

Egg Harbor Fire Department and First Responders Standard Operating Guideline

SUBJECT : Vertical ventilation directions
for structure fires.

SOG 810

Purpose: The purpose of this SOG is to establish a guideline to provide vertical ventilation direction for structure fires.

Scope: This procedure applies to all members of the Egg Harbor Fire Department.

SAFETY:

Safety must be the primary consideration during every vertical ventilation procedure. No personnel shall be allowed on bowstring truss or tile roofs during fire conditions. Operating above a fire is an extremely hazardous situation. Understanding this policy and practicing it shall help to ensure our firefighters' safety during vertical ventilation operations.

POLICY:

The first arriving company and the Incident Commander should evaluate roof conditions prior to committing to vertical ventilation. Aerial apparatus should be strategically placed to allow for safe access to and from the roof. Crews must enter the roof from an established safe area and must have a secondary means of escape. The first personnel reaching the roof must quickly evaluate conditions to assure the roof is structurally sound before attempting to work on it. Once on the roof, personnel must evaluate their route and progress as they proceed.

Truss style roof construction-**During fire operations, great concern should be given in putting firefighters on the roof.** Due to the lightweight construction and the effect of heat on the trusses.

Bow String Roofs – **During fire operations, no fire fighters shall operate on a bow string roof.**

Residential Tile Roofs – **During fire operations, no firefighters shall operate on residential tile roofs.** Due to the lightweight truss construction massive weight of roof tiles, it is unsafe to operate on these roofs. Alternatives to roof ventilation must be addressed. Vertical ventilation shall only be achieved by working off of an aerial ladder by performing a basket cut.

Commercial Tile Roofs – **During fire operations, no firefighters shall operate on commercial tile roofs.** Most tile on commercial buildings is limited to facades or overhangs, certainly hazards by themselves. Any commercial building that has a complete tile roof is generally a small, residential style building, built with the same lightweight truss construction. The same considerations apply as for residential tile roofs. Vertical ventilation of a commercial tile roof shall only be achieved by working off an aerial ladder.

Roof Sector Operations

The initial fire control strategy should consider the structural conditions and the amount of fire, or the effects of the fire, on the roof. It should also consider locations of heavy objects, such as HVACs, that are affected by fire conditions. Such strategy must include a ventilation plan.

The officer, or firefighter, in charge of the roof operations must:

1. Ensure a second means of egress. If two aerials are available, each can be set for roof operations. One ladder, whether aerial or ground, shall be placed as a secondary means of egress should conditions deteriorate and the original ladder becomes unreachable. Placement should be on the same side of the structure (A, B, C, D) as the original ladder, toward the unburned area of the structure.
2. Recommended equipment for vertical ventilation includes, but is not limited to, the following:
 - Chainsaw
 - 10' pike pole
 - Flathead axe
 - Roof ladder for pitched roofs
3. Determine a safe working surface. The first firefighter off the ladder must aggressively sound the roof prior to stepping on it. Any sign of weakness (spongy, soft, growing pipes, melting tar).should eliminate anyone from accessing the roof.
4. Keep the number of firefighters on the roof to the minimum necessary to complete the ventilation task. Extra personnel and the additional weight may compromise the situation should the operation turn bad.
5. Coordinate roof ventilation with interior crews.
6. Complete adequate size ventilation hole(s) and achieve effective ventilation. An adequate size ventilation hole must be cut and opened if ventilation is to be successful. A ventilation hole of at least 4' x 4' for a residential fire, and 4' x 8', or larger, for a commercial fire is a good rule of thumb to consider. Be sure to sound the roof for trusses so you do not cut them.

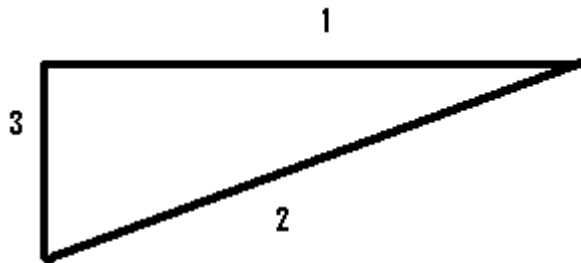
7. Continually monitor roof structure and fire conditions.
8. Continually monitor the radio traffic. Deteriorating conditions inside may indicate a need to vacate the roof.
9. Provide progress reports to Command. The roof officer should advise Command when ventilation holes are completed.
10. Ensure that once roof operations are finished, everyone exits the roof promptly. There is no need to hang around on the roof.

In some cases, more than one hole will be required. As one hole is opened, the saw operator should cut additional holes in the next adjacent areas. Crews must move from the first hole toward safer areas with each consecutive ventilation hole. All roof operations personnel shall wear full protective clothing and equipment when operating above a fire. SCBA with face pieces connected will be worn at all times while operating above a fire.

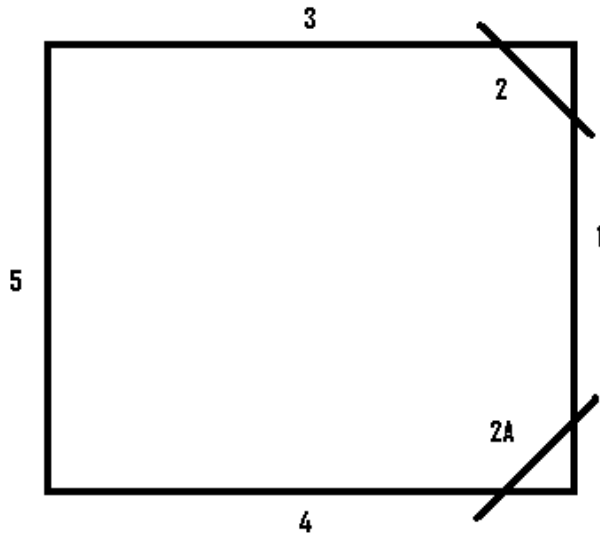
Cut Patterns

There are several cut patterns that are accepted in vertical ventilation. Below are examples of cut patterns accepted by the EHFD:

Basket cut made from an aerial device



Standard 4' x 4' cut with observation hole/purchase points



Trenching

When considering trench cuts, it is important to consider this form of ventilation is a **defensive** operation aimed at stopping a fast moving fire. To properly perform a trench cut requires significant manpower, equipment, and time to perform. These factors must be considered when determining when and where a trench cut will be performed.

The EHFD recommends the, “Get on, Get off” concept of vertical ventilation. This concept focuses on sending a minimum number of firefighters, with a minimum amount of equipment, to perform the ventilation in the minimum amount of time. Practicing this concept significantly reduces the time firefighters are on the roof and exposed to potential hazards.