

**Analysis of Structural
Firefighter Fatality Database**

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Background

In an effort to more accurately determine the degree of risk associated with Opened and Enclosed Structure Fires, an analysis of 444 cases of firefighter fatalities occurring while on the scene of structure fires was conducted. Examination of the extensive information found in the 16-year Structural Firefighter Fatality Database utilized proved helpful in determining valuable information pertaining to the number of firefighter fatalities which occurred in Opened and Enclosed structure fires and of the tactics utilized. This key database may also serve as an excellent source of information to address other causes of line of duty deaths and as a baseline for comparison in determining progress over time in the reduction of line of duty deaths in each of the fatality categories.

Information Sought

At a minimum, the information sought in this analysis included the total number of line-of-duty-deaths and their distribution between the Opened and Enclosed structures fires that occurred during the sixteen-year time span. To ensure an accurate count of the specific types of traumatic injuries sought, structure fires listed were color coded to differentiate the types of injuries which lead to fatalities during each incident.

Criteria

The criteria used during each incident analysis included:

- A. Focusing on those structure fires in which an interior attack or primary search was initiated and which ultimately resulted in traumatic firefighter fatalities.
- B. The injuries which caused the line-of-duty-deaths were required to be a result of the types of life threatening hazards firefighters may encounter in the interior of a structure fire including: Flashover, Backdraft, a partial or complete collapse of the roof, Collapse of a floor into a basement, or Prolonged Zero Visibility Conditions.

After careful study of the details in each summary, those that met the criteria were color coded.

Color Coding For Structure Type, Action and Outcome

- Red** – Enclosed Structure Fires with interior attacks and traumatic fatalities
- Yellow** – Opened Structure Fires with interior attacks and traumatic fatalities
- Pink** – Type of structure could not be determined with certainty. However, an opened or enclosed structural design would have had nothing to do with the fatality under the criteria. These included fatalities that occurred while doing other tasks such as: chimney falls onto firefighter during overhaul, exterior wall falls outward onto firefighters during exposure protection, a canopy or façade falls onto firefighters or firefighter crushed by apparatus.
- Turquoise** – Heart Attacks, CVAs, cerebral vascular accidents.
- Blue** – Electrocutions.

Findings

Of the 444 Firefighter Fatalities taking place “while on the scene of structure fires,” the criteria was met in 123 structure fires. The 123 structure fires resulted in 176 traumatic Firefighter Fatalities during an aggressive interior attack.

Of 123 total structure fires:

89	(72%)	Involved Enclosed Structure Fires
<u>34</u>	(28%)	Involved Opened Structure Fires
123		Total Structure Fires

Of 176 total Firefighter Fatalities:

135	(77%)	Firefighter Fatalities occurred in an Enclosed Structure Fire
<u>41</u>	(23%)	Firefighter Fatalities occurred in an Opened Structure Fire
176		Total Firefighter Fatalities

Of 38 total multiple Firefighter Fatality structure fires:

32	(84 %)	Occurred in Enclosed Structure Fires
<u>6</u>	(16 %)	Occurred in Opened Structure Fires
38		Total multiple Firefighter Fatality Structure Fires

Conclusion

Over a 16-year time span, firefighters utilizing an interior attack died far more often, in greater numbers and with greater multiple line-of-duty deaths in enclosed structure fires than in opened structure fires. All structure fires are to be considered dangerous and may be fatal to firefighters although enclosed structure fires are significantly more dangerous than opened structure fires.

Source: The United States Fire Administration National Fire Data Center