



Fire Protection Training

Procedures Handbook 4300

STRUCTURE FIRES

TOPIC: Structure Fire Ventilation

TIME FRAME: 1 Hour

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will list and describe the principles and procedures for ventilation.

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- Appropriate visual aids
- Audio visual equipment

REFERENCES:

- IFSTA, Essentials of Fire Fighting, 2nd Edition, Chapter 11
- IFSTA, Fire Ventilation Practices, 6th Edition, Chapter 4

PREPARATION: Other than rescue, there is no step more important in fire fighting than timely, proper and adequate ventilation. A prompt and aggressive approach to ventilation is essential to control the hot, smokey, potentially large loss fire. Neglected, improperly performed, inadequate, late or premature ventilation procedures can negate the rest of the fire fighting operation.



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STRUCTURE FIRE VENTILATION

PRESENTATION	APPLICATION
<p>I. VENTILATION</p> <p>A. Definition - The Systematic Removal of Heated Gases, Smoke and Other Byproducts of Combustion from a Structure and the Introduction of Cooler Air</p> <p>II. BENEFITS OF VENTILATION</p> <p>A. More Tenable Environment for Victims and Firefighters</p> <ol style="list-style-type: none">1. Less heat2. Less toxic gases3. Less risk of backdraft or flashover4. Less humidity <p>B. Speeds Interior Operations</p> <ol style="list-style-type: none">1. Less vapors to support combustion2. Better visibility3. Potentially less fire spread <p>C. Reduces Property Damage</p> <ol style="list-style-type: none">1. Smoke and other by products exhausted to outside2. Better water application and conservation <p>III. CONSIDERATIONS PRIOR TO VENTILATING</p> <p>A. Is Ventilation Necessary or Desirable</p> <ol style="list-style-type: none">1. Phase of fire<ol style="list-style-type: none">a. Flashoverb. Backdraft	



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PRESENTATION	APPLICATION
<ul style="list-style-type: none">2. Size of fire<ul style="list-style-type: none">a. Intensity3. Amount of smoke4. Fully involvedB. Wind Speed and DirectionC. Direction of Interior Fire Spread<ul style="list-style-type: none">1. Can alternate direction be dictatedD. Building Construction Features<ul style="list-style-type: none">1. Number, size, and location of existing openings2. Automatic venting system3. Heating, air conditioning, and ventilation (HVAC) air handling systems4. Fire resistive capability of structural components especially the roof support system5. Slope of the roof6. Ability to breach walls and/or roofE. Exposures<ul style="list-style-type: none">1. Distance2. Value3. Construction material4. Ability to protectF. Adequacy of Resources to Ventilate and Conduct All Other Firefighting Operations SimultaneouslyG. Timeliness of Ventilation	



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PRESENTATION	APPLICATION
<ul style="list-style-type: none">1. Reflex time<ul style="list-style-type: none">a. The time from which an order is given until the time the action is accomplished2. Is ventilation too slow to meet incident objectives <p>H. Contents of Structure</p> <ul style="list-style-type: none">1. Explosives2. Corrosives3. Oxidizers <p>IV. CONSEQUENCES OF IMPROPER VENTILATION</p> <p>A. Opening Wrong Place</p> <ul style="list-style-type: none">1. Encourages vertical and/or horizontal fire extension into uninvolved areas2. Jeopardizes safety of interior attack crews and victims3. Can lead to backdraft if at or below seat of the fire4. Increases smoke damage5. May jeopardize exposures <p>B. Opening Prematurely</p> <ul style="list-style-type: none">1. Encourages vertical and horizontal fire extension2. Jeopardizes safety of interior attack crews and victims3. Dramatically increases intensity of fire <p>C. Inadequate Size Opening</p>	



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PRESENTATION	APPLICATION
<ul style="list-style-type: none">1. Negates benefit of ventilation<ul style="list-style-type: none">a. Jeopardizes firefighters and victims<ul style="list-style-type: none">(1) Backdraft(2) Flashoverb. Less comfortable work environmentc. Increases smoke and water damaged. Allows fire extensionD. Venting on Windward Side of Building<ul style="list-style-type: none">1. Pushes fire through structure2. Pushes smoke through structure3. Drives smoke, heat and fire back on firefighters and occupantsE. Water Application Down Vent Hole<ul style="list-style-type: none">1. Drives smoke, heat, steam and gases down on victims, and firefighters2. Will negate venting operation3. Can spread fire throughout the structure4. Disrupts thermal balance	



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SUMMARY:

Ventilation is one of the most valuable tools in the Incident Commanders tool box. It is also one of the least used. Done properly ventilation can assist every other fireground operation.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).