

Grand Forks Fire Department

Standard Operating Procedures

SOP# 603.06	Section Emergency Operations	Title Ventilation
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I. Scope

This standard applies to incidents involving structures and confined areas where the prompt removal of smoke, heat, and other products of combustion is necessary to quickly and safely extinguish the fire.

II. General

- A. Prompt and efficient ventilation is necessary to mitigate the potentially harmful effects of smoke, heat, and other contaminants within structures and confined areas.
- B. If unchecked, smoke and heat contribute to property damage and can injure and kill those who become trapped.
- C. Smoke and heat also hinder firefighters in their efforts to perform search and rescue operations, as well as suppression.
- D. Therefore, it is the policy of this department to provide prompt and proper ventilation in all buildings and confined areas in which smoke, heat, or other products of combustion are present unless otherwise ordered by the IC.

III. When to Ventilate

- A. Ventilation shall always be performed whenever:
 - 1. Heat, smoke, and other products of combustion are present.
 - 2. Hose crews cannot effectively make an interior attack due to excessive heat and poor visibility.
 - 3. Heat, smoke, and other products of combustion block escape routes for the occupants of the structure.

B. When performing ventilation, the following safety precautions should be observed:

1. Read the smoke. Observe conditions that might indicate that the potential for flashover or backdraft is present.
2. Never direct hose streams into ventilation openings.
3. Always have charged hoselines in place prior to beginning ventilation.
4. Maintain communications.
5. Wear full protective clothing and SCBA.
6. Always consider structural soundness.
7. Exercise caution whenever using power saws, axes, and other sharp instruments.
8. Use a roof ladder, aerial platform or secure a lifeline to any firefighter who is on a potentially weakened roof.
9. Remember that improper ventilation techniques may contribute to fire spread.

IV. Types of Ventilation

- A. Natural: Accomplished by making use of wind currents. Open the building on the leeward side to allow the smoke to escape, then open the windward side to provide fresh air currents.
- B. Mechanical: Use of electric or gasoline-powered fans or blowers to evacuate smoke from the building or confined space.
 1. Negative pressure: Exhaust smoke from the building.
 2. Positive pressure: Blow fresh air into the building to force the smoke out.
- C. Horizontal: Generally inflicts less damage to the building than vertical ventilation, since it is typically accomplished through available portals such as doors and windows.
- D. Vertical: May also take advantage of natural building features, such as skylights, shafts, and rooftop stairways. Many times, the only option is to cut ventilation openings into the building itself.