Ventilation

411.1 INTRODUCTION

Ventilation supports the departments primary function, which is rescue (Life Safety) at all structure fires.
Ventilation allows for safer working conditions.
Ventilation allows for higher victim survivability and rescue.

The Euless Fire Department accepts that there is no one size fits all ventilation tactic, but the strategy of ventilation will be implemented at all structure fires where smoke and heat are factors.

411.2 WIND

Wind direction and speed are the most important factors to consider during any ventilation assessment. The preferred tactic is to attack the fire with the wind at the crews back. Entering the structure with the wind opposing your advance is extremely dangerous.

411.3 VENTILATION TACTIC

Positive Pressure Attack (PPA)

Fan set into the structure prior to firefighters entering.
PPA is easy to initiate and can be utilized on a wide variety of structure types and fire conditions.
If the fire gets a backup line it should also get a backup fan.

Who

(a) Initial arriving company

What

(a) Produce or improve exhaust opening (take windows) Exhaust is mandatory.
(b) Place fan at ventilation opening
(c) Allow fan to operate for 30 seconds prior to entering

When

(a) Known location of fire
(b) Fire near perimeter of structure
(c) Before the fire attack crew enters

Where

(a) Vent the window(s) nearest the fire, plus one in a common area.
(b) Windows are better than doors.

No Go

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(a) Backdraft condition

(b) If flames / heavy smoke are exiting the vent opening above the fan do not enter until more vent exhaust is created.

(c) If victim is at vent exhaust (open window) do not use PPA

Caution - If fire attack is delayed for any reason turn off fan. Overhaul aggressively after fire is controlled, turn fan off and check for signs of hidden fires.

411.4 VERTICAL VENTILATION

Ventilation that capitalizes on smoke and heats natural tendency to rise.
Vertical ventilation takes more time to establish, but may be extremely beneficial during moderate to heavily involved fires producing extreme amounts of smoke.

Who

(a) Crew on the first alarm.

What

(a) Open existing roof opening or cut a hole.

When

(a) Top floor fires

(b) Flat roof structures

(c) Backdraft conditions

(d) Wind conditions do not allow other ventilation tactics.

Where

(a) Close to the seat of the fire.

(b) Leeward side of the roof.

No Go

(a) Roof integrity is compromised

(b) Light weight roofs.

Caution - Smoke conditions can obscure roof obstacles. The size of the hole must be adequate to allow products of combustion the ability to exit.

411.5 AUXILIARY VENTILATION TACTICS

411.5.1 HORIZONTAL VENTILATION - COORDINATED

Ventilation that utilizes pressure differentials to remove smoke from a structure. Pressure inside a structure on fire will be higher than the outside environment. On small to moderately involved

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structure fires horizontal ventilation may be adequate. Horizontal ventilation coordinated with the attack crew will decrease the chance of steam related injuries by allowing heat, smoke, and steam an exit during fire attack.

Who

(a) Crew assigned by command or Vent group to take windows out (OV Outside Vent).

What

(a) Take windows or create openings - gable end.

When

(a) During the initial phase of fire attack

Where

(a) Ahead of advancing crews

No Go

(a) If wind is not at the attack crews back do not take the glass.

Caution - Any ventilation opening will impact fire conditions. Horizontal ventilation must be coordinated between vent group and any interior crew.

411.5.2 VENT ENTER ISOLATE SEARCH (VEIS)

Vent enter isolate search is a tactic that allows high risk areas of a structure to be ventilated and searched rapidly. Any opening into a fire involved structure will impact fire conditions.

Who

(a) Crew assigned by command to begin VEIS (Likely to be Search Group).

What

(a) Vent an opening from the exterior
(b) Enter the room
(c) Sound the floor
(d) First priority is to isolate the room
(e) Search the room
(f) Exit the room through the same entrance

When

(a) Fires with high probability of life hazard and known salvageable victims
(b) Interior access is difficult, delayed, or not accessible

Where

(a) Bedrooms are the target areas to search when utilizing VEIS

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(b) Floors above the fire floor will benefit from VEIS

No Go

(a) If fire conditions do not allow entry, victim survivability is unlikely.

Caution - Victim may be at window unconscious, sound the area under the window with caution.

411.5.3 POSITIVE PRESSURE VENTILATION - COORDINATED

Positive pressure ventilation is a post fire control method of smoke removal. PPV is an overhaul tactic to decrease additional smoke damage.

Who

(a) Crew assigned by Command.

What

(a) Uses a fan to increase velocity of wind to remove smoke through a ventilation exit.

When

(a) After the fire has been located and forward progress has been halted.

Where

(a) PPV can be utilized to systematically remove smoke and heat from a structure.

No Go

(a) Fire extension has not yet been verified.

(b) Crews are situated between the seat of the fire and the vent exit.

Caution - Interior crews must be made aware of PPV use and position of the fan.

411.5.4 TRENCH CUT

A trench cut is a defensive ventilation tactic aimed at stopping the lateral spread of heat, smoke, and fire in common attic areas of large structures. This tactic is time, equipment, and manpower intensive. If conditions warrant a trench cut, do not hesitate to allocate multiple crews to this assignment; it may halt the fire and allow attack crews to gain control.

Who

(a) A large vent group will be assigned to this task.

(b) Multiple units will be needed for this tactic to be successful.

What

(a) A trench cut is a fire break extending the entire width of the building 3-4' wide.

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(b) A trench cut should be done in conjunction with a vertical ventilation (heat) hole over the fire.

When

(a) Large buildings with common attics.

(b) Fire where horizontal spread cannot be stopped.

Where

(a) The trench should be placed well in advance of the fire to allow completion.

(b) A second trench cut should be attempted if time allows 20-30' feet beyond the first.

No Go

(a) If less than half the building will be saved.

(b) If roof conditions do not allow multiple crews operating on the trench.

Caution - Ideally a trench cut should be attempted early in an incident. If the trench cut is the last ditch effort to stop the horizontal spread of fire it may be too late and unsafe to attempt at all.

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