



PROCEDURES MANUAL

SUBJECT: Structure Fire Operations- Chimney/Flue/Ventilation Duct Fires

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A. Purpose

This topic is intended to establish a methodical, standardized approach for use at confirmed chimney, flue and ventilation duct system fires. The guideline shall not preclude Operations 202.01 Response to Structural Fires.

B. Priorities:

1. **Rescue**
2. **Fire control**
3. **Property Conservation**

C. Policy

Fires in a chimney, flue and commercial kitchen exhaust / ventilation duct system can occur at anytime. These fires present unique challenges due to the limited opportunity to visualize and access the fire area. These fires require specialized tactics in order to extinguish them in a timely manner while ensuring that the fire does not extend out of the chimney, flue or duct and involve other portions of the structure. It is important that these fires are approached in a methodical and standardized manner.

Response to a chimney, flue, ventilation or duct fire will be dispatched as a one-alarm structure fire. Once a fire has been identified in one of these areas, the following incident action plan should be instituted.

D. Strategy and Risk Management

1. Strategic goals for a chimney, flue or ventilation duct fire include:
 - a. Extinguishing the fire
 - b. Limiting fire extension
 - c. Ventilation as required

- d. Overhaul
- e. Salvage
- 2. Life safety is always a primary concern. Fortunately, the majority of these types of fires allow for occupants to exit under their own power. Initial arriving companies shall ensure the occupancy is fully evacuated.
- 3. Not all chimney, flue, and ventilation duct fires will show visible signs of combustion from the exterior. A good size up and investigation for fire extension on all floors and the roof shall be conducted.
- 4. Signs of extension into the ceiling and walls include discoloration or blistering of surface materials; hot surfaces noted on the thermal imaging camera and smoke emitting from cracks, electrical outlets, light fixtures, eaves and roof coverings.
- 5. Ceilings and walls should be opened-up when fire extension is suspected, and standard overhaul practices utilized.
- 6. Extinguishment of the chimney, flue, and ventilation duct fires should be focused on reducing damage by limiting fire extension through proper suppression methods. It is recommended ABC dry powder extinguishment bags be utilized for rapid extinguishment while preventing structural damage to the chimney flue system.

E. Operations and Deployment

- 1. Interior Operations
 - a. Interior operations should be focused on removing occupants, locating and extinguishing the fire.
 - b. Advance and place a fire line to the most advantageous exterior door.
 - c. Check the full length of the chimney on all floors for fire extension. Early access to the attic or cockloft should be made.
 - d. Locate the firebox and work to extinguish and remove all hot and combustible material to the outside for final extinguishment via the chimney kit salvage can.
 - e. Salvage covers should be deployed at the base of the firebox or anywhere else where debris could fall to prevent additional property damage as a result of extinguishment efforts.
 - f. Avoid spraying water up the chimney flue to prevent thermal shock to the flue structure. Once extinguishment and removal completed, confirm the exhaust damper is open.
 - g. The firebox should then be starved of airflow via one of the following methods.
 - i. For firebox with an open front, companies should utilize a canvas salvage cover to temporarily cover the opening as tightly as possible.

- ii. For stoves, ovens or fireboxes with doors; shut and close all doors and air intakes in order to limit the airflow to the fire in the flue.
- iii. Fireboxes with a blower fan should have the fan turned off.
- h. When air supply to the fire box has been shut off, notify roof operations to deploy chimney bomb/bombs.
- i. Carbon Monoxide levels should be monitored (usually by SO₂).

2. Roof/Exterior Operations

- a. Roof operations should focus on gaining access to the highest point of the chimney flue for a visual inspection and extinguishment of the fire. Note: with most chimney fires occurring in the winter months, ladder companies are reminded to take precaution on roofs covered with snow and ice.
 - i. Chimney tops may have a cap installed consisting of a screen or spark arrestor. If equipped, all caps on the chimney shall be removed. This will allow for hot material and gas to lift from the chimney flue. Roof operations shall monitor for flying brands exiting the chimney flue to prevent extension.
 - ii. Roof coverings and sheathing around the chimney should be checked for fire extension.
 - iii. Once access to the chimney top is gained, a visual inspection of the chimney flue shall be conducted with the mirror supplied in the chimney fire kit to determine the extent of the fire. If there is fire in the chimney flue, notify command and interior operations, and prepare to deploy chimney bomb/bombs supplied with the chimney fire kit. Do not deploy chimney bomb until interior operations confirm starvation of air supply at the fire box. **DO NOT direct water into chimney flue from chimney top.**
- b. Additional exterior crews should be deployed with tools and thermal imaging camera to make sure there is no extension to exterior sheathing of the structure adjacent to the chimney flue.
- c. Any exterior and or interior clean outs should be examined.
- d. If the initial interior fire line is required to be placed in-service, a second fire line should be stretched to the most advantageous exterior door.
- e. Interior operations will direct roof operations to deploy chimney bomb/bombs. The chimney bomb melts releasing the extinguishment agent as it falls. The heat from inside the fire box and chimney flue will carry the agent vertically extinguishing the fire.

- i. A second chimney bomb may be deployed if the first is unsuccessful in extinguishing the fire.
 - ii. If the chimney bomb falls to the fire box without breaking, a second bag may be deployed.
 - iii. Do Not dump extinguishment powder down a chimney, flue or ventilation duct as this has been proven ineffective.
 - f. If the chimney flue is excessively clogged with creosote, the chimney chain should be deployed. Depending on the chimney flue configuration, the chain weight can be removed. This will allow the chimney bomb to fall the entire length of the chimney flue for complete extinguishment.
 - i. After dropping the first chimney bomb, slowly lower the chimney chain until it reaches the base. Interior crews will notify the roof crew when the chimney chain is at the base.
 - ii. Once confirmation is received from interior operating crews, roof crews should vigorously spin the chain inside the chimney. This will cause the burning creosote to fall to the base of the chimney. Once this is complete raise the chain.
 - iii. Drop additional chimney bombs to extinguish any remaining fire.
 - g. Should the above method be unsuccessful in extinguishing the chimney, flue or ventilation duct fire, the fire may be attacked from the interior at the firebox. This method involves the introduction of ABC dry powder while simultaneously restricting air intake via one of the aforementioned methods.
- 3. Final Overhaul and Salvage
 - a. Once extinguishment is completed, final overhaul and salvage operations shall be conducted.
 - i. Confirm that no fire extension has occurred in all areas near the flu or ventilation duct.
 - ii. Notify occupants to have firebox and chimney flue professionally inspected and cleaned prior to re-use.
 - b. Ventilate as necessary.
 - c. Monitor all areas for CO prior to allowing occupants to return to structure.
 - d. If fire has occurred in the ventilation duct / flue of a commercial kitchen exhaust system, the Building Department and the Health Department must be notified.