

## **Residential Fires Involving Chimney Connectors**

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## Residential Fires Involving Chimney Connectors

This analysis used data from the U.S. Fire Administration and NFPA's annual fire department experience survey to create estimates of the number of residential (NFIRS property use 400-499) structure fires (NFIRS incident type 110-129) in which chimney connectors or vent connectors were involved in ignition (NFIRS equipment involved in ignition 125). Residential properties include homes (one- and two-family homes, manufactured housing, apartments and other multi-family housing), dormitories, fraternity and sorority houses, hotels, motels, boarding houses, rooming houses, board and care and assisted living facilities, and unclassified residential properties. In general, any fire that occurs in or in a structure is considered a structure fire, even if the fire was limited to contents and the building itself was not damaged.

The statistics in this analysis are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. Fires with unknown or unreported data were allocated proportionally in calculations of national estimates.

NFIRS 5.0 includes a category of structure fires collectively referred to as "confined fires," identified by incident type. These include confined cooking fires, confined chimney or flue fires, confined trash fires, confined fuel burner or boiler fires, confined commercial compactor fires, and confined incinerator fires (incident type 113-118). Although causal data is not required for these fires, it is sometimes present. The majority (88%) of the confined fires in which chimney or vent connectors were confined chimney or flue fires. Because of the larger percentage of unreported causal factors in confined fires, these should be considered less stable than estimates of non-confined fires.

Confined and non-confined fires were analyzed separately and then summed to obtain total residential fires involving this equipment, and then to identify equipment power sources, areas of origin, and item first ignited. Estimates include proportional shares of fires in which the equipment involved in ignition was unknown or not reported, of fires in which the equipment involved in ignition was entered as none but the heat source indicated equipment involvement or the heat source was unknown, and of fires in which the equipment was coded as unclassified heating, ventilation or air condition equipment.

Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest one and direct property damage is rounded to the nearest hundred thousand dollars. No deaths involving this equipment were reported and civilian injuries averaged only two per year. Consequently, casualty estimates are not shown in the tables. Additional details on the methodology may be found in Appendix A.

**Table 1.**  
**Residential Fires Involving Chimney Connectors or Vent Connectors**  
**by Equipment Power Source**  
**2006-2010 Annual Averages**

Equipment Power Source	Fires		Direct Property Damage (in Millions)	
Solid-fueled equipment	291	(82%)	\$7.4	(82%)
Non-confined	172	(48%)	\$7.4	(82%)
Confined	119	(34%)	\$0.0	(0%)
Electrically powered equipment	40	(11%)	\$0.5	(6%)
Non-confined	11	(3%)	\$0.5	(6%)
Confined	29	(8%)	\$0.0	(0%)
Gas-fueled equipment	23	(7%)	\$1.0	(12%)
Non-confined	15	(4%)	\$1.0	(12%)
Confined	8	(2%)	\$0.0	(0%)
Unclassified fuel or power	1	(0%)	\$0.1	(1%)
Non-confined	1	(0%)	\$0.1	(1%)
Confined	0	(0%)	\$0.0	(0%)
<b>Total</b>	<b>355</b>	<b>(100%)</b>	<b>\$9.0</b>	<b>(100%)</b>
Non-confined	199	(56%)	\$9.0	(100%)
Confined	156	(44%)	\$0.0	(0%)

Note: Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

**Table 2.**  
**Residential Fires Involving Chimney Connectors or Vent Connectors**  
**by Area of Origin**  
**2006-2010 Annual Averages**

Area of Origin	Fires		Direct Property Damage (in Millions)	
Confined chimney or flue fire, identified by incident type*	137	(38%)	\$0.0	(0%)
Wall assembly or concealed space	61	(17%)	\$2.4	(26%)
Non-confined	61	(17%)	\$2.4	(26%)
Confined	0	(0%)	\$0.0	(0%)
Living room, family room, den or common room	28	(8%)	\$1.4	(16%)
Non-confined	28	(8%)	\$1.4	(16%)
Confined	0	(0%)	\$0.0	(0%)
Attic or ceiling/roof assembly or concealed space	14	(4%)	\$1.2	(13%)
Non-confined	14	(4%)	\$1.2	(13%)
Confined	0	(0%)	\$0.0	(0%)
Heating equipment room	14	(4%)	\$0.4	(5%)
Non-confined	8	(2%)	\$0.4	(5%)
Confined	6	(2%)	\$0.0	(0%)
Exterior wall surface	13	(4%)	\$0.0	(0%)
Non-confined	13	(4%)	\$0.0	(0%)
Confined	0	(0%)	\$0.0	(0%)
Kitchen or cooking area	12	(3%)	\$0.7	(8%)
Non-confined	5	(2%)	\$0.7	(8%)
Confined	7	(2%)	\$0.0	(0%)
Duct for HVAC, cable, exhaust, heating, or air conditioning	12	(3%)	\$0.4	(4%)
Non-confined	12	(3%)	\$0.4	(4%)
Confined	0	(0%)	\$0.0	(0%)
Ceiling/floor assembly or concealed space	12	(3%)	\$0.7	(7%)
Non-confined	12	(3%)	\$0.7	(7%)
Confined	0	(0%)	\$0.0	(0%)
Unclassified function area	8	(2%)	\$0.6	(6%)
Non-confined	8	(2%)	\$0.6	(6%)
Confined	0	(0%)	\$0.0	(0%)
Unclassified structural area	8	(2%)	\$0.0	(0%)
Non-confined	8	(2%)	\$0.0	(0%)
Confined	0	(0%)	\$0.0	(0%)

**Table 2.**  
**Residential Fires Involving Chimney Connectors or Vent Connectors**  
**by Area of Origin**  
**2006-2010 Annual Averages (continued)**

Area of Origin	Fires		Direct Property Damage (in Millions)	
Crawl space or substructure space	7	(2%)	\$0.3	(3%)
Non-confined	7	(2%)	\$0.3	(3%)
Confined	0	(0%)	\$0.0	(0%)
Unclassified outside area	6	(2%)	\$0.0	(0%)
Non-confined	0	(0%)	\$0.0	(0%)
Confined	6	(2%)	\$0.0	(0%)
Other known area	24	(7%)	\$0.9	(10%)
Non-confined	24	(7%)	\$0.9	(10%)
Confined	0	(0%)	\$0.0	(0%)
<b>Total</b>	<b>355</b>	<b>(100%)</b>	<b>\$9.0</b>	<b>(100%)</b>
Non-confined	199	(56%)	\$9.0	(100%)
Confined	156	(44%)	\$0.0	(0%)

NFIRS does not have a separate area of origin in code for fires starting in chimneys. Any home fire with NFIRS incident type 114- "Chimney of fire origination in and confined to a chimney or flue" is captured here.

Note: Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

**Table 3.**  
**Residential Fires Involving Chimney Connectors or Vent Connectors**  
**by Item First Ignited**  
**2006-2010 Annual Averages**

Item First Ignited	Fires		Direct Property Damage (in Millions)	
Structural member or framing	101	(28%)	\$5.8	(65%)
Non-confined	101	(28%)	\$5.8	(65%)
Confined	0	(0%)	\$0.0	(0%)
Unclassified item first ignited	54	(15%)	\$0.0	(0%)
Non-confined	4	(1%)	\$0.0	(0%)
Confined	49	(14%)	\$0.0	(0%)
Film or residue, including paint, resin and creosote	27	(8%)	\$0.0	(0%)
Non-confined	3	(1%)	\$0.0	(0%)
Confined	24	(7%)	\$0.0	(0%)
Unclassified organic material	27	(8%)	\$0.0	(0%)
Non-confined	2	(0%)	\$0.0	(0%)
Confined	26	(7%)	\$0.0	(0%)
Exterior wall covering or finish	24	(7%)	\$0.3	(3%)
Non-confined	24	(7%)	\$0.3	(3%)
Confined	0	(0%)	\$0.0	(0%)
Dust, fiber or lint, including sawdust or excelsior	9	(2%)	\$0.4	(4%)
Non-confined	1	(0%)	\$0.4	(4%)
Confined	7	(2%)	\$0.0	(0%)
Multiple items first ignited	8	(2%)	\$0.0	(0%)
Non-confined	0	(0%)	\$0.0	(0%)
Confined	8	(2%)	\$0.0	(0%)
Unclassified structural component or finish	8	(2%)	\$0.2	(2%)
Non-confined	8	(2%)	\$0.2	(2%)
Confined	0	(0%)	\$0.0	(0%)
Exterior roof covering or finish	8	(2%)	\$0.1	(1%)
Non-confined	8	(2%)	\$0.1	(1%)
Confined	0	(0%)	\$0.0	(0%)
Interior wall covering, excluding drapes	15	(4%)	\$0.6	(7%)
Non-confined	15	(4%)	\$0.6	(7%)
Confined	0	(0%)	\$0.0	(0%)
Insulation within structural area	11	(3%)	\$0.4	(5%)
Non-confined	11	(3%)	\$0.4	(5%)
Confined	0	(0%)	\$0.0	(0%)

**Table 3.**  
**Residential Fires Involving Chimney Connectors or Vent Connectors**  
**by Item First Ignited**  
**2006-2010 Annual Averages (continued)**

Item First Ignited	Fires		Direct Property Damage (in Millions)	
Interior ceiling cover or finish	10	(3%)	\$0.7	(8%)
Non-confined	10	(3%)	\$0.7	(8%)
Confined	0	(0%)	\$0.0	(0%)
Cabinetry	9	(3%)	\$0.0	(0%)
Non-confined	0	(0%)	\$0.0	(0%)
Confined	9	(3%)	\$0.0	(0%)
Cooking materials, including food	9	(3%)	\$0.0	(0%)
Non-confined	0	(0%)	\$0.0	(0%)
Confined	9	(3%)	\$0.0	(0%)
Flammable or combustible liquid or gas in or escaping from combustion engine or burner	8	(2%)	\$0.0	(0%)
Non-confined	0	(0%)	\$0.0	(0%)
Confined	8	(2%)	\$0.0	(0%)
Appliance housing or casing	8	(2%)	\$0.0	(0%)
Non-confined	0	(0%)	\$0.0	(0%)
Confined	8	(2%)	\$0.0	(0%)
Palletized material or material stored on pallets	7	(2%)	\$0.0	(0%)
Non-confined	0	(0%)	\$0.0	(0%)
Confined	7	(2%)	\$0.0	(0%)
Other known item	12	(3%)	\$0.4	(4%)
Non-confined	12	(3%)	\$0.4	(4%)
Confined	0	(0%)	\$0.0	(0%)
<b>Total</b>	<b>355</b>	<b>(100%)</b>	<b>\$9.0</b>	<b>(100%)</b>
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