- Mechanical ventilation fans can pressurize enclosed stairways to maintain tenability
  - o Can reduce the effects a wind-driven fire – not reverse it

- Vertical openings can prevent or minimize the effects of a deflagration
- Procedures for deflagration (e.g., backdraft) venting:
  - o Ensure a charged handline is in a shielded position and ready to move in
  - o Vent at the highest point – using natural openings first when feasible
- Contributing factors and potential signs of an impending backdraft:
  - o Building or void space tightly sealed up (e.g., attic/cockloft or knee-wall)
  - o Severely ventilation-limited fire conditions
  - o Yellow-/mustard-colored smoke
  - o Smoke reversal
  - o Smoke pushing from the seams of the building
- Signs of vertical extension or attic/cockloft involvement (must be communicated):
  - o Smoke and/or embers discharging from soil pipes or vents
  - o Soil pipes that are hot
  - o Melting tar at the base of the soil pipes and melting snow/ice
  - o Smoke venting from the eaves or gable louvers or pushing from shingles

**#9: Ensure the nozzle team is in position with a charged handline prior to opening up walls and ceilings.**

- Opening up to access concealed (void) spaces is a form of ventilation
- Try to be within a doorway when initially pulling ceilings
  - o Most important when breaching the top-floor ceiling
  - o Provides protection if the sheathing violently drops (e.g., cockloft explosion)
  - o Make your purchase/inspection hole with the handle/pry-end of the hook
  - o Easier to penetrate and limits the size of the initial opening
- Exercise caution when fire is suspected in the knee-walls of a finished half-story:
  - o Do not overcommit – conditions can deteriorate rapidly
  - o Stage the handline at the top of the stairs until the seat has been located
  - o Use TIs and inspect the knee-walls before advancing
  - o Keep inspection holes small
  - o Check the near-side from the top of the stairs first and address one at a time
  - o Nozzle can be inserted into an inspection hole if conditions are severe
  - o Coordinate vertical vent to limit extension and relieve the conditions

**#10: Ensure the integrity of the route being traveled, maintain the egress path, and establish a secondary means.**

- Sound/probe the surface ahead when transitioning and moving on/in a space
- Know your way out and locate/obtain a back-up in case of emergency
- Keep yourself between any openings being made and the means of egress
- Work from the furthest point back to the means of egress when opening up