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**Civilian:** The term “civilian” includes anyone other than a firefighter, and covers public service personnel such as police officers, civil defense staff, non-fire service medical personnel, and utility company employees.

**Death:** An injury that occurred as a direct result of a fire that is fatal or becomes fatal within one year.

**Fire:** Any instance of uncontrolled burning. Includes combustion explosions and fires out on arrival. Excludes controlled burning (whether authorized or not), over pressure rupture without combustion, mutual aid responses, smoke scares, and hazardous responses (e.g., oil spill without fire).

**Injury:** Physical damage that is suffered by a person as a direct result of fire and that requires (or should require) treatment by a practitioner of medicine (physician, nurse, paramedic, EMT) within one year of the incident (regardless of whether treatment was actually received), or results in at least one day of restricted activity immediately following the incident. Examples of injuries resulting from fire are smoke inhalation, burns, wounds and punctures, fractures, heart attacks (resulting from stress under fire condition), strains and sprains.

**Property Damage:** Includes all forms of direct loss to contents, structure, machinery, a vehicle, vegetation or anything else involved in the fire but not indirect losses, such as business interruption or temporary shelter provisions.

**Structure:** An assembly of materials forming a construction for occupancy or use in such a manner as to serve a specific purpose. A building is a form of structure. Open platforms, bridges, roof assemblies over open storage or process areas, tents, air-supported, and grandstands are other forms of structures.

**Vehicles, Highway and Other:** Fires in these instances may have been associated with an accident; however, reported casualties and property loss should be the direct result of the fire only. Highway vehicles include any vehicle designed to operate normally on highways, e.g., automobiles, motorcycles, buses, trucks, trailers (not mobile homes on foundations), etc. Other vehicles include trains, boats and ships, aircraft, and farm and construction vehicles.

## Footnotes

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1. Note that the NFPA changed its survey methodology in 1977-78, and meaningful comparisons cannot be made with fire statistics estimated before 1977.
2. The downward trend of home fire deaths for the period was examined by a Spearman's rho correlation coefficient and was found to be statistically significant at the .001 level, while for the death rate per 1,000 home fires, there was no statistically significant trend found.
3. Jennifer D. Flynn., *Characteristics of Home Fire Victims*, July 2010, Quincy: National Fire Protection Association, Fire Analysis and Research Division.
4. Rita F. Fahy and Alison L. Miller, "How Being Poor Affects Fire Risk", *Fire Journal*, Vol. 83, No. 1 (January 1989), p. 28.
5. Ben Evarts, *Intentional Fires*, Quincy: National Fire protection Association, January 2012.
6. As defined by the U.S. Bureau of the Census, the four regions are: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.
7. Steve K. Thompson, *Sampling*, John Wiley, New York, NY, 1992, pp. 107-111.
8. William G. Cochran, *Sampling Techniques*, John Wiley, New York, NY, 1977, pp. 150-161.

Appendix A.  
Fire Loss in the United States Trend Tables, 1977-2012 and U.S. Fire Rates by Unit of Time

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## The U.S. Fire Problem, 1977-2012

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2012 Dollars
1977	3,264,000	7,395	31,190	\$4.7	\$17.8
1978	2,817,500	7,710	29,825	\$4.5	\$15.8
1979	2,845,500	7,575	31,325	\$5.8	\$18.4
1980	2,988,000	6,505	30,200	\$6.3	\$17.6
1981	2,893,500	6,700	30,450	\$6.7	\$16.9
1982	2,538,000	6,020	30,525	\$6.4	\$15.2
1983	2,326,500	5,920	31,275	\$6.6	\$15.2
1984	2,343,000	5,240	28,125	\$6.7	\$14.8
1985	2,371,000	6,185	28,425	\$7.3	\$15.5
1986	2,271,500	5,850	26,825	\$6.7	\$14.0
1987	2,330,000	5,810	28,215	\$7.2	\$14.5
1988	2,436,500	6,215	30,800	\$8.4	\$16.3
1989	2,115,000	5,410	28,250	\$8.7	\$16.1
1990	2,019,000	5,195	28,600	\$7.8	\$13.7
1991	2,041,500	4,465	29,375	\$9.5 <sup>1</sup>	\$16.0 <sup>1</sup>
1992	1,964,500	4,730	28,700	\$8.3	\$13.6
1993	1,952,500	4,635	30,475	\$8.5 <sup>2</sup>	\$13.5 <sup>2</sup>
1994	2,054,500	4,275	27,250	\$8.2	\$12.7
1995	1,965,500	4,585	25,775	\$8.9	\$13.4
1996	1,975,000	4,990	25,550	\$9.4	\$13.8
1997	1,795,000	4,050	23,750	\$8.5	\$12.1
1998	1,755,500	4,035	23,100	\$8.6	\$12.1
1999	1,823,000	3,570	21,875	\$10.0	\$13.8
2000	1,708,000	4,045	22,350	\$11.2	\$14.9
2001	1,734,500	6,196 <sup>3</sup>	21,100 <sup>4</sup>	\$44.0 <sup>6</sup>	\$57.1 <sup>6</sup>
2002	1,687,500	3,380	18,425	\$10.3	\$13.1
2003	1,584,500	3,925	18,125	\$12.3 <sup>7</sup>	\$15.4 <sup>7</sup>
2004	1,550,500	3,900	17,875	\$9.8	\$11.9
2005	1,602,000	3,675	17,925	\$10.7	\$12.6
2006	1,642,500	3,245	16,400	\$11.3	\$12.9
2007	1,557,500	3,430	17,675	\$14.6 <sup>8</sup>	\$16.2 <sup>8</sup>
2008	1,451,500	3,320	16,705	\$15.5 <sup>9</sup>	\$16.6 <sup>9</sup>
2009	1,348,500	3,010	17,050	\$12.5	\$13.4
2010	1,331,000	3120	17,720	\$11.6	\$12.2
2011	1,389,500	3,005	17,500	\$11.7	\$11.9
2012	1,375,000	2,855	16,500	\$12.4	\$12.4

<sup>1</sup>This includes \$1.5 billion in damage caused by the Oakland Fire Storm, most of which was lost to homes but for which no detailed breakdown by property type was available.

<sup>2</sup>This includes \$809 million in damage caused by Southern California wildfires.

<sup>3</sup>This includes 2,451 civilian deaths that occurred from the events of 9/11/01.

<sup>4</sup>This includes 800 civilian injuries that occurred from the events of 9/11/01.

<sup>5</sup>This includes 340 firefighters at the World Trade Center, September 11, 2001.

<sup>6</sup>This includes \$33.44 billion in property loss that occurred from the events of 9/11/01.

<sup>7</sup>This includes the Southern California Wildfires (Cedar and Old Wildfires) with an estimated total property loss of \$2,040,000,000. Loss by specific property type for this fire was not available.

<sup>8</sup>This includes the California Fire Storm 2007 with an estimated property damage of \$1.8 billion.

<sup>9</sup>This includes the California wildfires 2008 with an estimated property damage of \$1.4 billion.

Direct property damage figures do not include indirect losses, like business interruption. Inflation adjustment to 2011 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2012*, Michael J. Karter, Jr., NFPA, September 2013 and previous reports in the series.

## The U.S. Structure Fire Problem, 1977-2012

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage	
				(in Billions) <sup>1</sup> As Reported	In 2012 Dollars
1977	1,098,000	6,505	26,310	\$4.1	\$15.5
1978	1,062,000	6,350	24,985	\$4.0	\$14.1
1979	1,036,500	5,970	24,850	\$5.0	\$15.8
1980	1,065,000	5,675	24,725	\$5.5	\$15.3
1981	1,027,500	5,760	25,700	\$6.0	\$15.1
1982	946,500	5,200	25,575	\$5.7	\$13.5
1983	868,500	5,090	26,150	\$5.8	\$13.3
1984	848,000	4,525	23,025	\$5.9	\$13.0
1985	859,500	5,265	23,350	\$6.4	\$13.6
1986	800,000	4,985	22,750	\$5.8	\$12.1
1987	758,000	4,880	23,815	\$6.2	\$12.5
1988	745,000	5,280	26,275	\$7.2 <sup>2</sup>	\$14.0 <sup>2</sup>
1989	688,000	4,655	24,025	\$7.5 <sup>3</sup>	\$13.9 <sup>3</sup>
1990	624,000	4,400	24,075	\$6.7	\$11.8
1991	640,500	3,765	24,975	\$8.3 <sup>4</sup>	\$14.0 <sup>4</sup>
1992	637,500	3,940	24,325	\$7.0 <sup>5</sup>	\$11.5 <sup>5</sup>
1993	621,500	3,980	26,550	\$7.4 <sup>6</sup>	\$11.8 <sup>6</sup>
1994	614,000	3,590	23,125	\$6.9	\$10.7
1995	573,500	3,985 <sup>7</sup>	21,725	\$7.6	\$11.4
1996	578,500	4,220	21,875	\$7.9	\$11.6
1997	552,000	3,510	20,375	\$7.1	\$10.1
1998	517,500	3,420	19,425	\$6.7	\$9.4
1999	523,000	3,040	18,525	\$8.5	\$11.7
2000	505,500	3,535	19,600	\$8.5	\$11.3
2001 <sup>8</sup>	521,500	3,220	17,225	\$8.9	\$11.5
2002	519,000	2,775	15,600	\$8.7	\$11.1
2003	519,500	3,385 <sup>9</sup>	15,600	\$8.7 <sup>10</sup>	\$10.9 <sup>10</sup>
2004	526,000	3,305	15,525	\$8.3	\$10.1
2005	511,000	3,105	15,325	\$9.2	\$10.8
2006	524,000	2,705	14,350	\$9.6	\$10.9
2007	530,500	3,000	15,350	\$10.6 <sup>11</sup>	\$11.7 <sup>11</sup>
2008	515,000	2,900	14,960	\$12.4 <sup>12</sup>	\$13.2 <sup>12</sup>
2009	480,500	2,695	14,740	\$10.8	\$11.5
2010	482,000	2,755	15,420	\$9.7	\$10.2
2011	484,500	2,640	15,635	\$9.7	\$9.9
2012	480,500	2,470	14,700	\$9.8	\$9.8

<sup>1</sup> Individual incidents with large loss can affect the total for a given year.

<sup>2</sup> The 1988 figure includes a Norco, Louisiana petroleum refinery with a loss of \$330 million.

<sup>3</sup> The 1989 figure includes a Pasadena, Texas polyolefin plant with a loss of \$750 million.

<sup>4</sup> The 1991 figure includes the Oakland fire storm with a loss of \$1.5 billion and the Meriden Plaza high-rise fire in Philadelphia with a loss of \$325 million.

<sup>5</sup> The 1992 figure includes the Los Angeles Civil Disturbance with a loss of \$567 million

<sup>6</sup> The 1993 figure includes Southern California wildfires with a loss of \$809 million.

<sup>7</sup> Includes 168 deaths that occurred at the federal office building fire in Oklahoma City, OK.

<sup>8</sup> Does not include the events of 9/11/01, where there were 2,451 civilian deaths, 800 civilian injuries and \$33.44 billion in property loss.

<sup>9</sup> Includes 100 fire deaths in the Station Night Club Fire in Rhode Island and 31 deaths in two nursing home fires in CT and TN.

<sup>10</sup> Does not include the Southern California wildfires with an estimated property damage of \$2 billion.

<sup>11</sup> This does not include the California Fire Storm 2007 with an estimated property damage of \$1.8 billion.

<sup>12</sup> Does not include the California wildfires 2008 with an estimated property damage of \$1.4 billion.

Direct property damage figures do not include indirect losses, like business interruption. Inflation adjustment to 2011 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2012*, Michael J. Karter, Jr., NFPA, September 2013 and previous reports in the series.

## The U.S. Home Structure Fire Problem, 1977-2012

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2012 Dollars
1977	723,500	5,865	21,640	\$2.7	\$10.2
1978	706,500	6,015	20,400	\$2.1	\$7.4
1979	696,500	5,500	18,825	\$2.4	\$7.6
1980	734,000	5,200	19,700	\$2.8	\$7.8
1981	711,000	5,400	19,125	\$3.1	\$7.8
1982	654,500	4,820	20,450	\$3.1	\$7.4
1983	625,500	4,670	20,750	\$3.2	\$7.4
1984	605,500	4,075	18,750	\$3.4	\$7.5
1985	606,000	4,885	19,175	\$3.7	\$7.9
1986	565,500	4,655	18,575	\$3.5	\$7.3
1987	536,500	4,570	19,965	\$3.6	\$7.3
1988	538,500	4,955	22,075	\$3.9	\$7.6
1989	498,500	4,335	20,275	\$3.9	\$7.2
1990	454,500	4,050	20,225	\$4.2	\$7.4
1991	464,500	3,500	21,275	\$5.5 <sup>1</sup>	\$9.3 <sup>1</sup>
1992	459,000	3,705	21,100	\$3.8	\$6.2
1993	458,000	3,720	22,000	\$4.8 <sup>2</sup>	\$7.7 <sup>2</sup>
1994	438,000	3,425	19,475	\$4.2	\$6.5
1995	414,000	3,640	18,650	\$4.3	\$6.5
1996	417,000	4,035	18,875	\$4.9	\$7.2
1997	395,500	3,360	17,300	\$4.5	\$6.4
1998	369,500	3,220	16,800	\$4.3	\$6.1
1999	371,000	2,895	16,050	\$5.0	\$6.9
2000	368,000	3,420	16,975	\$5.5	\$7.3
2001	383,500	3,110	15,200	\$5.5	\$7.1
2002	389,000	2,670	13,650	\$5.9	\$7.5
2003	388,500	3,145	13,650	\$5.9 <sup>3</sup>	\$7.4 <sup>3</sup>
2004	395,500	3,190	13,700	\$5.8	\$7.1
2005	381,000	3,030	13,300	\$6.7	\$7.9
2006	396,000	2,580	12,500	\$6.8	\$7.7
2007	399,000	2,865	13,600	\$7.4 <sup>4</sup>	\$8.2 <sup>4</sup>
2008	386,500	2,755	13,160	\$8.2 <sup>5</sup>	\$8.8
2009	362,500	2,565	12,650	\$7.6	\$8.1
2010	384,000	2,640	13,350	\$7.1	\$7.5
2011	370,000	2,520	13,910	\$6.9	\$7.0
2012	365,000	2,380	12,875	\$5.7	\$5.7

<sup>1</sup>Includes \$1.5 billion in damage caused by the Oakland Fire Storm, most of which was lost to homes but for which no detailed breakdown by property type was available.

<sup>2</sup>Includes \$809 million in damage caused by Southern California wildfires

<sup>3</sup>This does not include the Southern California wildfires with an estimated property damage of \$2 billion.

<sup>4</sup>Does not include the California Fire Storm 2007 with an estimated property damage of \$1.8 billion

<sup>5</sup>Does not include the California wildfires 2008 with an estimated property damage of \$1.4 billion.

"Homes" are dwellings, duplexes, manufactured homes (also called mobile homes), apartments, rowhouses, and townhouses. Other residential properties, such as hotels and motels, dormitories, barracks, rooming and boarding homes, and the like, are not included.

Direct property damage figures do not include indirect losses, like business interruption. Inflation adjustment to 2010 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2012*, Michael J. Karter, Jr., NFPA, September 2013 and previous reports in the series.



## One- and Two-Family Home Structure Fires <sup>1</sup>, 1977-2012

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2012 Dollars
1977	678,000	4,835	17,465	\$2.3	\$8.7
1978	623,233	4,945	15,400	\$1.8	\$6.3
1979	550,500	4,320	14,650	\$2.0	\$6.3
1980	590,500	4,175	16,100	\$2.4	\$6.7
1981	574,000	4,430	14,875	\$2.7	\$6.8
1982	538,000	3,960	15,750	\$2.8	\$6.6
1983	523,500	3,825	16,450	\$2.8	\$6.4
1984	506,000	3,290	15,100	\$2.9	\$6.4
1985	501,500	4,020	15,250	\$3.2	\$6.8
1986	468,000	4,005	14,650	\$3.0	\$6.3
1987	433,000	3,780	15,200	\$3.1	\$6.3
1988	432,500	4,125	17,125	\$3.3	\$6.4
1989	402,500	3,545	15,225	\$3.3	\$6.1
1990	359,000	3,370	15,250	\$3.5	\$6.1
1991	363,000	2,905	15,600	\$3.4 <sup>2</sup>	\$5.8 <sup>2</sup>
1992	358,000	3,160	15,275	\$3.2	\$5.2
1993	358,000	3,035	15,700	\$4.1 <sup>3</sup>	\$6.6 <sup>3</sup>
1994	341,000	2,785	14,000	\$3.5	\$5.4
1995	320,000	3,035	13,450	\$3.6	\$5.4
1996	324,000	3,470	13,700	\$4.1	\$6.0
1997	302,500	2,700	12,300	\$3.7	\$5.3
1998	283,000	2,775	11,800	\$3.6	\$5.1
1999	282,500	2,375	11,550	\$4.1	\$5.6
2000	283,500	2,920	12,575	\$4.6	\$6.1
2001	295,500	2,650	11,400	\$4.7	\$6.1
2002	300,500	2,280	9,950	\$5.0	\$6.4
2003	297,000	2,735	10,000	\$5.1 <sup>4</sup>	\$6.4 <sup>4</sup>
2004	301,500	2,680	10,500	\$4.9	\$6.0
2005	287,000	2,570	10,300	\$5.8	\$6.8
2006	304,500	2,155	8,800	\$5.9	\$6.7
2007	300,500	2,350	9,650	\$6.2 <sup>5</sup>	\$6.9 <sup>5</sup>
2008	291,000	2,365	9,185	\$6.9 <sup>6</sup>	\$7.4 <sup>6</sup>
2009	272,500	2,100	9,300	\$6.4	\$6.8
2010	279,000	2,200	9,400	\$5.9	\$6.2
2011	274,500	2,105	9,485	\$5.7	\$5.8
2012	268,000	2,000	8,825	\$5.8	\$5.8

<sup>1</sup>Includes manufactured homes.

<sup>2</sup>Does not include \$1.5 billion in damage caused by the Oakland Fire Storm most of which was lost to homes but for which not detailed breakdown by property type was available.

<sup>3</sup>Includes \$809 million in damage caused by Southern California wildfires.

<sup>4</sup>This does not include the Southern California Wildfires with an estimated property damage of \$2 billion.

<sup>5</sup>This does not include the California Fire Storm 2007 with an estimated property damage of \$1.8 billion.

<sup>6</sup>Does not include the California wildfires 2008 with an estimated property damage of \$1.4 billion.

Direct property damage figures do not include indirect losses, like business interruption. Inflation adjustment to 2011 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2012*, Michael J. Karter, Jr., NFPA, September 2013 and previous reports in the series.

## U.S. Highway Vehicle Fire Problem, 1980-2012

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2012 Dollars
1980	456,000	650	2,850	\$0.5	\$1.4
1981	453,000	770	2,900	\$0.5	\$1.3
1982	433,000	575	3,250	\$0.5	\$1.2
1983	435,500	670	3,400	\$0.6	\$1.4
1984	437,000	530	3,250	\$0.6	\$1.3
1985	437,000	770	3,250	\$0.7	\$1.5
1986	438,000	665	2,850	\$0.7	\$1.5
1987	451,000	755	2,900	\$0.7	\$1.4
1988	459,000	800	2,750	\$0.8	\$1.6
1989	415,500	560	2,750	\$0.8	\$1.5
1990	415,000	645	3,025	\$0.8	\$1.4
1991	406,500	530	2,675	\$0.8	\$1.3
1992	385,500	665	2,750	\$0.8	\$1.3
1993	402,000	540	2,400	\$0.9	\$1.4
1994	402,000	555	2,325	\$1.0	\$1.5
1995	386,000	490	2,275	\$1.0	\$1.5
1996	395,000	550	2,075	\$1.1	\$1.6
1997	377,000	450	1,950	\$1.1	\$1.6
1998	358,500	545	2,050	\$1.1	\$1.5
1999	345,000	450	1,600	\$1.1	\$1.5
2000	325,000	450	1,325	\$1.2	\$1.6
2001	327,000	470	1,750	\$1.3	\$1.7
2002	307,000	540	1,700	\$1.2	\$1.5
2003	286,000	455	1,400	\$1.1	\$1.4
2004	266,500	520	1,300	\$1.0	\$1.2
2005	259,000	500	1,450	\$1.0	\$1.2
2006	250,000	445	1,075	\$1.0	\$1.1
2007	227,500	365	1,500	\$1.1	\$1.2
2008	207,000	350	850	\$1.2	\$1.3
2009	190,500	260	1,455	\$1.0	\$1.1
2010	184,500	285	1,440	\$1.0	\$1.1
2011	187,500	270	1,020	\$1.0	\$1.0
2012	172,500	300	800	\$1.3	\$1.3

Highway vehicles include any vehicle designed to operate normally on highways, such as automobiles, motorcycles, buses, trucks, and trailers, but not manufactured homes on foundations.

Direct property damage figures do not include indirect losses, like business interruption. Inflation adjustment to 2011 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2012*, Michael J. Karter, Jr., NFPA, September 2013 and previous reports in the series.

## 2012 U.S. Fire Rates by Unit of Time

Property Class	Fires per Hour	Civilian Deaths per Day	Civilian Injuries per Day	Direct Dollar Damage per Hour
All residential	43.5	6.6	36.1	\$822,000
Homes <sup>1</sup>	41.7	6.5	35.3	\$800,200
One- and -two family dwellings	30.6	5.5	24.2	\$664,000
Apartments	11.1	1.0	11.1	\$136,000
Other residential	1.8	0.1	0.8	\$22,000
Public Assembly	1.4			\$32,000
Educational	0.6			\$7,000
Institutional	0.7			\$4,000
Stores and offices	2.0			\$73,000
Industry, utilities, and defense	1.0			\$77,000
Storage	3.3			\$86,000
Special structure	2.5			\$14,000
All non residential	11.4	0.2	4.2	\$286,000
All structures	54.9	6.8	40.3	\$1,107,000
Vehicles	23.1	0.9	2.7	\$210,000
Out and other (not structure or vehicle)	79.0	0.2	2.3	\$93,000
All fires	157.0 (or 2.6 per minute, or one every 23 seconds)	7.8 (or one every 184 minutes)	45.2 (or every 32 minutes)	\$1,419,000 (or \$24,000 per minute, or 395 per second)

<sup>1</sup>Homes are dwellings, duplexes, manufactured homes, apartments, rowhouses, townhouses, and condominiums.

Direct property damage is expressed to the nearest thousand dollars.

Source: *Fire Loss in the United States 2012*, Michael J. Karter, Jr., NFPA, September 2013.