ACCELERANTS. See also GASOLINE

Charcoal lighter fluid ignites board and care facility fire, 1996:5.97

Charcoal lighter fluid ignites store fire, 2004:6.20

Cigarette lighter fluid ignites store fire, 2013:6.24

Pyrotechnic accelerants used to ignite high-temperature fires, 1992:6.67

Unknown accelerant

Apartment fire ignited by, **2002**:4.20, **2003**:5.16

Clinic fire ignited by, 1996:1.24

Dwelling fire ignited by, 2012:6.24

Manufacturing plant fire ignited by, **1995**:6.104, **1998**:2.20

Office building fire ignited by, 2002:2.22

Restaurant fire ignited by, 1997:2.21

School fire ignited by, **1995:**6.98

Store fire ignited by, 1996:5.94

Vacant building fire ignited by, 2009:5.24

Vehicle/dwelling fire ignited by, 1998:5.45

Warehouse fire ignited by, 1992:6.26, 1996:3.39

ADHESIVE MATERIALS

Spontaneous ignition of, **1991:**6.26

ADULT CONGREGATE LIVING FACILITY FIRES. See also ASSISTED LIVING FACILITIES

Florida, 1994, **1995**:6.35

ADVERTISING SUPPLEMENTS. See also FIRE SERVICE FOCUS; IN THE MARKET COLUMNS; WHAT'S HOT PRODUCT SPOTLIGHT

Alarm devices and systems, **1991:**5.85, **1992:**4.79, **1993:**1.65, **1993:**6.105, **1994:**5.80, **1995:**2.96

Apparatus and rescue products, 1991:6.79, 1992:5.77

Building construction products, 1991:2.128, 1992:6.81, 1993:5.105, 1994:5.111, 1995:5.126

Detection devices and systems, **1991**:5.85, **1992**:4.79, **1993**:1.65, **1993**:6.105, **1994**:5.80, **1995**:2.96

Electrical products, **1994:**5.111, **1995:**5.126

Extinguishing systems, 1991:1.106, 1992:1.75, 1993:4.73, 1994:4.91

Fire service equipment, supplies, and services, 1993:2.89, 1994:2.92, 1995:1.87, 1996:4.101

Hazardous materials storage, 1992:2.87

Literature review, **1995**:4.103, **1996**:2.91, **1996**:6.116

Manufacturer's showcase

2005, **2005**:6.74

2006, **2006:**2:86, 98

2007, **2007:**2.88, 4.96, 6.108

2008, **2008:**2.96, 6.84

2009, **2009:**2.69, 6.90

2010, **2010:**2.62, 6.84

2011, **2011:**3.94, 7.74

2012, **2012:**2.75, 6.76

NFPA Annual Meeting exhibitors, **1994:**3.129, **1995:**3.135, **1996:**3.131, **1997:**3.109, **1998:**3.124, **1999:**3.146

NFPA Conference & Expo exhibitors, 2009:3.102, 2010:3.92, 2012:3.84, 2013:3.94

NFPA World Conference exhibitors, **2000**:3.134, **2001**:3.108, **2002**:2.16, **2002**:3.118, **2003**:3.104, **2004**:3.96, **2005**:3.114, **2006**:3.94, **2008**:3.94

Protective clothing, 1991:1.106, 1992:2.87

Security systems, 1993:6.105, 1994:5.80, 1995:2.96

AEROSOL CONTAINERS

Bug repellent container fell into deep fat fryer, explodes, ignites fire, 2006:3.30

Cans crushed by compactor release propellant, ignited by spark, **1999:**1.19

Containers in area of ignition accelerated fire, 1998:6.89

Explosion ignites dwelling fire, 1992:6.28

Flammable contents ignited by open flame, 1992:6.25

Flammable solvent/lubricant containers damaged by forklift, explode, 1996:4.23

Hair spray used to ignite incendiary fire, 1994:1.32

Incendiary fire ignited by, 1997:1.27, 2002:6.18

Insecticide ignited by LP-Gas pilot light, 1993:4.25

Paint cans explode in warehouse fire, 1995:6.38

AGRICULTURAL BUILDING FIRES

California, 2008, 2009:4.22

Texas, July, 2009, 2010:6.68

AGRICULTURAL FACILITY FIRE

California, Feb., 2011, 2012:6.64

AIR CONDITIONERS. See also HVAC SYSTEMS

Fire spread by, **1994:**5.97

Fires caused by (See ELECTRICAL EQUIPMENT FIRES)

Home fires involving air conditioning, 2003-2007, 2010:5.70

Home fires involving air conditioning, 2006-2010, 2013:2.80

Operating noise masked alarm, 1994:5.100

Operating unit feeds air to manufactured home fire, 2012:5.24

Operating units feed air to dwelling fire, 2009:5.24

Window blocked by unit, factor in catastrophic fire, 1998:5.45

Window blocked by unit, factor in fatal fire, 2009:5.24

AIRCRAFT CRASH FIRES. See also AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF)

American Airlines Flight 1420, Little Rock, Arkansas, June 1, 1999, fire investigation report, **1999:**5.40

Cargo aircraft

Landing crash, Tennessee, Nov., 2003, 2004:6.57

Military plane, crashes into restaurant/hotel, Indiana, Feb. 6, 1992, 1993:5.66

Takeoff aborted, New York, March, 1991, 1992:6.79

Texas, Jan., 2009, **2010**:6.68

United Arab Emirates crash linked to lithium battery shipment, 2011:1.16

Catastrophic

B-727 and DC-9, runway collision, Michigan, Dec. 3, 1990, **1991:**4.70

Commercial aircraft, Arkansas, June 1, 1999, 2000:5.61

Commercial aircraft, Kentucky, Aug., 2006, 2007:5.61

Commercial aircraft, New York, Nov., 2001, 2002:5.82

Commercial aircraft, New York, Sept., 2001, 2002:5.82

Commercial aircraft, Virginia, Sept., 2001, 2002:5.82

Commercial commuter plane and private plane, runway collision, Illinois, Nov. 19, 1996, **1997:**5.54

Commercial jet, Florida, May 11, 1996, 1997:5.54

Commercial plane, Georgia, Aug. 21, 1995, 1996:5.99

DC-9, North Carolina, July 2, 1994, 1995:5.68

F-16 and C-130 midair collision, North Carolina, March 23, 1994, 1995:5.67

Florida, July, 2007, **2008:**5.62

Florida, July, 2008, 2009:5.84

Florida, Sept., 2009, 2010:5.69

Four-engine turboprop plane, West Virginia, Oct. 7, 1992, 1993:5.68

Four-passenger plane, Utah, July 9, 1992, 1993:5.68

Georgia, July, 2006, 2007:5.62

Helicopter, California, Aug., 2008, 2009:5.84

Helicopter, Utah, May, 2000, 2001:5.79

Kansas, May, 2012, 2013:5.64

Light passenger plane, Alabama, June 23, 1996, 1997:5.54

Light passenger plane, Kansas, Apr. 19, 1995, 1996:5.100

Military cargo plane, crashes into restaurant/hotel, Indiana, Feb. 6, 1992, 1993:5.66

Missouri, Aug., 2004, 2005:5.60

Montana, Sept., 2004, 2005:5.61

North Carolina, March, 2012, 2013:5.63

Pennsylvania, July, 2004, 2005:5.60

Private, Idaho, Aug., 2011, 2012:5.75

Private, New Mexico, April, 2011, 2012:5.74

Private, North Carolina, May, 2011, 2012;5.75

Private passenger jet, California, Dec. 15, 1993, 1994:5.106

Private passenger jet, Illinois, Oct. 30, 1996, 1997:5.54

Private passenger jets, Florida, March, 2000, 2001:5.79

Runway collision, B-737 and twin-turbo prop, California, Feb. 1, 1991, 1992:4.72

Seaplane, Rhode Island, Aug. 26, 1995, **1996:**5.99

Single-engine passenger plane, California, Nov. 26, 1993, 1994:5.108

Single-engine plane, Oklahoma, Aug. 21, 1990, **1991:**4.70

Tanker, Nevada, Sept., 2008, 2009:5.84

Tennessee, Jan., 2001, 2002:5.82

Twin-engine plane, Alabama, July 10, 1991, 1992:4.72

Twin-engine plane, Connecticut, April 27, 1994, 1995:5.67

Twin-engine plane, Florida, Jan. 17, 1991, 1992:4.72

Twin-engine plane, Georgia, Jan. 12, 1995, 1996:5.100

Twin-engine plane, New Hampshire, Sept., 2002, 2003:5.75

Twin-engine plane, New York, March 22, 1992, 1993:5.68

Twin-engine plane, Oklahoma, Dec. 21, 1995, 1996:5.99

Twin-engine plane, Texas, Sept. 11, 1991, 1992:4.72

Twin-engine plane, Virginia, Sept. 10, 1995, 1996:5.99

Wildland firefighting, California, June, 2002, 2003:5.75

Wildland firefighting, Colorado, July, 2002, **2003:**5.75

Wildland firefighting, South Dakota, July, 2012, 2013:5.63

Wildland firefighting, Utah, April, 2009, 2010:5.69

DC-8 cargo plane crashes during takeoff, Florida, Aug. 7, 1997, 1998:6.91

DC-9-35 crashes near runway, North Carolina, July, 1994, 1995:6.110

DC-10 cargo jet, New York, Sept. 5, 1996, 1997:6.60

Firefighter fatalities related to, 2003:4.63, 2004:4.57, 2006:4.61, 2009:4.66

Firefighter injuries related to, 1998:6.55

Fokker F-28 passenger aircraft, New York, March, 1992, 1993:6.88

Helicopter crashes, firefighter fatality related to, 2008:4.89

Helicopter crashes, firefighter injuries related to, 1999:6.52

Jetstream 4101 crashes into warehouse, Ohio, Jan., 1994, 1995:6.110

Jumbo passenger jet, Texas, April, 1993, 1994:6.98

L-1011 aircraft aborts takeoff, crashes, New York, Sept., 1992, 1993:6.88

Lear jet crashes into residential/commercial area, Dec., 1994, 1995:6.110

Maine, June, 2006, 2007:5.63

Military aircraft

Air National Guard C-130 landing crash, Minnesota, April, 2004, 2005:6.48

B-25 bomber crashes into Empire State Building, New York City, July 28, 1945, **2013**:4.88 California, July 20, 1994, **1995**:6.110

Cargo plane, crashes into restaurant/hotel, Indiana, Feb. 6, 1992, 1993:5.66

Fighter-jet, New Mexico, Sept., 1993, 1994:6.98

Military transport used for wildland firefighting, South Dakota, July, 2012, 2013:5.63

North Carolina, June 21, 1994, 1995:6.110

NFPA and federal government aviation safety efforts, history of, 2007:4.104

NTSB urges fire suppression upgrades for air cargo, 2013:1.11

Private passenger jet crash on takeoff, Colorado, Nov., 2004, 2005:6.48

Runway collision

Boeing 737 and Metroliner, California, Feb., 1991, 1992:6.76

Detroit, Mich., Dec. 3, 1990, 1991:3.69

Jet and cargo van, Georgia, May, 1991, 1992:6.77

Runway overshoot, Toronto Pearson International Airport, Aug. 2, 2005, 2005:6.34

Simulated crash into high-rise tests emergency preparedness, 1993:6.35

Statistics compared to motor vehicle fire statistics, 1995:4.120

TAM Linhas Aéreas Flight 3054, São Paulo, Brazil, July 17, 2007, fire investigation report, **2008:**1.36

United Flight 232 crash-fire, Sioux City, Iowa, looking back on, 2004:5.96

Wildland firefighting, California, June, 2002, 2003:5.75

Wildland firefighting, Colorado, July, 2002, 2003:5.75

Wildland firefighting, firefighter fatalities related to, 2013:4.71

Wildland firefighting, South Dakota, July, 2012, 2013:5.63

Wildland firefighting, Utah, April, 2009, 2010:5.69

AIRCRAFT FIRES (NONCRASH)

Airports, at (See AIRPORTS)

California, June, 2006, 2007:6.83

Commercial jet, Texas, Nov., 2005, **2006:**6.75

Lithium-ion battery fires investigated by government as researchers continue technology evaluation, **2013:**2.10

Military plane, California, Nov. 7, 1990, **1991:**6.74

Passenger plane, Florida, Dec., 1998, 1999:6.94

AIRCRAFT HANGARS

Foam use in aircraft hangars, **2000:**4.79

Membrane hangar constructed by United Airlines at Logan Airport, Boston, 2008:4.54

NFPA 5000, *Building Code*TM, balances aircraft hangar structural safety and economics, **2002:**5.24

AIRCRAFT HANGAR FIRES

California, 1994, **1995:**5.36

California, 1998, **1999:**2.25

California, 2001, 2002:3.34

California, 2003, **2004:**1.17

Kansas, July, 1993, 1994:6.96

Minnesota, 2008, **2009:**4.21

Nebraska, May, 2002, 2003:3.18, 2003:6.78

AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF)

Airbus A380 super jumbo jet passenger capacity brings new challenges to airport fire service, **2008:**4.40

Debate continues on need for crews, funding, preparedness, types of rescue, 1997:2.84

NFPA 405, Recommended Practice for the Recurring Proficiency Training of Aircraft Rescue and Fire Fighting addresses ARFF training issues, **1999:**3.78

NFPA and federal government aviation safety efforts, history of, 2007:4.104

NFPA role in international aviation fire safety, **1996:**3.50

NFPA survey of U. S. airport fire departments, 1998, 1999:3.72

AIRPORTS. See also AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF); HELIPORTS Aircraft fire on runway

Catastrophic, California, Feb. 1, 1991, 1992:4.72, 1992:6.76

Catastrophic, Detroit Metropolitan Airport, Dec. 3, 1990, 1991:4.70

Catastrophic, Illinois, Nov. 19, 1996, 1997:5.54

Georgia, May, 1991, **1992:**6.77

Massachusetts, 1998, 1998:4.22

New York, March, 1991, 1992:6.79

New York, March, 1992, 1993:5.68, 1993:6.88

New York, Sept., 1992, 1993:6.88

Tenarife, Canary Islands, March 27, 1977, 2012:2.80

Akron Airdock fire, May 18, 2006, 2008:4.56

At Boston's Logan Airport, United Airlines constructs new membrane hangar, **2008:**4.54 Catastrophic fires

Aircraft fire on runway, California, Feb. 1, 1991, **1992**:4.72, **1992**:6.76

Aircraft fire on runway, Detroit Metropolitan Airport, Dec. 3, 1990, 1991:4.70

Aircraft fire on runway, Illinois, Nov. 19, 1996, **1997:**5.54

Military aircraft fire, Wisconsin, Dec. 10, 1993, 1994:5.106, 1994:6.98

Emergency evacuation, applying NFPA 101®, Life Safety Code® for, 2002:5.32

Emergency planning should include various occupancies, 2002:5.28

Emergency response drill, Logan International Airport, Boston, Mass., 1991:2.54

Fire alarm and communication systems requirements present challenges, 2004:5.32

Fire alarm and voice systems require thorough testing, 2002:5.36

Fueling accident at Denver International Airport leads to aircraft fueling policy changes, **2002:**5.66

Hong Kong International Airport, fire safety provisions at, **2001:**1.38

Indianapolis's new airport's water based-suppression system, 2008:4.48

Japan Airlines' performance-based design approach to Kennedy Airport air cargo facility, **2002:**5.62

Life safety jeopardized by tighter airport security, **1996**:6.85

Loading walkways, maintaining safety of, 2001:1.63

NFPA standards addressing airport safety described, 2004:5.30

Orlando International Airport's new air traffic control tower incorporates new fire safety features, **2003**:3.68

Tank farm fire, Stapleton Airport, Denver, Colo., Nov. 25, 1991, 1992:1.60

Terminal fire, fatal, Düsseldorf, Germany, Apr. 11, 1996, 1996:4.43

Washington, D. C. airports equipped with state-of-art fire protection and security systems, 1998:4.80

Washington Dulles International Airport Aerotrain smoke control systems aid passenger evacuation, **2010**:4.62

AKRON, OHIO

Akron Airdock fire, May 18, 2006, 2008:4.56

ALABAMA

Auto salvage yard fire, 1998, **1999:**2.25

Catastrophic fires

Aircraft, July 10, 1991, 1992:4.72

Aircraft, June 23, 1996, 1997:5.54

Apartment building, March, 2001, **2002:**5.82

Apartment building, Sept., 2001, 2002:5.82

Automobile, Dec., 2001, 2002:5.82

Board and care facility, Jan. 7, 1990, 1991:4.67

Board and care facility, Sept. 19, 1990, **1991:**4.68

Board and care facility, Oct. 19, 1994, 1995:5.62

Building-under-renovation fire, Jan. 22, 1999, 2000:5.61

Camping trailer, Dec. 6, 197, 1998:5.56

Coal mine, Sept., 2001, 2002:5.82

Day care center fire, Jan. 11, 1999, 2000:5.59

Dwelling, Aug. 27, 1990, **1991:**4.64

Dwelling, Nov. 12, 1996, 1997:5.51

Dwelling, July 20, 1997, 1998:5.50

Dwelling, July 5, 1999, 2000:5.58

Dwelling, May, 2004, 2005:5.58

Hotel, Nov., 2002, 2003:5.75

Hotel, Jan., 2010, 2011:5.78

Manufactured home, March, 2009, 2010:5.64

Manufactured home, March, 2010, **2011:**5.75

Manufacturing plant, May 11, 1999, 2000:5.60

Motor vehicle, Feb., 2007, 2008:5.62

Dwelling fire, 2007, **2008:**6.20

Dwelling fire, 2008, 2009:5.24

Electric generating plant fire, Nov., 1991, 1992:6.76

Electric generating plant fire, June, 1993, **1994:**6.92

Electric generating (nuclear) plant fire, May 23, 1996, 1997:6.58

Fatal fires

Apartment building, 2005, 2006:5.32

Apartment building, 2011, 2012:3.35

Dwelling, 1995, **1996:**3.39

Dwelling, 1998, 1999:3.46

Dwelling, 1999, 2000:4.19

Dwelling, 2001, 2002:3.32

Dwelling, 2002, 2003:6.14

Dwelling, 2007, **2008:**4.19, 6.20

Dwelling, 2009, **2010**:6.23

Dwelling, 2010, 2011:5.18

Manufactured home, 2011, 2012:1.16

NFPA grants target high fire death rate, 2005:2.10

Vacant dwelling, 2009, **2010**:6.21

Manufactured home fire, 1992, 1993:4.25

Manufacturing plant fire, Feb., 1994, 1995:6.107

Manufacturing plant fire, June, 1998, 1999:6.91

Manufacturing plant fire, Feb., 2000, 2001:6.61

Manufacturing plant fire, Sept., 2006, 2007:6.76

Manufacturing plant fire, 2012, 2013:4.25

Nuclear energy plant fire, May 23, 1996, **1997:**6.58

Vacant building fire, 2002, **2003:**5.18

Warehouse fire, 1992, 1993:4.26

Warehouse fire, Oct. 2, 1997, 1998:6.88

ALARM DELAYED

Air traffic control radioed jet repeatedly before contacting fire department, **1999:**5.40 Alarms

Ignored by occupants, 2011:5.22

Monitored alarm, lack of, 1997:4.22

Not heard outside empty building, 1995:6.108

Not in area of fire, 1997:6.50, 2012:4.29

Not set off immediately, 1992:3.32, 2007:4.25

Waterflow alarm did not operate, 1996:3.39

Waterflow alarm incorrectly installed, 1991:3.25, 2003:6.12

Central station alarm company not operating, **2004:**6.20

Central station notification of fire service delayed, 1997:2.21, 2001:6.23

Cruise vessel delayed alarms factor in fatal fires, 1998:3.66

Detection system lacking, 1993:6.79, 1994:5.102, 1997:6.52, 1998:4.22

```
Detectors, smoke (See also DETECTORS, SMOKE, NOT A FACTOR IN FIRE)
  Alarms not heard outside empty building, 1995:6.108
  Below area of fire origin, 1995:6.99, 1995:6.106
  Closed bedroom door, 2007:5.26
  Lacking, 1995:1.34, 2000:6.86, 88, 2005:1.17, 2.22, 2009:3.44
  Not functioning, 1992:6.29, 1994:1.30, 1997:3.29
  Not set off immediately, 1992:3.32, 1995:2.30, 1999:3.46, 2004:5.70
Dispatched to wrong address, 1994:5.29, 1995:5.64
Emergency communications center equipment failure, due to, 2009:4.21
Employee(s), role of
  Confirmed fire, 1991:1.30, 1991:5.64, 1992:4.71, 1992:5.56, 1992:6.74, 1993:6.81,
         1994:4.31, 1994:6.89, 1995:4.39, 40, 1995:6.98, 1997:5.54, 1998:6.23
  Evacuated patients, 1994:4.29
  Failed to activate alarm system, 1999:2.25
  Failed to locate source of fire, 1996:6.24
  Failed to use manual alarms, 1992:6.29
  Fought fire, 1991:2.31, 1991:3.26, 1991:4.67, 1991:6.23, 25, 73, 75, 1992:2.28, 1992:4.25,
         1992: 6.77, 79, 1993: 1.26, 1993: 2.20, 1993: 6.82, 83, 85, 89, 1994: 2.27, 30,
         1994:5.30, 1994:6.96, 97, 1995:1.34, 1995:2.31, 1995:6.104, 106, 107, 1996:6.64,
         1997:2.21, 3.33, 5.24, 6.19, 50, 56, 1998:4.20, 5.18, 6.89, 1999:5.20, 6.97,
         2000:3.38, 6.96, 2001:6.62, 63, 2002:3.32, 2004:2.16, 6.56, 2006:3.30, 6.70,
         2007:6.22, 2009:3.43, 2012:2.21
  Investigated fire cause, 2000:2.23, 2008:1.22
  Left site to report fire, 1993:6.30
  Mistook alarm for false alarm, 1998:5.53
  Mistook fire alarm for intrusion alarm, 1993:6.30
  Not in area of origin, 2009:6.75
  Reported fire as under control, 1993:3.34
  Reset activated alarm, 2011:7.55
  Smelled smoke but delayed call to fire department, 2004:4.19
  Thought fire extinguished, 1999:6.20
Fire burned undetected, 1991:1.28, 1991:5.28, 1997:5.49, 1998:6.84, 85, 86, 88, 92,
       1999:6.90, 91, 95, 2000:6.95, 96, 2002:1.19, 4.20, 5.18, 20, 22, 2004:5.70, 6.18, 6.55,
       2005:1.14, 16, 4.20, 2006:5.28, 6.69, 2007:6.82, 2009:2.25, 6.77, 2010:3.36, 5.29,
       6.66, 2012:1.16, 2.14, 3.36, 2013:3.24
Fire department advised to disregard alarms due to scheduled building maintenance, 1997:6.49
Fire in remote, unoccupied area, 2000:6.90
Hotel room occupant had difficulty contacting front desk, 1994:2.28
Industrial area unpopulated due to holiday, 1993:6.82
Interior location of fire, 1993:1.28
Key holder notified first, 2000:6.84
Manual pull stations not operational, 1994:5.95
Monitored alarm, lack of, 2002:4.18
Monitored alarm fuse problem, 2010:5.32
Motion alarms not set off immediately, 1992:3.32
Neighbor(s), role of
```

```
Fought fire, 1995:5.34
  Refused to call fire department, 1992:4.69
911 call incomplete, 1994:5.102, 1999:2.23, 1999:6.97
911 called prior to alarm box report, 1993:2.20
911 dispatcher misunderstood nature of call, 1998:5.16
911, signal not automatically sent to, 2002:1.21
911 system lacking, 1995:5.58
No fire detectors, 1992:1.23, 26, 1995:6.108
Occupant(s), role of
  Attempted rescue, 1991:4.68, 1996:3.39, 1997:2.22, 2008:2.25, 3.30, 4.19, 2012:1.14
  Attempted to move burning sofa, 2007:2.20
  Attempted to move burning vehicle, 2002:5.20
  Did not speak English, 2001:5.75, 2006:3.36
  Fought fire, 1991:2.29, 3.36, 4.47, 4.69, 1992:4.26, 67, 5.25, 1993:1.27, 1994:1.31, 5.98,
          102, 1995:3.38, 4.37, 5.53, 1996:1.23, 5.23, 1997:2.22, 5.21, 1998:1.23, 2.18, 6.23,
          90, 1999:5.19, 2000:5.22, 6.17, 2001:2.23, :3.32, 2002:2.22, 4.19, 2003:2.24, 3.18,
          2004:5.68, 5.69, 6.16, 2005:3.26, 3.32, 2006:4.24, 26, 27, 6.21, 2007:2.20, 5.58,
          6.18, 19, 2008:1.19, 2.25, 3.28, 5.30, 6.17, 18, 2009:2.23, 25, 6.22, 23, 2010:3.33,
          37, 38, 5.29, 5.32, 6.24, 2011:1.24, 5.14, 17, 2012:2.16, 5.71, 2013:4.22, 51
  Hung up on 911 operators repeatedly, 2008:6.18, 2011:7.16
  Language barrier delayed notification, 2005:5.24, 2010:3.33
  Left site to report fire, 1993:3.34, 1994:5.97, 1996:6.22, 2001:5.75, 76, 2005:2.20,
          2006:5.28
  Notified others in building before fire department, 2000:6.90, 2005:4.18
  Searched for fire, 1991:1.30, 2004:6.17
  Smelled burning but could not locate source, 2003:3.18
  Telephoned relative rather than fire department, 1999:6.18, 2003:5.14, 2013:3.22
  Thought fire extinguished, 2000:6.88, 2008:2.30
Passer(s)by, role of
  Attempted rescue, 1991:4.64
  Did not call fire department, 2000:6.86
  Fought fire, 2006:6.22
  Left site to report fire, 1994:3.30, 1995:5.35
  Tried to locate smoke source, 1991:4.64
Plant closed for night, 2000:1.21
Plant closed for weekend, 1991:5.28, 1992:1.23
Power shut off. 1993:6.84
Protection systems unsupervised, 1993:5.67
Reason unknown, 1994:5.95, 1995:5.36, 1995:6.38, 2009:5.82
Remote location, 1992:1.23, 1993:5.62, 1993:6.83
Security personnel confirmed fire, 1997:5.23
Sheriff's department received call, contacted fire department, 1999:2.25
Shopping mall closed for night, 1997:4.21
Sprinkler system, dry-pipe, 2009:3.44
Sprinkler system not connected to central alarm, 1993:1.26, 1995:3.39
State police dispatcher had trouble locating proper fire department, 2009:4.18
```

Street address, confusion as to correct, **2009:**4.18

Telephones not available at site/building, 1995:5.58, 1996:1.23, 2005:3.32, 2012:4.27

Telephones not operable due to fire, **1993:**5.66, **1993:**6.29, 30, **1995:**6.99, **1996:**6.22, **1997:**6.50

Unwanted alarms (See ALARMS, UNWANTED (FALSE/NUISANCE))

Water motor gong outside building not heard, 1991:5.25

Waterflow alarms

Did not operate, **1996:**3.39, **2000:**6.91

Incorrectly installed, 1991:3.25, 2003:6.12

Not operational, **2013:**4.24

Weather obscured fire, 1992:1.23

ALARM SYSTEMS. See also ALARMS, UNWANTED (FALSE/NUISANCE); BUZZ WORDS COLUMNS; DETECTORS; NATIONAL FIRE ALARM CODE®

Addressable systems, testing of, 1994:2.41

Computer use in, **1992:**2.32

Design and installation requires qualified, knowledgeable people, 2011:7.24

Design of, 1992:4.12

Directional sound used to indicate exits, 2005:3.50

High-rise speaker circuit survivability requirements, 2001:3.76

History of fire alarm industry, 2007:Fall.152

Industry experts discuss alarm technology, 1999:2.46

Inspection, testing, and maintenance to ensure reliability, 1996:5.68

Installer certification required in Seattle, 1993:1.55

Integrated fire and security systems in commercial buildings, 1997:3.60

Integrating fire alarm systems with building management systems, 2008:6.62

Intelligent systems eliminate false alarms without compromising protection, 1997:6.78

Manual pull stations not operational, factor in catastrophic apartment building fire, 1998:5.45

Manual pull stations not operational, factor in catastrophic hotel fire, 1994:5.95

Manual pull stations not operational, factor in fatal fire, **1997:**4.19

Manual pull stations not operational, factor in hotel fire, 2007:1.15

Manual system out of service, factor in school fire, 1998:1.21

Mass notification systems (See EMERGENCY COMMUNICATIONS)

Modified redundant systems increase safety, not cost, 1993:6.68

Multisensor alarms speed detection, reduce nuisance alarms, 1998:1.46

Notification system effectiveness, Fire Protection Research Foundation study of, 2007:5.34

Optimization of fire alarm systems for high-risk groups, Fire Protection Research Foundation study, **2007:**6.24

Proprietary system at Chrysler Corp. Technology Center, 1995:3.129

Reliable hardware, system design, installation, maintenance all needed, 1995:1.49

Replacement or upgrading of older systems, 2005:4.66

Signals to reduce older adult fire deaths, 2006:5.26

Silenced by employee in hotel fire, 2009:3.38

Software management is crucial, 1995:1.54

Sound and strobe alarms required by Americans with Disabilities Act, 1995:4.58

Standardizing icons on fire alarm panels, 2000:5.66

Supervising stations play key role in holistic fire protection approach, 1999:3.130

Terminology needs clarification by users, engineers, designers, code enforcers, 1998:5.62

Voice alarm system design guidelines, **1994:**1.50

Voice alarms, testing and improving intelligibility of, 1999:6.72

Waking effectiveness among children and elderly research by U. S. Consumer Product Safety Commission, **2003**:4.44

Wiring system properly to ensure reliability, 2000:5.71

ALARMS, UNWANTED (FALSE/NUISANCE)

Catastrophic fire alarm delayed because assumed false alarm, 1998:5.53

Causes, costs, and solutions to U. S. false alarm problem, 1995:1.45

Commercial system nuisance alarms, Naperville, Ill., study of causes and history of, 1999:4.86

Delayed response in fatal fire, 1995:6.37

Delayed response in restaurant fire, **2012:**4.29

Delayed response to catastrophic fire, 1994:5.98

Delayed response to large-loss fire, 2004:6.56

Firefighter fatalities related to, 2006:4.56

Habitual false/nuisance alarms can cause complacency, 2002:3.42

High number of U. S. fire service calls are false alarms, 2005:3.16

Intelligent systems eliminate false alarms without compromising protection, 1997:6.78

Multisensor alarms can reduce false alarms and speed detection, 1998:1.46

National Fire Alarm and Signaling Code, 2013 edition, changes focus on unwanted alarms, **2012:**3.61

NFPA cohosts summit to discuss unwanted alarms, 2011:3.24, 4.52

Nuisance alarms, caused by many factors, are problems for property owners and managers, **2007**:2.50

Overview of unwanted alarm problem and possible solutions, 2011:4.52

Poor and early installation of alarm systems main causes of nuisance alarms, 1999:1.29

Sensitivity of alarms addressed by NFPA 72 committee members, 2011:3.58

Using NFPA 72®, National Fire Alarm Code®, to prevent false alarms, 2002:1.34

ALASKA

Apartment building fire, June, 2007, 2008:6.43

Catastrophic ship fire, July 27, 1996, 1997:5.54

Fatal fires

Dwelling, 2009, **2010:**3.36

Dwelling, 2013, 2013:2.20

Manufactured home, 2008, 2009:3.40

Manufactured home, 2009, 2010:1.20

Fire-safe cigarettes legislation passed by state, **2007:**5.18

Hotel fire, March 20, 1996, 1997:6.57

Hotel fire, 2006, **2007:**1.15

Manufacturing plant fire, April 3, 1997, 1998:6.84

Manufacturing plant fire, 2008, 2009:2.26

Manufacturing plant fire, July, 2008, 2009:6.77

Office building fire, 2000, 2001:4.20

Refinery fire, Dec., 2008, 2009:6.84

School fire, Aug., 2006, 2007:6.82

Store fire, April, 1994, **1995:**6.100

Trans-Alaska pipeline officials face fire protection challenges, 2000:4.96

Vacant manufacturing plant fire, April 25, 1997, 1998:6.92

Wildland/urban interface fire, June 2, 1996, 1997:6.59

ALBERTA, CANADA

Apartment building fire, 1990, 1991:5.26

Apartment building fire, 2003, 2004:2.18

Bulk storage elevator fire, 1996, **1997**:4.20

Suncor Energy Inc. oil sands operation addresses fire prevention challenges, 2004:6.36

At Suncor Energy Inc. oil sands operation, teamwork helps fight dangerous cold weather fire, **2005**:6.58

ALCOHOL (BEVERAGE)

Apartment building fires, factor in, **1991:**3.26, **1992:**4.69, **1995:**5.34, **1996:**5.24, **1996:**5.91, **1999:**5.19, **2008:**5.28, **2009:**6.22

Board-and-care facility fire, possible factor in, 2012:1.18

Catastrophic fires, factor in

Apartment building fire, 1992:4.69, 1996:5.91, 1998:5.49

Automobile fire, 1995:5.68

Board and care facility fire, 1996:5.96

Dwelling fire, **1991**:4.64, 65, 66, 68, **1992**:4.68, **1993**:5.64, **1994**:5.97, **1995**:5.60, **1996**:5.92, 93, **1998**:5.49, **1999**:5.50, **2000**:5.56, 58, **2001**:5.77, **2008**:5.57

Fraternity house fire, **1997:**5.50

Motor vehicle accident/fire, 1998:5.55

Catastrophic vacant building fires, factor in, 2000:5.60

Distillery explosion and fire, Kansas, Sept., 2002, 2003:5.18, 2003:6.77

Distillery fire, Kentucky, Nov. 7, 1996, 1997:6.57

Dormitory fire, factor in, 2001:3.30

Dwelling fires, factor in, **1991**:4.64, 65, 66, 68, **1992**:4.68, **1993**:2.22, **1993**:5.64, **1994**:1.31, **1994**:5.97, **1995**:5.60, **1996**:5.92, 93, **2003**:1.15, **2003**:5.16

Fatal fires, factor in

Apartment building fire, 1995:5.34, 1998:2.16, 1999:2.23, 1999:3.48, 2000:1.19,

2000:3.34, **2000**:5.23, **2002**:3.32, **2002**:4.20, **2002**:5.20, **2008**:3.21, 4.20, **2010**:1.22, 2.22, 3.40, 6.21, **2011**:7.14, **2012**:2.15, 3.35, **2013**:3.27, 5.23

Boat fire, **2000:**1.21

Camping trailer fire, 1999:1.19

Dwelling fire, 1993:2.22, 1994:1.31, 1998:1.23, 4.19, 1999:4.19, 1999:5.19, 2001:2.23,

2001:3.30, **2003:**5.16, **2006:**1.18, **2007:**4.26, **2008:**5.24, 6.18, **2009:**4.18, 5.23, 25, **2010:**1.21, 26, 5.33, **2011:**2.25, 3.42, 7.15, 16, **2012:**2.14, 15, 3.36, 6.22, 24

2010-1.21, 20, 3.33, **2011-2.2**3, 3.72, 7.13, 10, **2012-2.**17

Fraternity house fire, **1997:**6.21, **2007:**6.17

Garage fire, 2011:4.14, 2013:6.18

Hotel fire, 1998:6.23, 2002:1.20, 2013:4.19

Manufactured home fire, **1998**:1.23, **2005**:6.20, **2009**:6.24, **2010**:5.33, **2011**:1.23

Manufacturing plant fire, 1998:6.22

Motor home fire, 1995:5.36

Rooming house fire, 2001:6.21

Shed fire, possible factor in, 1993:2.20

Trailer, Virginia, 2008, 2009:4.22

Fraternity house fire, factor in, **1997:**5.50, 6.21, **2009:**2.22

Group home fire, factor in, **1992:**1.26

Home fire deaths, report on alcohol as factor in, 2010:2.75

Hotel fire, factor in, 2009:5.26

ALCOHOL (FUEL)

Fire testing of ethanol fuels, **2008:**2.60

Possible misuse in kerosene heater, fatal fire cause, 1998:2.16

Spill ignited by light, 1994:2.27

ALCOHOL (MEDICAL USE)

Cauterizing instrument, vapors ignited by, 2009:6.26

Pharmaceutical production alcohol vapors ignited by static discharge, 2011:3.47

Vapors ignited by torch in dental office, **2010**:2.26

ALMAND, KATHLEEN H.

Profile of, **1998:**3.54

ALTERNATIVE FUELS

Alternative fuels becoming more common at filling stations, 2002:6.46

Fire testing of ethanol fuels, **2008:**2.60

NFPA 30A, *Automotive and Marine Service Station*, expanded to cover alternative fuels, **2000:**4.83

NFPA/Fire Protection Research Foundation research to aid alternative fuel emergency response, **2009**:6.52

NFPA Technical Committee on Vehicular Alternative Fuel Systems works to regulate alternative fuels, **2003:**2.42

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

Audited Designator status requires rigorous audit of standards development process, 1999:2.70

U. S. response to European economic unification and global standards led by, 1991:6.54

AMERICANS WITH DISABILITIES ACT

Accessibility standard set by act, 1993:3.42

Builders and owners, effects on, **1992:**2.14

Life Safety Code changed to conform with, 1993:3.18, 1994:2.34

New technologies aid compliance, 1997:6.38

NFPA 72®, National Fire Alarm Code®, and ADA requirements, 2005:4.70

Title III, discussion of, 1995:4.54

AMMONIA

Leak ignites warehouse fire, 1999:6.94

Liquid refrigerant, factor in warehouse fire, 1994:3.27

Potential anhydrous ammonia release hampers fire service operations, 2010:6.65

AMUSEMENT CENTER FIRES

New Jersey, Dec., 1992, **1993:**6.79

Tennessee, July, 1992, 1993:6.81

AMUSEMENT PARKS. See also DISNEY WORLD, ORLANDO, FLA.

NFPA joins LEGOLAND® Florida in fire safety partnership, 2012:2.38

NFPA partners with LEGOLAND® to promote Fire Prevention Week activities, 2012:6.11

Security technology in modern amusement park design, **2006**:3.79

U. S. parks and resorts use NFPA standards for pyrotechnic safety, 2002:3.78

AMUSEMENT PARK FIRES

Arizona, April, 1995, 1996:6.73

California, 1993, **1994:**3.28

ANIMAL HOUSING FACILITIES. See also RACETRACKS

NFPA 150, Fire and Life Safety in Animal Housing Facilities, 2013 edition, proposed changes, **2012:**3.72

NFPA 150, Fire and Life Safety in Animal Housing Facilities, 2013 edition, sprinkler requirements, **2012:**5.13

NFPA 150, Fire and Life Safety in Animal Housing Facilities, Technical Committee addresses human and animal life safety issues, **2005**:4.24

ANTARCTICA

Fire safety and fire protection at McMurdo Station research outpost, 2011:5.54

APARTMENT BUILDING FIRES. See also APARTMENT COMPLEX FIRES;

CONDOMINIUM FIRES; HOUSING FOR ELDERLY FIRES

Alabama, 2005, 2006:5.32

Alabama, 2011, 2012:3.35

Alaska, June, 2007, 2008:6.43

Alberta, Canada, 1990, 1991:5.26

Alberta, Canada, 2003, 2004:2.18

Arizona, 1994, 1995:6.37

Arizona, June, 1998, 1999:6.96

Arizona, 2009, 2010:3.40

Arizona, 2010, 2011:4.16

Arizona, Sept., 2012, 2013:6.57

Arkansas, 1993, 1994:3.28

British Columbia, Canada, 2012, 2013:5.24

California, Nov., 1993, **1994:**6.89

California, Dec., 1994, 1995:6.110

California, 1996, 1997:3.30

California, 1997, **1998:**2.18, 4.19, 5.15

California, 2000, **2001:**1.21, **2001:**3.32

California, 2002, 2003:5.16

California, May, 2003, 2004:6.54

California, July, 2005, **2006:**6.71

California, 2007, 2008:2.26, 3.28

California, 2008, 2009:6.24

California, 2009, 2010:4.25, 2010:4.27

California, 2010, 2011:1.20, 2.28, 3.34

California, 2011, **2012:**4.22

California, 2012, **2013:**1.24, **2013:**2.21

Catastrophic

Alabama, March, 2001, **2002:**5.82

Alabama, Sept., 2001, **2002:**5.82

Arizona, Feb., 2005, **2006:**5.61

California, Sept. 7, 1991, 1992:4.69

California, April 26, 1993, 1994:5.96

California, May 3, 1993, 1994:5.95

California, June 6, 1994, **1995:**5.59

California, Oct. 14, 1995, 1996:5.93

California, Feb. 6, 1996, **1997:**5.49

California, Dec. 13, 1997, **1998:**5.46

California, Sept., 2005, 2006:5.62

California, July, 2007, 2008:5.59

Illinois, May 30, 1990, 1991:4.65

Illinois, Dec. 9, 1991, **1992:**4.67

Illinois, March 14, 1991, 1992:4.69

Illinois, Dec. 6, 1992, 1993:5.64

Illinois, March 20, 1994, **1995:**5.53

Illinois, Sept. 15, 1997, 1998:5.46

Illinois, Oct. 26, 1997, 1998:5.46

Illinois, May 31, 1999, 2000:5.56

Illinois, March, 2001, **2002:**5.82

Illinois, Sept., 2006, 2007:5.58

Illinois, Feb., 2010, **2011:**5.73

Illinois, May, 2011, 2012:5.69

Iowa, Dec. 22, 1999, 2000:4.54, 5.57

Louisiana, Aug. 10, 1994, 1995:5.60

Louisiana, March, 2005, 2006:5.60

Maryland, Sept., 2001, 2002:5.82

Maryland, Oct., 2002, 2003:5.75

Maryland, May, 2007, 2008:5.57

Maryland, Dec., 2010, 2011:5.73

Massachusetts, March 21, 1994, 1995:5.59

Massachusetts, Dec. 28, 1997, 1998:5.49

Massachusetts, Feb. 19, 1998, 1999:5.52

Michigan, July 31, 1991, **1992:**4.68

Michigan, Feb. 28, 1993, 1994:5.95

Michigan, Dec., 2000, 2001:5.75

Minnesota, Nov. 10, 1993, 1994:5.97

Minnesota, Feb. 28, 1994, **1995:**5.58

Minnesota, Jan. 14, 1995, 1996:5.91

Minnesota, Dec. 11, 1998, 1999:5.55

Minnesota, April, 2010, 2011:5.73

Mississippi, Jan. 26, 1993, **1994:**5.95

Mississippi, Dec., 2009, 2010:5.63

Mississippi, Aug., 2011, **2012:**5.72

Missouri, March 12, 1999, 2000:5.56

Missouri, Nov., 2012, 2013:5.60

New Jersey, Feb. 13, 1991, 1992:4.69

New Jersey, May 6, 1997, **1998:**5.45

New Jersey, July, 2012, 2013:5.59

New York, Aug. 4, 1990, 1991:4.66

New York, Jan. 16, 1990, **1991**:4.65

New York, March 13, 1991, 1992:4.67

New York, Aug. 22, 1994, 1995:5.66

New York, Feb. 24, 1999, 2000:5.57

New York, January, 2001, 2002:5.82

New York, Nov., 2001, 2002:5.82

New York, June, 2002, 2003:5.75

New York, March, 2003, 2004:5.69

New York, April, 2004, 2005:5.57

New York, Jan., 2005, 2006:5.61

New York, Oct., 2008, 2009:5.81

New York, Jan., 2010, 2011:5.74

North Carolina, Sept. 5, 1993, 1994:5.100

Ohio, Dec. 11, 1993, **1994:**5.102

Ohio, Jan. 12, 1994, 1995:5.58

Ohio, Sept., 2004, 2005:5.56

Ohio, Dec., 2008, 2009:5.82

Ohio, Oct., 2004, 2005:5.56

Oregon, June 28, 1996, 1997:5.49

Pennsylvania, April 5, 1997, **1998:**5.45

Pennsylvania, June, 2001, 2002:5.82

Pennsylvania, June, 2005, 2006:5.62

Pennsylvania, Feb., 2006, 2007:5.58

Pennsylvania, March, 2006, 2007:5.58

Pennsylvania, Dec., 2006, 2007:5.60

Pennsylvania, Oct., 2010, 2011:5.76

Pennsylvania, Jan., 2012, 2013:5.62

Rhode Island, Feb. 27, 1993, 1994:5.96

Rhode Island, Dec. 23, 1995, **1996:**5.93

Rhode Island, Dec., 2000, 2001:5.77

Tennessee, Dec. 28, 1998, 1999:5.53

Tennessee, Dec., 2001, 2002:5.82

Texas, Aug. 21, 1993, **1994:**5.100

Texas, Oct., 2000, **2001:**5.76

Texas, Dec., 2003, 2004:5.70

Virginia, May 18, 1998, **1999:**5.50

Washington, June, 2010, 2011:5.76

Washington, Jan., 2011, 2012:5.70

West Virginia, Jan., 2007, 2008:5.57

Colorado, 1997, **1998:**4.20

Colorado, July 18, 1997, 1998:6.90

Colorado, 2000, 2001:5.26

Colorado, 2005, 2006:4.26

Colorado, 2007, 2008:5.27, 28

Colorado, 2010, 2011:2.28

Connecticut, 1996, 1997:2.21, 5.21, 2010:5.32

Connecticut, 1999, **2000:**3.32

Connecticut, 2002, 2003:3.16

Connecticut, 2005, 2006:2.26

Connecticut, April, 2008, 2009:6.79

Connecticut, 2009, 2010:4.30

Connecticut, 2010, **2011:**7.16

Connecticut, 2011, 2012:2.17

Florida, 1990, 1991:3.25, 1991:6.24

Florida, 1992, **1993:**1.27

Florida, 1993, 1994:5.27, 1994:6.33

Florida, 1995, **1996:**1.23

Florida, 1996, **1997:**3.29

Florida, 1998, 1999:1.17

Florida, 2000, 2001:3.34

Florida, May, 2000, 2001:6.63

Florida, 2001, **2002:**1.20

Florida, 2002, 2003:4.14

Florida, 2011, **2012:**3.36, **2012:**5.27, **2012:**6.27

Georgia, 2006, 2007:3.34

Georgia, 2011, 2012:4.22

Hawaii, 1993, **1994:**2.28

Idaho, 2010, **2011:**5.16

Illinois, 1990, 1991:4.25

Illinois, 1993, 1994:1.31

Illinois, 1994, 1995:4.37

Illinois, 2004, **2005:**5.27

Illinois, 2005, **2006:**6.22

Illinois, 2007, **2008:**4.22

Illinois, 2009, **2010:**1.25

Illinois, 2010, **2011:**1.25, 7.18

Illinois, 2011, 2012:1.15

Illinois, 2012, **2013:**5.23

Indiana, 2000, 2001:2.22

Indiana, 2008, **2009:**4.19

Indiana, 2009, 2010:6.22

Iowa, 2005, **2006:**4.24

Iowa, 2009, 2010:4.26

Iowa, Dec. 22, 1999, **2000:**4.54, 5.57

Kansas, 2007, 2008:5.23

Kansas, 2008, **2009:**1.19, 6.21

Kansas, 2010, **2011:**1.21, 25

Kansas, 2012, **2013:**3.27

Kentucky, 2000, 2001:3.36

Kentucky, 2001, 2002:5.20

Kentucky, 2004, 2004:4.16

Kentucky, 2005, 2006:2.26

Louisiana, 1997, **1998:**2.16

Louisiana, 2008, 2009:2.22

Louisiana, 2011, 2012:6.18

Maine, 1995, **1996:**5.24

Maine, 1999, 2000:1.19

Maine, 2009, 2010:1.21

Maryland, 1989, 1991:2.29

Maryland, 1991, 1992:3.34

Maryland, Nov., 1998, 1999:6.97

Maryland, 2001, 2002:5.18

Maryland, 2002, 2003:2.24

Maryland, 2005, **2006:**3.38, 6.20

Maryland, Jan., 2005, 2006:6.72

Maryland, 2007, 2008:1.19, 3.22, 4.21

Maryland, 2008, 2009:5.23

Maryland, 2010, 2011:2.23

Maryland, 2012, 2013:1.24, 4.20

Massachusetts, 1990, 1991:3.26

Massachusetts, 1992, 1993:6.28

Massachusetts, 1994, 1995:5.34

Massachusetts, 1995, 1996:1.22

Massachusetts, 1997, 1998:4.19

Massachusetts, 1998, 1999:6.17

Massachusetts, Aug. 29, 1999, 2000:6.95

Massachusetts, 2000, 2001:5.24

Massachusetts, 2002, 2003:3.14, 3.16

Massachusetts, 2005, 2006:1.18

Massachusetts, 2006, 2007:2.20

Massachusetts, 2007, 2008:3.21, 5.26

Massachusetts, 2008, 2009:1.19

Massachusetts, 2012, 2013:1.18

Michigan, Feb., 1994, 1995:6.99

Michigan, 1998, 1999:1.17

Michigan, 1999, 2000:2.22

Michigan, 2000, 2001:4.23

Michigan, 2008, **2009:**6.20

Michigan, April, 2008, 2009:6.79

Michigan, 2009, 2010:4.30

Michigan, 2010, 2011:5.18

Michigan, 2012, **2013:**6.22

Minnesota, 2001, 2002:6.21

Minnesota, June, 2003, **2004:**6.54

Minnesota, 2005, **2006:**4.27

Minnesota, July, 2006, **2007:**6.80

Minnesota, 2007, 2008:4.20, 24

Minnesota, 2009, 2010:2.24, 2010:5.34

Minnesota, 2011, 2012:3.30

```
Minnesota, 2012, 2013:5.25
```

Missouri, 1994, 1995:3.37

Missouri, 2000, 2001:3.32

Missouri, 2003, **2004:**2.18

Missouri, 2005, 2006:3.36

Missouri, 2007, 2008:6.21

Missouri, Aug., 2012, 2013:6.55

Missouri, May, 2012, 2013:6.59

Montana, 1999, 2000:5.23

Nebraska, 1997, 1997:5.22

Nebraska, 2001, **2002:**6.18

Nebraska, 2005, 2006:1.18

Nebraska, 2006, 2007:4.25

Nevada, 2004, 2005:5.32

New Hampshire, 1990, **1992:**1.26

New Hampshire, 2003, **2004:**4.17

New Hampshire, 2008, **2009:**2.25

New Hampshire, 2012, 2013:1.25

New Jersey, 1996, 1997:5.22

New Jersey, 1997, 1998:3.41

New Jersey, 1998, 1999:2.24

New Jersey, Aug., 2000, 2001:6.63

New Jersey, 2002, 2003:5.16

New Jersey, 2004, 2005:2.22

New York, 1993, **1994:**5.27

New York, May, 1993, 1994:6.90

New York, March 28, 1994, 1995:6.85

New York, Aug., 1994, 1995:6.100

New York, 1996, **1997:**6.20

New York, 1997, 1998:2.18

New York, Dec. 18, 1998, fire investigation report, 1999:3.84

New York, Dec. 23, 1998, fire investigation report, 1999:3.84

New York, 1999, **2000:**5.22

New York, 2000, 2001:1.21, 2001:5.25

New York, 2009, **2010**:2.22

New York, 2011, 2012:2.15

North Carolina, 1994, **1995**:4.38, **1995**:5.34

North Carolina, 2002, 2003:1.15

North Carolina, 2005, **2006:**6.22

North Carolina, 2011, **2012:**4.28

North Dakota, 1998, **1999:**2.23

North Dakota, 2009, 2010:6.24

North Dakota, 2010, **2011:7.**14

Ohio, 1993, **1994:**2.29

Ohio, 1995, 1996:5.24

Ohio, 1996, **1997:**4.20

Ohio, 2000, 2001:2.22, 4.24

Ohio, 2004, 2005:2.20, 4.18

Ohio, 2005, 2006:6.18

Ohio, 2006, **2007:**3.34

Ohio, 2007, 2008:6.17

Ohio, 2008, 2009:1.22, 3.35

Ohio, 2009, 2010:6.21

Ohio, 2010, **2011:**4.15, 16

Ohio, 2011, 2012:6.22

Ohio, March, 2012, 2013:6.56

Oklahoma, June, 1998, **1999:**6.97

Oklahoma, 2007, 2008:3.28

Oklahoma, 2009, 2010:5.31

Oregon, 1996, 1997:3.30

Oregon, Aug. 19, 1999, 2000:6.95

Oregon, March, 2003, 2004:6.54

Oregon, 2005, 2006:6.21

Oregon, 2009, 2010:4.28

Oregon, 2012, 2013:5.26

Pennsylvania, 1990, **1991:**4.26

Pennsylvania, 2002, 2003:2.22, 2003:5.16

Pennsylvania, 2005, 2006:4.26

Pennsylvania, 2007, 2008:5.27

Pennsylvania, Aug., 2008, 2009:6.82

Pennsylvania, 2009, 2010:1.24, 2010:3.37

Pennsylvania, 2011, **2012**:6.19

Pennsylvania, 2012, 2013:4.21

Rhode Island, 1992, 1993:2.22

Rhode Island, 1999, **2000:**4.19

Rhode Island, 2003, 2004:1.15

Rhode Island, 2009, **2010**:2.23

Rhode Island, 2011, 2012:5.25

Rhode Island, 2012, **2013**:6.18

South Carolina, 2006, 2007:3.28

South Carolina, 2008, **2009:**3.33

South Carolina, 2011, 2012:4.26, 6.26

Tennessee, 1999, **2000:**3.36

Tennessee, 2006, 2007:2.19

Tennessee, 2009, **2010**:3.37

Texas, 1996, 1997:2.22

Texas, Jan. 16, 1997, **1998:**6.90

Texas, 1999, **2000:**3.36

Texas, 2001, **2002:**3.32

Texas, 2004, 2005:5.32

Texas, 2005, 2006:2.28

Texas, 2006, **2007:**3.24

```
Texas, 2007, 2008:3.24
Texas, 2009, 2010:1.22, 3.38, 4.23, 24, 5.34
Texas, 2012, 2013:4.21
Utah, 1994, 1995:6.36
Utah, 1995, 1996:2.23
Utah, 1996, 1997:5.21
Vermont, 1996, 1997:2.22
Vermont, 2004, 2005:5.24
Vermont, 2010, 2011:7.17
Virginia, 1992, 1993:3.35
Virginia, 1993, 1994:3.28
Virginia, 1997, 1998:5.15, 6.22
Virginia, 2001, 2002:1.21, 2002:4.20
Virginia, Feb., 2003, 2004:6.56
Virginia, 2004, 2005:6.18
Virginia, 2006, 2007:5.26
Virginia, 2010, 2011:2.28
Virginia, 2011, 2012:6.25
Virginia, 2012, 2013:6.21
Washington, 1995, 1996:1.22
Washington, 1996, 1997:1.25
Washington, 1997, 1998:6.23
Washington, Nov. 13, 1997, 1998:6.90
Washington, 1998, 1999:3.48, 1999:5.19
Washington, 1999, 2000:6.17
Washington, 2000, 2001:4.23
Washington, 2002, 2003:2.22
Washington, 2003, 2004:1.15, 2004:3.18
Washington, 2004, 2005:6.18
Washington, 2005, 2006:1.18
Washington, 2007, 2008:6.19
Washington, 2009, 2010:4.26
Washington, 2010, 2011:2.24, 5.16
Washington, D.C., March, 2008, 2009:6.77
West Virginia, 2001, 2002:4.20
West Virginia, 2004, 2005:4.16
Wisconsin, 1999, 2000:4.18
Wisconsin, 2005, 2006:2.28
Wisconsin, 2006, 2007:2.22
Wisconsin, 2007, 2008:3.26
Wisconsin, 2008, 2009:1.17
Wisconsin, 2009, 2010:6.22
Wisconsin, 2012, 2013:3.28
```

APARTMENT COMPLEX FIRES. See also APARTMENT BUILDING FIRES
Colifornia, 1000, 1001:4, 26, 5, 26

California, 1990, **1991:**4.26, 5.26

California, Nov. 10, 1990, 1991:6.73

California, 1992, 1993:5.35

California, 1993, 1994:2.28

Georgia, 1995, 1996:1.22

Iowa, April, 2003, 2004:6.53

Massachusetts, 1989, 1991:3.26

Missouri, 1989, 1991:1.30

Nevada, Jan., 2003, 2004:6.55

Nevada, Sept., 2003, 2004:6.54

New Jersey, 1993, 1994:1.32

New Mexico, July, 1995, 1996:6.74

Ohio, March, 1992, **1993:**6.81

Oklahoma, 2006, 2007:1.19

APEX, NORTH CAROLINA

Environmental Quality Co. hazardous waste facility explosion and fire, Oct. 5, 2006, U.S.

Chemical Safety and Hazard Investigation Board investigation, 2008:6.68

APOLLO I SPACECRAFT

Fatal fire, **1996:**1.68, **2006:**1.80

APPS

To alert citizens with CPR training to respond to emergency, 2011:2.18

Emergency preparedness plans, 2012:4.14

Fire safety tips for college students and parents, 2011:5.12

National Electrical Code® app for photovoltaic requirements, 2013:5.12

NFPA 1600, Disaster/Emergency Management and Business Continuity Program, available as app, **2009:**5.21

NFPA Journal launches app and digital editions, 2012:3.14

Sparky the Fire Dog[®] app now available, **2013:**5.14

AQUEOUS FILM-FORMING FOAM (AFFF)

Concentrate extinguishes aircraft fire, 1992:6.76

Limited prepiping hinders operations in fuel tank fire, **1991**:6.73

AREAS OF REFUGE

Hospital fire, successful use in, **2001:**5.26

Nursing home, successful use in, **2011:**7.20

ARENAS

Crown Coliseum, Cincinnati, Ohio, updates fire protection system, 1998:3.120

ARGENTINA

Republica Cromagnon disco fire, Buenos Aires, 2005:2.52

ARIZONA

Apartment building fire, 2010, 2011:4.16

Apartment building-under-construction fire, June, 1998, **1999**:6.96

Assisted living facility fire, 2008, 2009:3.42

Athletic complex fire, 1993, **1994:**5.30

Board-and-care facility fire, 2011, 2012:1.18

Building-under-construction fire, Sept., 2012, 2013:6.57

Catastrophic fires

Apartment building, Feb., 2005, 2006:5.61

Dude wildland/urban interface, June 25, 1990, 1991:1.59, 1991:4.70, 1991:6.78

Dwelling, Nov. 5, 1993, 1994:5.97

Dwelling, April, 2001, 2002:5.82

Dwelling, March 26, 1995, 1996:5.92

Manufactured home, Jan., 2001, 2002:5.82

Manufacturing plant, Mar. 27, 1998, 1999:5.55

Motor vehicle, Sept., 2000, 2001:5.79

Motor vehicle, Nov., 2000, 2001:5.79

Motor vehicle, Feb., 2005, 2006:5.63

Motor vehicle, May, 2006, 2007:5.62

Recreational vehicle, 2013:5.64

College building fire, Nov., 2007, 2008:6.45

College building fire, 2012, 2013:6.25

Convention center fire, Dec., 2004, 2005:6.49

Dormitory fire, 1990, 1991:2.29

Dwelling fire, 1993, **1994:**6.34

Dwelling fire, 2009, 2010:1.23

Dwelling fire, 2012, **2013:**5.26

Fatal fires

Apartment building, 1994, 1995:6.37

Apartment building, 2009, **2010:**3.40

Dwelling, 2003, 2004:6.17

Manufactured home, 2007, 2008:6.19

Manufactured home, 2008, 2009:5.24

Manufactured home, 2011, 2012:5.23

Motor vehicle, 2004, 2005:2.28

Manufacturing plant fire, Nov. 12, 1992, **1993**:4.33

Manufacturing plant fire, 2000, 2001:1.23

Motor vehicle repair shop fire, 1990, 1991:5.28

Movie studio/amusement park fire, April, 1995, **1996:**6.73

Museum fire, 2003, 2004:1.14

Nursing home fire, 1193, 1994:4.29

Restaurant fire, 2008, 2009:6.25

School fire, 2010, **2011:**4.19, 5.22

Store fire, March 21, 1998, 1998:4.49

Store fire, 2003, **2004:**2.16, **2004:**6.20

Store fire, March, 2003, 2004:6.56

Store fire, June, 2006, **2007**:6.78, 79

Store fire, 2013, 2013:2.19

Vacant building fire, 2008, 2009:5.24

Warehouse fire, Nov., 1992, 1993:6.86

Warehouse fire, Aug., 2000, 2001:6.61

Warehouse fire, Aug., 2000, fire investigation report, **2001:**6.70

Warehouse fire, 2004, 2005:2.26

Wildland fire, June, 2002, **2003**:6.80

Wildland fire, June 18, 2002, Show Low Fire District, 2003:2.62

Wildland fire, June, 2003, 2004:6.55

```
ARKANSAS
```

Aircraft fire, June 1, 1999, fire investigation report, **1999:**5.40

Apartment building fire, 1993, **1994:**3.28

Boat fire, 2008, 2009:4.21

Catastrophic fires

Aircraft, June 1, 1999, 2000:5.61

Building-under-renovation, June 18, 1993, 1994:5.104

Dwelling, Dec., 2002, 2003:5.75

Dwelling, March, 2008, 2009:5.82

Dwelling, Feb., 2010, 2011:5.75

Dwelling, March, 2012, 2013:5.59

Manufactured home, Dec. 28, 1997, 1998:5.50

Manufactured home, April, 2005, 2006:5.60

Motor vehicle, Jan. 9, 1995, 1996:5.99

Nursing home, March 13,1 990, **1991:**4.67

Oil refinery, Jan. 13, 1999, 2000:5.60

Packaging and storage facility, May 8, 1997, 1998:5.53

Pipeline connected to flammable liquid storage tank, 2013:5.65

Storage facility, July 4, 1999, **2000:**5.60

Tank, May, 2009, 2010:5.68

Truck fire, July, 2002, **2003:**5.75

Electric generating plant fire, Aug., 1993, 1994:6.92

Fatal fires

Dwelling, 1997, 1998:1.23, 4.19, 6.23

Dwelling, 1998, 1999:2.24

Dwelling, 2005, 2006:6.18, 24

Dwelling, 2009, 2010:1.21, 23

Dwelling, 2012, 2013;4.22, 2013;5.22

Manufacturing plant, Aug., 1994, **1995**:6.107

Incinerator plant fire, 1994, **1995**:6.38

Manufacturing plant fire, 1990, 1991:5.28

Manufacturing plant fire, 1992, 1993:4.27

Manufacturing plant fire, Dec., 1993, **1994:**6.94

Manufacturing plant fire, Dec., 1994, 1995:6.106

Manufacturing plant fire, July, 1994, 1995:6.104

Manufacturing plant fire, May 20, 1995, **1996:**6.64

Manufacturing plant fire, March, 2008, 2009:6.75

Manufacturing plant fire, July, 2009, 2010:6.66

Manufacturing plant fire, 2012, 2013:4.24

School fire, Aug., 2006, 2007:6.82

Shopping mall fire, 1996, **1997:**4.21

Shopping mall fire, 1999, **2000:**5.23

ARLINGTON COUNTY, VIRGINIA

9/11 Pentagon response report brings change to county fire service, **2002**:6.36

ARSON. See INCENDIARY (SUSPICIOUS) FIRES

ASBESTOS

Emergency response protocols for asbestos abatement site fires, 1992:3.55

Exposure response policy, New York, N. Y., 1992:1.42

Haz-mat contamination, terminal fire, 1992:6.76

Haz-mat team gathers particles from ducts after fire, 1997:6.22

ASHES

Boiler blocked by, caused explosion, 1994:6.92

Careless disposal of

Apartment building fire cause, **1998:**6.22

Catastrophic dwelling fire cause, 1993:5.64

Clubhouse fire cause, 1991:6.23

Dwelling fire cause, 1992:1.21, 1998:1.22, 2000:4.18, 2004:6.16, 2009:1.23, 2010:2.22

Garage, residential, fire cause, 2012:1.15, 5.24

Restaurant fire cause, 2001:5.22

ASPHALT

Ignited in roof fire, **1994:**6.95

Leaked asphalt ignited by unknown source, 1993:6.84

ASPHYXIATION

Firefighter fatalities related to, 1997:4.60

ASSEMBLY OCCUPANCIES. See also MOTORSPORTS VENUES; SEATING; SPORTS VENUES; specific occupancies

After Station Nightclub fire, sweeping changes made to assembly occupancy codes, 2004:1.52

Arts center fire, Texas, June, 2005, 2006:6.74

Assembly occupancy structure fires, statistical summary of, 2002:1.16

Auditorium/hall fire, Mississippi, Mar., 1998, 1999:6.95

Boston Convention and Exhibition Center construction presented fire and life safety challenges, **2004:**3.62

Bowling alley fire, Ohio, 2006, 2007:4.24

Bowling alley fire, Oregon, 1999, **2000**:4.19

Calculating occupant load in assembly uses, 1999:3.54

Casino fire, Illinois, March, 2009, **2010**:6.63

Clarice Smith Performing Arts Center, University of Maryland, uses tested fire protection system, **2000:**5.49

Convention center fire, Arizona, Dec., 2004, 2005:6.49

Convention center fire, Louisiana, 2001, 2002:6.22

Convention center fire and life safety challenges addressed by NFPA codes and standards, **2007:**2.54

Convention center firefighting tactics reviewed, **2010:**1.32

Courthouse fire, Oklahoma, 2012, 2013:2.25

Crowd management experts use codes to improve procedures, 2012:4.68

Crowd management factors in Riverfront Stadium, Cincinnati, concert disaster, Dec. 3, 1979, **2002:**1.80

Crowd manager training is essential but what should it include, **2010**:4.70

Crown Coliseum arena, Cincinnati, Ohio, updates fire protection system, 1998:3.120

Entertainment center fire, Pennsylvania, Jan. 28, 1997, 1998:6.92

Event Safety Alliance, new organization dedicated to live event safety, creates event safety guide, **2013**:4.52

Grandstand fire, Ohio, 2000, 2001:5.22

Hartford, Connecticut, circus fire, July 6, 1944, 2012:4.88

Indiana State Fair stage rigging collapse spurs improved emergency planning and management procedures, **2012**:4.68

Interior finish materials need scrutiny in assembly occupancies, 2005:2.34

Major assembly occupancy fires covered by Quarterly and NFPA Journal, 2007:2.96

Mass notification systems include voice, radio, computer networks and texting, 2009:4.50

Massage parlor fire, Michigan, 1999, 2000:1.19

McCormick Place Exhibition Hall fire, 1967, looking back, 2004:3.136

Meeting hall fire, Massachusetts, 1997, 1998:1.21

Meeting hall fire, Missouri, 1997, 1998:2.19

National Guard Armory fire, Maine, 2003, 2004:6.18

NFPA 101®, Life Safety Code®, addresses patron safety at assembly venues, 2002:1.29

NFPA 101®, *Life Safety Code*®, requirements for assembly occupancy emergencies, **2002:**1.30

NFPA 101®, *Life Safety Code*®, takes integrated, all-hazards systems approach to crowd safety, **2002:**1.40

NFPA 101®, *Life Safety Code*®, Technical Committee addresses emergency procedures for large assembly spaces, **2011:**4.58

NFPA 5000TM requirements, **2003:**3.24

NFPA Technical Committee strives to make assembly occupancies safer, 2003:4.64

Occupied assembly occupancy fires may require extraordinary firefighting tactics, 2003:6.22

Olympics, 2000 Summer Games, Sydney, Australia, safety and security for, 2002:1.48

Olympics, 2002 Winter Games, fire protection based on NFPA standards, 2002:1.44

Open flame devices, tableside cooking, and food warming, as ignition sources in assembly occupancies, **2003**:6.26

Outdoor venue safety can be improved by use of NFPA 101® Life Safety Evaluation, 2011:5.9

Pepsi Center, Denver, Colorado, designed for safety, 2000:3.72

Planning for fires in theaters, stadiums, and other entertainment venues, 2010:2.34

Risk management using performance-based design, 2000:3.50

Statue of Liberty renovation incorporates fire and life safety improvements while maintaining historical components, **2012:**4.60

Texas Fire Marshal's fire safety campaign urges students to "have an exit strategy" in public spaces, **2007:**3.98

Town hall fire, New Hampshire, 2000, **2001:**2.20

Washington Dulles International Airport AeroTrain smoke control systems aid passenger evacuation, **2010**:4.62

ASSISTED LIVING FACILITIES. See also BOARD AND CARE FACILITIES; HOUSING FOR ELDERLY FIRES

Healthcare and residential board-and-care facilities differentiated, 1999:4.32

NFPA standards guide life safety, 2002:4.38

ASSISTED LIVING FACILITIES FIRES

Arizona, 2008, 2009:3.42

Catastrophic

Pennsylvania, Dec., 2000, 2001:5.78

Tennessee, Jan., 2004, 2005:5.59

```
Colorado, 2001, 2002:2.24
  Florida, 2002, 2003:6.12
  Florida, 2009, 2010:3.40
  Indiana, 2010, 2011:4.17
  Minnesota, 2001, 2002:2.24
  Missouri, 2000, 2001:3.28
  Montana, March, 2005, 2006:6.69
  Nebraska, 2008, 2009:4.18
  Oregon, 2010, 2011:4.22
ATLANTA, GA.
  Stadium fire, July 20, 1993, 1994:4.49
  Winecoff Hotel fire, 1946, 2006:6.104
ATRIUMS
  Fire Dynamics Simulator software provides safe smoke control design for real world
          enforcement, 2008:1.50
  Fire protection engineering for atria in green building designs, 2008:1.56
ATTICS
  Fan ignites concentrated fumes, 2003:6.79
  Fire spread into/through, 1991:3.26, 4.67, 6.23, 77, 1992:2.25, 4.69, 6.76, 1993:5.64,
          1994:4.31, 5.28, 100, 1995:4.39, 5.36, 6.98, 100, 108, 1996:1.21, 5.25, 6.64, 65, 73,
          1997:1.27, 2.22, 4.20, 21, 5.50, 51, 6.52, 53, 58, 1998:1.21, 6.22, 86, 1999:5.52, 53,
          6.97, 2000:4.18, 20, 6.16, 92, 2001:2.22, 4.20, 23, 24, 5.26, 77, 78, 6.62, 2002:4.16, 20,
          6.20, 2003:2.24, 4.16, 17, 2004:1.14, 6.17, 54, 56, 2005:1.16, 4.18, 5.56, 59, 6.49,
          2006:4.26, 5.28, 32, 6.71, 2007:3.24, 28, 4.28, 5.60, 6.80, 82, 2008:2.30, 2009:1.19,
          2.21, 3.33, 35, 42, 5.23, 24, 80, 82, 6.79, 84, 2010:1.21, 22, 3.38, 4.27, 5.66, 2011:1.20,
          21, 22, 7.19, 55, 59, 2012:6.64, 2013:3.22, 4.19, 24, 6.55
  Fire started in, 1992:4.70, 1994:4.29, 1996:1.24, 1997:2.23, 1998:6.90, 2004:3.22, 6.55,
          2006: 2.24, 28, 2007: 5.57, 2008: 1.22, 5.59, 2010: 4.30, 5.29, 2011: 5.21, 7.55,
          2012:6.66, 2013:3.24
  Lack of separations factor in fire spread, 1995:6.108
  Overheated chimney ignites bird's nest in attic, 2004:1.14
  Sprinkler protection for sloped spaces, 2005:5.34
AUSTIN, STEPHEN P.
  Profile of, 1996:5.38
AUSTIN, TEXAS
  City contracts with volunteer fire departments, 1991:2.104
  Fire and life safety inspection effectiveness evaluated by Austin, Texas, fire department,
          2002:6.66
  Fire service uses media attention to increase fire safety, 1997:2.33
  Recruiting and retaining fire protection engineers, Austin Fire Department survey, 1993:1.58
AUSTRALIA
  Fenny Creek/Dandenongs wildfire, 1996, firefighter's account, 1997:2.49
  Longford Esso refinery fire and explosion, Sept. 25, 1998, fire investigation report, 1999:2.64
  Safety and security for 2000 Sydney Summer Olympics, 2002:1.48
   Wildland/urban interface fire, 2010, 2011:6.19
```

AUTOMOBILE FIRES. See also TRUCK FIRES: VEHICLE FIRES

Arizona, 2004, 2005:2.28

California, 1990, 1991:2.32

Catastrophic

Alabama, Dec., 2001, 2002:5.82

Arizona, Nov., 2000, **2001:**5.79

California, Jan. 23, 1990, 1991:4.70

California, Oct. 2, 1990, 1991:4.72

California, July 22, 1991, 1991:4.67

California, Nov. 29, 1991, 1992:4.73

California, March 3, 1994, 1995:5.68

California, June 18, 1995, **1996:**5.97

California, Sept. 10, 1995, 1996:5.100

California, Dec. 28, 1996, 1997:5.55

California, Jan., 2007, 2008:5.62

California, Aug., 2009, 2010:5.68

Florida, March 17, 1993, 1994:5.106

Florida, Nov. 9, 1996, 1997:5.55

Florida, Dec., 2000, 2001:5.80

Florida, Dec., 2003, 2004:5.73

Georgia, Apr. 3, 1996, 1997:5.54

Idaho, July 4, 1997, 1998:5.55

Idaho, June, 2007, 2008:5.63

Illinois, Feb., 2004, **2005:**5.60

Illinois, Aug., 2004, 2005:5.61

Iowa, Nov. 23, 1994, 1995:5.68

Kentucky, Aug. 6, 1996, 1997:5.54

Kentucky, Sept. 27, 1996, 1997:5.55

Michigan, July 12, 1998, 1999:5.56

Minnesota, Oct., 2000, 2001:5.79

Missouri, Feb. 4, 1990, **1991:**4.70

Nevada, June 27, 1999, **2000:**5.61

New Jersey, Feb. 17, 1997, 1998:5.55

New Jersey, April, 2009, **2010:**5.68

New York, Mar. 11, 1998, 1999:5.56

New York, Jan., 2001, 2002:5.82

Pennsylvania, Nov. 8, 1992, 1993:5.68

Tennessee, Dec. 11, 1990, **1991:**4.70

Tennessee, Nov. 11, 1994, 1995:5.68

Texas, July 12, 1993, **1994:**5.108

Texas, Jan. 18, 1994, 1995:5.68

Utah, Aug. 2007, 2008:5.63

Virginia, Aug. 1, 1994, **1995:**5.68

Virginia, July, 2001, 2002:5.82

Washington, July, 2004, 2005:5.60

West Virginia, July 26, 1990, 1991:4.69

Wisconsin, April, 2001, 2002:5.82

```
Fire statistics and fire safety information, 1998:2.88
  Firefighter injuries related to, 2010:6.74
  Illinois, 1993, 1994:1.32
  Iowa, 2000, 2001:6.22
  Kansas, 1994, 1995:2.31
  Massachusetts, 1998, 1999:6.20
  Massachusetts, 2001, 2002:5.20
  Oklahoma, 2010, 2011:1.21
  Oregon, July, 1992, 1993:6.84
  Texas, 1991, 1992:2.28
AUTOMOBILE REPAIR SHOP FIRES
  Arizona, 1990, 1991:4.30
  California, 1990, 1991:2.30
  Catastrophic, Florida, Aug. 18, 1998, 1999:5.56
  Catastrophic, New York, March, 2000, 2001:5.78
  Catastrophic, Ohio, Nov. 11, 1991, 1992:4.70
  Colorado, 1996, 1997:1.26
  Georgia, Jan., 1994, 1995:6.100
  Illinois, Sept., 1998, 1999:6.94
  Iowa, 2000, 2001:6.22
  Massachusetts, 1990, 1991:2.31
  Massachusetts, 1996, 1997:2.23
  Michigan, 1990, 1991:2.30
  Michigan, 1995, 1996:3.40
  New Mexico, May, 1995, 1996:6.70
  Ontario, Canada, 1989, 1991:1.89
  South Carolina, 1996, 1997:5.23
  Texas, 1990, 1991:2.31
  Washington, 1995, 1996:6.21
AZZARA, DREW
  Interview with, 2013:4.12
В
BACKDRAFTS
  Firefighter fatalities related to, 2006:4.61
  Firefighter injuries related to, 1997:6.75
  Model of incident, apartment building fire, N. Y., N. Y., March 28, 1994, 1995:6.85
BAILEY, DAN W.
  Profile of, 1992:1.16
BALCONIES
  Apartment building fire started on, 1991:5.26, 1996:2.23, 1998:6.22, 2001:2.22, 2003:2.24,
         2004: 6.56, 2007: 3.28, 6.80, 2010: 3.38, 2011: 2.23, 28, 3.40, 7.14, 2012: 4.28,
         2013:1.18, 6.55
  Condominium fire started on, 2005:4.18
  Fire spread to, 1997:5.52
BALTIMORE, MARYLAND
```

Convention center expansion integrates new and existing life safety systems, **1999:**3.138 BANGLADESH

Tazreen Fashions factory fire, Nov., 2012, underscores safety inadequacies at garment factories, **2013:**1.8

BARGE FIRES

Catastrophic

Illinois, July 3, 1997, **1998:**5.55

Louisiana, Oct. 30, 1990, 1991:4.70

Louisiana, Oct., 2006, 2007:5.62

Florida, Aug., 1993, **1994:**6.98

Massachusetts, 1997, 1998:4.22

BARN FIRES

Illinois, 1990, **1991:**2.32

Massachusetts, 1995, 1996:2.25

Massachusetts, 2004, 2005:1.20

Ohio, 2010, 2011:7.23

BARRACKS FIRES

Washington, May 11, 1990, 1991:6.77

BATHURST, DONALD G.

Profile of, **1993:**6.20

BATTERIES

Battery charger ignites clothing, 2002:5.82

Battery charger malfunctions, ignites courthouse fire, 2013:2.25

Battery charger malfunctions, ignites rack storage system pallets, 2010:2.26

Electrical cable to recharge batteries overheats, ignites foam insulation, 2000:6.94

Lithium battery flammability raises air shipment fire safety issues, 2011:1.16

Lithium battery storage and safety issues addressed by NFPA research and partnerships, **2012:**2.44

Lithium battery storage safety standards addressed by Fire Protection Research Foundation workshop and standards-development efforts, **2011**:7.28

Lithium-ion battery aircraft fires investigated by government as researchers continue technology evaluation, **2013:**2.10

Lithium-ion battery hazards addressed by Fire Protection Research Foundation and NFPA, **2013:**4.26

Lithium-ion battery report released by Fire Protection Research Foundation, 2013:4.12

9-volt battery contacts metal foil in trash, ignites other combustibles, **2013:**1.25

Short circuit

In battery ignites subway car, 1991:4.31

In battery ignites truck, shed, 1992:6.26

Smoke detectors (See DETECTORS, SMOKE)

BEDDING. See also MATTRESSES

Alcohol, ignited by, 1999:6.18

Candle, ignited by, **1995**:5.53, **1999**:2.24, **2000**:5.22, **2006**:5.60, **2007**:3.26, **2010**:2.24, **2012**:2.16, 3.28, **2013**:1.22

Catastrophic fire involving, **1991:**4.65, **1991:**4.69, **2008:**5.58

Cigar, ignited by, 1998:5.15, 2009:3.42

```
Cigarette, ignited by, 1994:2.30, 1995:2.30, 1998:6.23, 1999:6.18, 2001:3.30, 2003:6.12,
          2005:5.24, 2007:1.20, 2007:6.19, 2008:4.23, 5.27, 28, 2009:5.25, 26, 6.22, 2010:6.20,
          21, 2011:1.25, 4.16, 5.16, 17, 2012:1.18, 2.14, 2013:1.21, 5.24
  Cigarette lighter, ignited by, 1995:2.31, 5.54, 2004:5.70
  Cigarette lighter, ignited by child playing with, 1993:6.28, 1994:5.97, 1995:4.37, 2001:1.21,
          5.78, 2002:3.32, 2003:3.14, 2009:3.39
  Cigarette lighter, ignited by juvenile playing with, 1991:5.26, 2007:5.26
  Detention center inmate, ignited by, 1997:1.27
  Electric baseboard heating unit, ignited by, 2009:1.17
  Electric heater, ignited by, 1991:1.30, 1994:5.98, 2003:2.23, 6.14, 2005:1.16, 2009:6.24,
          2010:1.21, 2013:6.20
  Electrical cord, failed, ignited by, 2005:6.18
  Electrical cord, pinched, ignites bedding, 2006:2.26, 28
  Electrical cord arc, ignited by, 2006:4.26
  Electrical receptacle arc in catastrophic fire, ignited by, 1997:5.52
  Fireworks, ignited by, 1992:4.26
  Gasoline in fatal fire, ignited by, 1992:2.28
  Heater, ignited by, 2008:5.58, 2011:3.36
  Home fires started with, 2005-2009, 2012:1.76
  Incense, ignited by, 1998:4.19
  Kerosene heater in fatal fire, ignited by, 1995:1.34
  Lamp, ignited by, 2011:5.18
  Lamp plug, ignited by, 1991:3.25
  Light fixture arc, ignited by, 2006:4.28
  Marijuana cigarette, ignited by, 1997:5.22
  Match, ignited by, 1994:5.97, 2005:4.16, 2009:6.20
  Medical equipment fire, ignited by, 1994:5.104
  Open flame, ignited by, 2008:3.26
  Open flame device, ignited by, 1996:5.92, 1999:5.54, 2007:3.32
  Smoking materials, ignited by, 1996:5.92, 2000:3.34, 2003:5.20, 2008:6.21, 2010:3.37,
          2011:2.22, 2013:2.19
  Smoking materials in catastrophic fires, ignited by, 1995:5.64, 2004:5.68
  Smoking of illegal drugs, ignited by, 2002:6.21
  Space heater, ignited by, 1995:5.53, 1999:1.19, 2011:7.16
  Sparkler, ignited by, 1997:2.21
  Unknown heat source, ignited by, 2010:1.21, 2011:1.20
BELL, A. D.
  Profile of, 1995:5.26
BENARICK, GLENN P.
```

Profile of, **1994:**1.22

BERKOL, APRIL

Profile of, **1999:**3.68

BERND, ROBERT E.

Profile of, **1998:**1.36

BEVERLY HILLS SUPPER CLUB FIRE

Overview of fire, **1996**:2.64, **2011**:4.80

```
BEYREIS, JAMES R.
```

Profile of, 1994:5.20

BHATIA, JOE

Profile of, 1999:6.36

BLAIR, JOHN A.

Profile of, 1991:6.18

BLEVE

Firefighter fatalities related to, **1994:**4.60, **1999:**4.57

Forklift gas cylinder BLEVEs, 1996:6.63

LP-Gas tank, Iowa, April 9, 1998, fire investigation report, 1998:6.42

Propane cylinders, **1991**:6.23, **1997**:3.33

Propane tank hit by truck, 2002:1.18

BLISS, DONALD P.

Profile of, 1998:4.36

BLOOMINGTON, MINNESOTA

Mall of America, fire protection and life safety systems, 1999:6.66

BOARD AND CARE FACILITIES

2000-2004 statistics on U.S. fires, 2007:1.13

2003-2007 fires, **2010:**3.110

Homeless Veterans Assistance Act requires that veterans' housing comply with NFPA 101®, provides grants, **2004:**1.28

Occupancy classification differentiated from health care facilities, 1999:4.32

BOARD AND CARE FACILITY FIRES. See also ADULT CONGREGATE LIVING

FACILITY FIRES; GROUP HOME FIRES

Arizona, 2011, 2012:1.18

California, 1993, **1994:**2.30

California, 1996, 1997:1.27

Catastrophic

Alabama, Jan. 7, 1990, **1991:**4.67

Alabama, Sept. 19, 1990, **1991:**4.68

Alabama, Oct. 9, 1994, 1995:5.62

California, Oct. 3, 1995, 1996:5.97

California, Oct., 2003, 2004:5.71

California, May, 2011, 2012:5.73

Colorado, March 4, 1991, 1992:4.70

Connecticut, Feb. 10, 1996, 1997:5.53

Florida, Dec. 1, 1994, 1995:5.64

Georgia, March 11, 1991, 1991:4.67

Michigan, June 2, 1992, 1993:5.66

Michigan, Nov. 11, 1995, 1996:5.97

Michigan, Oct., 2010, 2011:5.78

Missouri, Nov., 2006, 2007:5.60

New York, Oct. 17, 1990, 1991:4.68

New York, March, 2009, 2010:5.66

Oregon, Jan. 12, 1995, 1996:5.96

Pennsylvania, Aug. 20, 1996, 1997:5.52

Pennsylvania, May 14, 1997, 1998:5.53

Pennsylvania, Aug., 2004, 2005:5.59

South Carolina, Nov. 22, 1990, 1991:4.69

Tennessee, Feb. 8, 1996, 1997:5.52

Tennessee, Sept., 2000, **2001:**5.78

Texas, Aug. 13, 1990, 1991:4.68

Texas, April 11, 1993, **1994:**5.105

Texas, Aug., 2012, **2013:**5.62

Washington, April 27, 1998, 1999:5.54

Wisconsin, Dec. 31, 1990, **1991:**4.69

Detroit, Michigan, June 2, 1992, 1993:1.29

Fatal fires, 1994-1998, investigation report, statistics on contributing factors, and protection, **1998:**5.34

Georgia, 2009, 2010:5.31

Life Safety Code protection requirements questioned, 1997:5.68

Massachusetts, 1995, 1996:2.24

Minnesota, 2000, **2001:**5.24

Missouri, 2002, 2003:4.17

Missouri, 2009, 2010:6.25

North Carolina, March 17, 1996, 1997:5.52

North Carolina, 2007, 2008:3.32

Pennsylvania, 1993, 1994:6.33

Pennsylvania, 2008, 2009:5.25

Pennsylvania, May 4, 1997, analysis, **1997:**5.68

Quebec, Canada, Aug. 31, 1996, analysis, 1997:1.44

South Carolina, 2004:1.16

Vermont, 1995, 1996:3.36

Wisconsin, 2011, **2012:**2.18

BOARDING HOUSE FIRES. See ROOMING HOUSE FIRES

BOARDWALKS. See PIERS AND WHARVES FIRES

BOATS

Electrical safety requirements for repair equipment, wiring, 1995:5.40

Fireboats and tugboats respond to docking facility fire, 2007:4.21

Fireboats and tugboats respond to pier fire, 2007:6.78

NFPA 302, Fire Protection for Pleasure and Commercial Motor Craft, 2004 edition, requires smoke detectors on boats, **2004**:4.36

NFPA-trained marine chemists oversee safe work practices for U.S. vessels and shipyards, **2013:**2.58

Yacht manufacturing plant fire, Florida, 1996, 1997:1.28, 6.50

BOAT FIRES. See also SHIP FIRES

Arkansas, 2008, **2009:**4.21

Catastrophic

Cabin cruiser, Ohio, May 9, 1993, 1994:5.106

Louisiana, Oct., 2006, 2007:5.62

Sailboat, California, Nov. 16, 1991, 1992:4.73

Fishing boat, Washington, 1999, 2000:1.21

Florida, Dec., 2011, **2012**:6.66

Garaged boat, Florida, 2009, 2010:6.20

Kentucky, 1997, 1998:3.42

Marina, Connecticut, 1990, 1991:6.26

Massachusetts, 1994, 1995:4.39

Ohio, March, 1992, 1993:6.81

Paddle boat in drydock, Minnesota, 2000, 2001:1.23

Power boat, Nebraska, 1990, 1991:4.31

Washington, 2001, 2002:3.34

Washington, 2002, 2003:3.20

Yacht, Florida, April 19, 1996, 1997:6.60

Yacht, Florida, May, 2002, 2003:6.81

Yacht, Florida, April, 2004, 2005:6.48

BOATYARDS. See also MARINA FIRES

Boat storage building fire, Illinois, Feb., 2008, 2009:6.80

Electrical safety requirements, 1995:5.40

Fire, Maine, 2001, **2002**:6.75

NFPA-trained marine chemists oversee safe work practices for U.S. vessels and shipyards, **2013:**2.58

Repair shop fire, Maine, Feb. 1, 1999, 2000:6.86

BOEHLERT, SHERWOOD

Profile of, **1996:**1.36

BOICE, DEBORAH

SFPE president promotes diversity, more students entering fire protection engineering field, **2011:**2.13

BOLLON, VINCENT

NFPA board member's volunteer service honored, 2010:5.6

Profile of, **1999:**2.42

BOSTON, MASS. See also COCOANUT GROVE FIRE

"Big Dig" Central Artery/Tunnel Project fire safety guided by NFPA 502, *Road Tunnels*, *Bridges*, *and Other Limited Access Highways*, **2003:**3.42

Fenway Park renovations incorporate fire and life safety elements, 2012:4.48

Fire department overview, **1996:**3.110

Fire department profile, 1991:2.93

Fire landmarks in city, 1996:3.104

Fire service begins firefighter health initiative, 2008:6.13

Fourth of July city fireworks display emphasizes safety, 2000:3.98

Great Boston Molasses Flood, 1919, report on, 2011:3.90

Great Boston Molasses Flood, 1919 site, walking guide to, 2011:3.74

Great Fire of Boston, Nov. 10, 1872, photographs of, 2011:3.128

Great Fire of Boston, Nov. 10, 1872, walking guide to, 2011:3.76

Logan International Airport, emergency response drill, 1991:2.54

Logan International Airport, United Airlines constructs new membrane hangar, 2008:4.54

New Boston Convention and Exhibition Center presented fire and life safety challenges,

2004:3.62

Occupy Boston site raised fire safety concerns for fire service, 2012:1.9

Simulated plane crash into Hancock Tower tests emergency preparedness, 1993:6.35

Terrorist response training funded by Domestic Preparedness Act, 1998:1.38

Walkable guide to city's fire and disaster history, 2011:3.72

BOULDER, COLO.

Fire inspection requirements determined by life safety evaluation, 1995:1.57

BOYD, HOWARD F.

Profile of, **1993:**4.18

BOYD, WAYNE H.

Profile of, **1998:**4.39

BRACE, TOM

Profile of, **1996:**4.37

BRANCH DAVIDIAN COMPLEX FIRE

Fire investigation, Congressional testimony, 1995:6.91

BRANNIGAN, FRANK

Profile of. **1995**:1.23

BRAZIL

Kiss nightclub fire, Jan. 27, 2013, arrests made in connection with fire, 2013:3.14

Kiss nightclub fire, Jan. 27, 2013, in wake of fire, NFPA discusses code changes with Brazilian fire officials, **2013:**2.9

Kiss nightclub fire, Jan. 27, 2013, raises question again of hazardous interior finish materials, **2013:**2.32

TAM aircraft crash and fire, July 17, 2007, fire investigation report, 2008:1.36

BREEDLOVE, DIANE

Profile of, **1994:**2.22

BRICE, HERMAN W.

Profile of, **1994:**3.21

BRIDGES

Fall from, firefighter fatality related to, 2008:4.88, 2012:4.83

NFPA 502, *Road Tunnels, Bridges, and Other Limited Access Highways*, guides Boston's "Big Dig" Central Artery/Tunnel Project fire safety, **2003:**3.42

NFPA standards for bridges and tunnels provide fire protection guidance, 2003:3.56

BRIDGE FIRES

Connecticut, 1996, **1997:**3.34

BRITISH COLUMBIA, CANADA

Apartment building fire, 2012, **2013:**5.24

Manufacturing complex fire, 1991, 1992:2.26

BRODERICK, CORINNE

Profile of, 1999:3.67

BRUNO, HAL

Profile of, 1996:2.38

BRUSH FIRES

Catastrophic crop fire, Texas, March, 2003, 2004:5.72

Firefighter fatalities related to, **2006**:4.63, **2011**:4.66, 67

Firefighter injuries related to, **1994:**6.64, 66, **2013:**6.63

Highway fire ignited by, 2006:6.69

Texas, 2012, 2013:6.25

United States statistics, 2004-2008, **2011:**6.73

Wildland fire ignited by, **1994:**6.99, **2007:**6.80

BUGBEE, PERCY

Past NFPA general manager, 1995:6.77

Remembering NFPA fire prevention leader, 2008:6.88

BUILDING CODES. See BUILDING CONSTRUCTION AND SAFETY CODE® (NFPA 5000®); NFPA CODES AND STANDARDS

BUILDING CONSTRUCTION AND SAFETY CODE® (NFPA 5000®)

2006 edition, proposed changes, 2005:2.60

2006 edition requires residential sprinklers, 2005:4.10

2009 edition, proposed changes to improve occupant and responder safety in high-rise buildings, **2007:**2.36

2012 edition, proposed changes to elevator use in emergencies, environmentally sustainable building features, **2011:**3.70

After earthquake, NFPA joins Haiti Toolkit effort to include safety standards in rebuilding effort, **2010**:2.17

Aircraft hangar structural safety and economics, balancing, 2002:5.24

Assembly occupancy requirements, 2003:3.24

Assisted living facilities, requirements for, 2002:4.38

California adopts NFPA 5000TM as building code, **2003:**5.24, **2003:**6.38

California reverses decision to adopt NFPA 5000TM, **2005:**3.18

Code certification test for building inspectors/plans examiners developed by NFPA, 2002:6.62

Code changes proposed in response to Warwick, RI, The Station nightclub fire, 2005:3.44

Code will be included in federal code set, 2001:4.34

Disney World Animal Kingdom Lodge design used equivalency provisions in NFPA 5000TM, **2003:**5.38

Examining philosophy of four goals of NFPA 5000, 2004:1.30

Fire compartments and building height, new approach to, 2001:3.46

Fire-resistance-rated construction provisions within code, 2003:2.28

Full-service support to train, certify and help users of code, 2002:2.56

Hazardous materials levels identified, safety requirements offered, 2002:6.23

Historic renovations covered in Chapter 15, 2003:1.19

Integrating fire alarm and fire protection systems, 2004:2.32

Mixed use and multiple use building needs, coverage of, 2002:3.38

Natural disasters, code references best guidelines for, 2001:4.42

New York City urged to adopt code by fire service, tenants, healthcare facilities, others, **2005:**1.10

Occupancy classification determination critical to application of code requirements, **2006**:5.40 Orlando International Airport's new air traffic control tower goes beyond Building Code, **2003**:3.68

Performance-based design guided by Chapter 5, 2003:6.32

Performance-based design option included in code, 2002:2.28

Residential fire protection requirements included to promote home safety, 2003:4.22

Residential sprinkler protection requirements, 2006 edition, **2005**:4.10

Revision cycle for code changed, 2003:4.36

Roundtable discussion of code, 2001:2.42

Sports venues, fire alarm challenges of, 2004:3.38

Sprinkler requirements for nursing homes, dwellings, nightclubs, 2005:5.14

Sprinkler requirements for renovated healthcare facilities, 2002:4.22

BUILDING MATERIALS. See also INTERIOR FINISHES

European Community product testing standards will affect U. S. products, 1992:5.45

Glazing developments offer alternatives to wired glass, also raises code questions, **1998:**6.76 Green buildings (*See* ENVIRONMENT)

Post-impact collapse, World Trade Center, brings focus on fire-resistive materials' durability, **2005**:5.80

Through-penetration protection systems, 1994:1.54

BUILDING SCENE COLUMNS

Adequacy and validity of existing fire tests, 1994:2.14

Alarm system design, 1992:4.12

Americans With Disabilities Act affects builders, owners, 1992:2.14

Americans with Disabilities Act spurs changes to Life Safety Code, 1993:3.18

Basis-for-design reports help authority having jurisdiction and building owner, 1995:4.24

Cooperation needed to meet fire safety goals, 1996:3.46

Design-related sprinkler system problems, 1993:6.12

Doors, windows, walls, classification of assemblies as, 1991:2.26

Elevators as means of egress, 1996:1.30

Engineering life safety in high-rise buildings, **1992:**1.12

Establishing industrial fire safety programs, 1993:2.12

Evaluating equivalencies and exceptions to fire code standards, 1995:1.16

Evaluating occupant load for egress, 1994:1.14

Field modifications to fire doors, 1992:6.12

Fire-retardant wood shakes/shingles, 1991:1.24

Glazing materials labeling controversy, 1991:6.12

Life Safety Code, 1991, changes in, 1991:3.33

Life Safety Code, 1991, contents and furnishing regulations, 1991:4.20

Life Safety Code, building security provisions, 1992:5.22

NFPA 13, Installation of Sprinkler Systems, 1991 edit., 1991:5.12

NFPA 13, Installation of Sprinkler Systems, 1994, changes in, 1994:3.14

NFPA 101, Life Safety Code, applied to industrial occupancies, 1994:4.16

Occupant load calculation myths, 1996:6.30

Out-of-service fire protection systems, procedures for, **1996**:4.30

Partnership of owners, designers, and public officials a must in fire protection, 1993:1.12

Performance-based code development, 1994:6.16, 1995:2.16

Performance-based codes, 1992:3.20

Performance-based codes, designing buildings for, 1995:5.20

Performance-based codes based on existing codes, 1995:3.24

Performance objectives for existing buildings, 1995:6.22

Preventing detector nuisance alarms, 1993:5.16

Regulations' effect on innovative construction methods, 1996:2.32

Top five excuses for ignoring fire protection requirements, 1996:5.32

Warehouse sprinkler system design, 1993:4.16

BUILDING SYSTEMS. See also specific systems

Integrated building system design, requirements, and goals, 2008:6.62

BUILDING TO CODE COLUMNS

Assembly occupancies and NFPA 5000TM, **2003:**3.24

Disney World Animal Kingdom Lodge design used equivalency provisions in NFPA 101® and NFPA 5000™, **2003:**5.38

Examining philosophy of building codes, **2004:**1.30

Fire-resistance-rated construction provisions within NFPA 5000TM, **2003:**2.28

NFPA 5000TM and historic renovations, **2003:**1.19

Performance-based design guided by NFPA 5000TM, **2003:**6.32

To promote home safety, NFPA 5000™ includes residential fire protection requirements, **2003:**4.22

BUILDING-UNDER-CONSTRUCTION FIRES. See also DWELLING-UNDER-CONSTRUCTION FIRES

Animal shelter, California, 2001, 2002:3.36

Apartment building, Arizona, Sept., 2012, 2013:6.57

Apartment building, California, 1997, 1998:2.18

Apartment building, California, June, 1998, 1999:6.96

Apartment building, California, 2002, 2003:5.16

Apartment building, Florida, May, 2000, 2001:6.63

Apartment building, Illinois, 2010, 2011:1.25

Apartment building, Indiana, March, 2009, 2010:6.63

Apartment building, Maryland, 2001, 2002:5.18

Apartment building, Minnesota, June, 2003, 2004:6.54

Apartment building, Minnesota, April, 2008, 2009:6.82

Apartment building, Missouri, Sept., 2012, 2013:6.59

Apartment building, Nebraska, Jan., 2004, 2005:6.44

Apartment building, Oklahoma, June, 1998, 1999:6.97

Apartment building, Oklahoma, Oct., 2009, 2010:6.65

Apartment building, Oregon, Aug. 19, 1999, 2000:6.95

Apartment building, Oregon, March, 2003, 2004:6.54

Apartment building, Oregon, 2004, 2005:4.19

Apartment building, Pennsylvania, Aug., 2008, 2009:6.82

Apartment building, Texas, Aug., 2004, 2005:6.44

Apartment building, Washington, June, 2009, 2010:6.64

Apartment complex, California, May, 2003, 2004:6.54

Apartment complex, California, Nov. 10, 1990, 1991:6.73

Apartment complex, Iowa, April, 2003, 2004:6.53

Apartment complex, Kentucky, 2000, 2001:3.36

Apartment complex, Nevada, Jan., 2003, 2004:6.55

Apartment complex, Nevada, Sept., 2003, 2004:6.54

Apartment complex, New Jersey, Aug., 2000, 2001:6.63

Assisted living facility, Montana, March, 2005, 2006:6.69

California, 2001, 2002:6.75

California, Jan., 2004, **2005**:6.44

Condominium, Wisconsin, Feb., 2005, 2006:6.68

Condominium complex, Florida, 1998, 1999:4.21

Courthouse, New Hampshire, 2002, 2003:1.14

Dormitory, Washington, March, 2006, 2007:6.81

Hotel, Connecticut, Aug., 2005, 2006:6.69

Hotel, Virginia, Sept., 2008, 2009:6.82

Laboratory, Massachusetts, Feb., 2005, 2006:6.68

Missouri, Oct., 2005, 2006:6.69

Mixed-use, Colorado, Jan., 2006, 2007:6.81

Mixed-use, Washington, 2005, 2006:6.24

Museum, Oregon, 1994, 1995:6.35

Observatory, Hawaii, Jan. 16, 1996, 1997:5.52, 6.59

Office building, New York, April, 2003, 2004:6.53

Ohio, March, 1994, 1995:6.110

Postal facility, Massachusetts, 1990, 1991:3.27

Power plant, Connecticut, Feb., 2010, 2011:5.78, 7.42

Senior center, Kansas, March, 2004, 2005:6.44

BUILDING-UNDER-RENOVATION FIRES. See also DWELLING-UNDER-RENOVATION FIRES

California, 1991, 1992:5.26

California, Oct., 2005, 2006:6.68

Catastrophic

Alabama, Jan. 22, 1999, **2000:**5.61

Connecticut, Dec., 2011, 2012:5.72

Dwelling, Arkansas, June 18, 1993, 1994:5.104

Grain elevator, Indiana, Oct. 1, 1996, 1997:5.52

Restaurant/apartment building, Minnesota, Dec. 11, 1998, 1999:5.55

Church, Kansas, 1998, 1999:6.17

City hall rotunda, California, Feb., 1998, 1999:6.96

Courthouse, Maryland, Nov., 2004, 2005:6.45

Dwelling, California, 1999, **2000**:3.36

Dwelling, Colorado, 2010, 2011:7.18

Dwelling, New York, Dec. 18, 1999, 2000:6.93

Dwelling, Tennessee, 2008, 2008:3.21

Dwelling, Texas, 2003, 2004:4.16

Dwelling, Washington, 2000, 2001:1.20

Group home, Rhode Island, 2003, **2004:**3.24

Historic building, West Virginia, 1996, 1997:6.22

Manufacturing plant, Florida, May, 1998, 1999:6.90

Manufacturing plant, Rhode Island, 2011, 2012:3.28

Manufacturing plant, South Dakota, Dec. 15, 1990, 1991:6.75

Massachusetts, 1997, 1998:3.42

Mill, North Carolina, Aug., 1998, 1999:6.97

New York, 2003, 2004:2.19

New York, Dec., 2010, 2011:7.59

Pennsylvania, 1997, 1998:6.24

Recreational facility, Illinois, March, 1992, 1993:6.88

School, Washington, 2001, 2002:6.75

School, Washington, Nov., 2009, 2010:6.63

Stores, Montana, March, 2009, 2010:6.64

Warehouse/homeless shelter, Washington, 1991:4.31

BUKOWSKI, RICHARD W.

Profile of. 1994:1.23

BUNCEFIELD OIL DEPOT FIRE

Hertfordshire, England, Dec. 11, 2005, 2006:3.86

BURNING ISSUES COLUMNS

Candle fire statistics and fire safety information, 1998:3.160

Carbon monoxide poisoning, causes, symptoms, prevention, 1997:6.120

Children and fires, statistics, 1995:5.144

Cigarette smoking statistics, **1995:**3.160

Disabled persons, fire safety for, 1996:4.112

Dormitory fire statistics, 1997:3.152

Elderly and fires, statistics, 1996:2.104

Elderly fire fatalities, statistics and education program, 1999:4.112

Federal fire safe hotel/motel list available to public; hotel fire statistics, 1999:5.112

Fire safety checklist, 1997:1.104

Fire safety for preschoolers, 1997:2.112

Fireworks incident statistics and safety, 1998:4.96

"Great Escape" has made progress, but home fire safety misconceptions persist, 2000:5.112

Holiday and heating season fire safety, **1998:**6.120

Home heating equipment, risks of, 1996:6.128

Kitchen fire statistics, fire safety information, 1998:1.88

Motor vehicle and aircraft fire statistics compared, 1995:4.120

Motor vehicle fire statistics and fire safety information, 1998:2.88

Multiple fatality fires at fraternity houses, 2000:3.176

NFPA 414, Airport Rescue and Fire Fighting Vehicles, addresses changes in fire fighting and agent vehicles, **2000:**1.96

NFPA codes and standards being updated, **1996:**5.120

100s in NFPA history, 1996:3.160

Poverty's effect on fire risk, 1996:1.104

Residential candles fires increasing in number, 2000:6.112

Residential fire statistics and safety information, 1998:5.112

Roof fire safety statistics and construction/repair recommendations, 1999:2.96

School fire drills needed to keep schools fire safe, 1999:1.80

School fire safety holds lessons for other occupancies, **1997:**5.104

Security devices increase risk of fire injury, 1999:3.176

Storm-caused power outages, safety during, 2000:2.96

Summer fire hazards, 1997:4.96

Trans-Alaska pipeline officials face fire protection challenges, 2000:4.96

Underwriters Laboratories report compares National Electrical Code and IEC 60364,

1999:6.112

BURNS

Burns and smoke compared as fire death causes, 1995:1.38

Common products that cause severe burns, 1996:1.79

Firefighter fatalities related to, 2000:4.56, 57, 58, 59, 2001:4.79, 2003:4.62

Firefighter injuries, **1997**:6.74, 75, 76, **2001**:6.53, **2003**:6.70, 71

Preventing scald injuries, 2005:2.38

Storm, Hannah, burn survivor and ESPN anchor, spreads NFPA's grilling safety message, **2013:**2.14

BUS FIRES

Illinois, 1991, **1992:**4.26

Storage facility, New Mexico, 1999, 2000:6.14

Texas, Sept., 2005, **2006:**5.63

Vehicle fires involving buses, special report, 2006:5.64

West Virginia, 2003, 2004:4.16

BUSINESS CONTINUITY

Business continuity planning protects against service interruptions, 2000:1.54

Implementing NFPA 1600, *National Preparedness Standard*, explains development of compliant programs, **2008:**1.16

National Electrical Code® article references NFPA 1600 requirements, 2008:1.49

NFPA 75, *Protection of Information Technology Equipment*, provides guide to achieve continuity, **2006:**4.64

NFPA 1600, *Disaster/Emergency Management and Business Continuity Program*, available as iPhone app, **2009:**5.21

NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, adopted by Canadian Standards Association adopts as basis for its standard, **2008**:6.13

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, 2007 edition, available at no cost, **2007**:3.20

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, as national preparedness standard, **2005**:1.44

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, fall meeting review, **1999:**5.97

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, implementation case study: Goodyear Global Business Continuity Program, **2008**:1.44

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, is important tool for response and recovery, **2002:**4.88

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, proposed as National Preparedness Standard basis by 9/11 Commission, **2004:**5.58

BUTTERWORTH, LYDIA

Profile of, **1999:**5.39

BUZZ WORDS COLUMNS

AHJ should verify alarm installer qualifications, 2006:2:38

Airport detection and notification challenges, 2004:5.32

Airport fire alarm and voice systems require thorough testing, 2002:5.36

Alarm industry buzz words emphasize commitment to ethical performance, 1999:3.61

Alarm systems installed poorly, too early, cause nuisance alarms, 1999:1.29

Annex information in *National Fire Alarm Code*® provides explanatory material, **2008:**1.30

Assessing fire alarm installations for workmanlike quality, 1999:2.37

Audibility, intelligibility, and mass notification systems' importance in emergency notification, **2008:**2.40

Authorities having jurisdiction not adequately enforcing the *National Fire Alarm Code*, **2007:**3.46

Campus fire safety increased by increasing smoke detector reliability, **2006:5**.42

Comprehensive acceptance testing of alarm system is critical, 2000:3.55

Contractor's role in complying with intelligibility and audibility requirements, 2010:4.42

Cooperation engendered by earlier false alarm summit sets example for upcoming conference, **2011:**3.58

Coordinating homeland security and NFPA 72® requirements for mass notification, **2004:**1.29 Designers, installers, AHJs should help building owners to comply with National Fire Alarm Code, **2001:**2.36

Dormitory fire safety, **2000:**5.38

Educational occupancies protected by properly designed, installed, and maintained alarm systems, **2003**:5.36

Emergency control function interfaces with non-fire alarm systems regulated by code, **2013**:2.34

False alarms can be prevented by using NFPA 72®, National Fire Alarm Code®, 2002:1.34

Fire alarm system needs to meet survivability and reliability requirements, 2010:3.54

Fire alarm system requirements for healthcare occupancies, 2000:2.35

Fire alarm technician training key to improving alarm system reliability, 2009:6.34

Fire protection professionals' duty to cooperate to provide life safety, property protection, **1999:**5.32

Fire service, manufacturers, dealers, and installers should work together to improve alarm system installations, **2007**:6.32

Health care occupancies' fire alarm systems designed to integrate reliability, reduce costs, **2012:**1.36

Health care occupancies require smoke door release methods, **2005:**6.30

High-rise building emergency communication requirements addressed by NFPA 72, 2001:3.50

For historic buildings, retrofitting fire alarm systems is keen challenge, 2003:1.30

How to meet code when installing alarm systems, 1999:4.36

Industrial and storage occupancies present fire alarm system design and installation challenges, **2009:**2.36

Industrial facilities present unique challenges for fire alarm system installation, 2001:5.40

Industrial occupancy sprinkler and alarm system code requirements, 2012:2.36

Installer competency important to AHJ and owner, **2006:**1.30

Integrating alarm systems with other building systems, 2000:1.30

Integrating fire alarm and fire protection systems, 2004:2.32

Integrating fire pumps and fire alarm systems, 2005:5.38

Interpreting "intent of the code," roles of designer and AHJ in, 2009:1.31

Maintenance and testing of alarm systems important to operational reliability, 2007:1.30

Mass notification system requirements proposed for NFPA 72®, to aid homeland security, **2004**:6.30

New alarm technology requires more training, 2005:3.40

NFPA 1, *Uniform Fire Code*®, *National Electrical Code*®, and NFPA 72®, contain requirements for replacing and abandoned fire alarm systems, **2008**:4.34

NFPA 72®, 2007, changes influenced significantly by research, 2007:5.42

NFPA 72®, 2007, new requirements, **2006**:6.34

- NFPA 72®, 2010, allows another emergency signal to take precedence over alarm signal, **2011:**5.36
- NFPA 72®, 2010, combined voice/alarm and other communication systems, mean new challenges for inspectors, **2009**:3.54
- NFPA 72®, 2010, eliminates fire alarm circuit style designations, 2011:2.38
- NFPA 72[®], 2010, emergency communications systems requirements, including intelligibility, **2012:**3.50
- NFPA 72[®], 2010, emergency communications systems requirements need well-versed installers, designers, and AHJs, **2009:**4.32
- NFPA 72®, 2010, includes new requirements to enhance firefighter communications, **2011:**7.36
- NFPA 72®, 2010, requirements for alarms audible by hearing impaired, 2010:1.36
- NFPA 72®, 2013, installation, acceptance testing, and development of required documentation, **2013:**3.42
- NFPA 72®, 2013, spells out documentation requirements for building owners, 2013:1.36
- NFPA 72[®] changes driven by technology, **2007:**4.38
- NFPA 72® committee considers code changes, 2001:4.36
- NFPA 72® defines how to install alarm system, while other codes define when system is required, **2008**:6.32
- NFPA 72® does not add or delete requirements from building codes, 2003:2.40
- NFPA 72® enforcement requires education of authority have jurisdiction (AHJ), 1999:6.30
- NFPA 72® includes maintenance and testing requirements, 2005:4.32
- NFPA 72[®] requires evaluation of public address systems for emergency communications, **2012:**4.40
- NFPA 72® requires good record-keeping, 2002:2.40
- NFPA 72® should require third-party commissioning agent for proper alarm system commissioning, **2008:**3.42
- NFPA 72® updated for residential fire alarm systems, 2003:4.34
- NFPA 101, *Life Safety Code*[®], and NFPA 72 allow schools to use fire alarm system for purposes other than fire, **2012:**5.40
- NFPA 909, Protection of Cultural Resources Including Museums, Libraries, Places of Worship, and Historic Properties, provides fire protection guidance for historical, cultural properties, **2000:**6.28
- NFPA and local building codes help define 'best' alarm system for application, 2001:6.31
- NFPA task group considers interconnectivity issues for fire alarm systems and Ethernets, **2013:**5.38
- NFPA technical interpretations of National Fire Alarm Code® available to members, **2001:**1.34
- Nightclub fire alarm systems present challenges, **2003**:6.30
- Other codes and their interaction with NFPA 72 for alarm installation, 2010:2.38
- Owner, designer, and installer responsibilities for alarm system installation, 2002:6.32
- Periodic testing increases reliability of alarm system, 2000:4.34
- Planning and installing fire alarm systems requires review of all NFPA 72[®] chapters, **2012**:6.36
- Protection goal should be clear before proposing detection solution, 2013:6.33
- Qualified, well-trained service personnel vital to alarm system operational reliability, **2008**:5.40

Qualified installers, familiar with NFPA 72, should install all alarm systems, 2005:2.36

Quality and reliability of alarm system installations, 2005:1.28

Quality vs. cost struggle in applying NFPA codes and standards, 2002:4.34

Seaports, designing fire detection and notification for, **2004:**4.30

Smoke detector spacing guidelines, 2006:4.36

Sports venues and the fire alarm systems challenge, 2004:3.38

Sprinkler system and fire alarm system interconnections, 2010:6.35

Staying qualified as an alarm professional, **2002:**3.50

Technical Committees work to improve NFPA 72®, National Fire Alarm Code®, 2006:3.46

Testing and maintenance of fire alarms important even when cost-cutting, 2009:5.38

Testing is important after installation or system changes, 2013:4.34

Testing requirements for new fire alarm systems covered in NFPA 72®, Chapter 14, 2010:5.44

Testing responsibility shared by Installers, contractors, designers, and inspectors, **2011**:4.36

Understanding limitations of a fire alarm system, 2003:3.36

Voice intelligibility of alarm systems, design, manufacturing, and testing for, 2011:1.36

Wiring insulation requirements for fire alarm systems, myths, realities, and requirements, **2007:**2.32

 \boldsymbol{C}

CADE, GREGORY

Named new NFPA Government Affairs director, **2010**:6.17

CALIFORNIA

Agricultural facility fire, Feb., 2011, 2012:6.64

Aircraft fire, Nov. 7, 1990, **1991:**6.74

Aircraft fire, Feb., 1991, **1992:**6.76

Aircraft fire, July, 1994, **1995:**6.110

Aircraft hangar fire, 1994, 1995:5.36

Aircraft hangar fire, 1998, 1999:2.25

Aircraft hangar fire, 2001, 2002:3.34

Aircraft hangar fire, 2003, 2004:1.17

Amusement park fire, 1993, **1994:**3.28

Apartment building fire, 1990, 1991:5.26

Apartment building fire, 1996, **1997:**3.30

Apartment building fire, 1997, 1998:5.15

Apartment building fire, July, 2005, 2006:6.71

Apartment building fire, 2009, 2010:4.25, 27

Apartment building fire, 2012, 2013:2.21

Apartment complex fire, Nov. 10, 1990, **1991**:6.73

Apartment complex fire, 1992, 1993:5.35

Apartment complex fire, 1993, **1994:**2.28

Board and care facility fire, 1993, 1994:2.30

Building-under-construction fire, 1993, 1994:3.27

Building-under-construction fire, 1997, 1998:2.18

Building-under-construction fire, 2001, 2002:3.36, 2002:6.75

Building-under-construction fire, 2002, 2003:5.16

Building-under-construction fire, May, 2003, 2004:6.54

Building-under-construction fire, Jan., 2004, 2005:6.44

Building-under-construction fire, 2007, 2008:5.26

Building-under-renovation fire, 1991, 1992:5.26

Building-under-renovation fire, Feb., 1998, 1999:6.96

Building-under-renovation fire, Oct., 2005, 2006:6.68

Catastrophic fires

Aircraft, Nov. 26, 1993, 1994:5.108

Aircraft, Dec. 15, 1993, 1994:5.106

Aircraft, June, 2002, 2003:5.75

Apartment building, Sept. 7, 1991, 1992:4.69

Apartment building, Apr. 26, 1993, 1994:5.96

Apartment building, May 3, 1993, **1994:**5.95

Apartment building, June 6, 1994, **1995:**5.59

Apartment building, Oct. 14, 1995, 1996:5.93

Apartment building, Feb. 6, 1996, **1997:**5.49

Apartment building, Dec. 13, 1997, 1998:5.46

Apartment building, Sept., 2005, 2006:5.62

Apartment building, July, 2007, 2008:5.59

Board and care facility, Oct. 3, 1995, **1996:**5.97

Board and care facility, Oct., 2003, 2004:5.71

Board and care facility, May, 2011, 2012:5.73

Boat, Nov. 16, 1991, 1992:4.73

Dwelling, Aug. 3, 1992, 1993:5.64

Dwelling, Nov. 29, 1994, 1995:5.62

Dwelling, May 29, 1995, **1996:**5.91

Dwelling, Dec. 14, 1995, 1996:5.92

Dwelling, Dec. 19, 1996, 1997:5.51

Dwelling, April 26, 1997, 1998:5.45

Dwelling, June 1, 1997, 1998:5.49

Dwelling, July, 2003, 2004:5.68

Fire apparatus, July, 2002, **2003:**5.75

Manufactured home, Dec. 30, 1997, 1998:5.50

Manufactured home, Jan., 2010, 2011:5.74

Manufacturing plant, Nov. 15, 1997, 1998:5.53

Motor home, July 30, 1990, 1991:4.72

Motor vehicle, Jan. 23, 1990, 1991:4.70

Motor vehicle, Oct. 2, 1990, 1991:4.72

Motor vehicle, Nov. 29, 1991, 1992:4.73

Motor vehicle, Dec. 25, 1991, 1992:4.73

Motor vehicle, March 3, 1994, 1995:5.68

Motor vehicle, June 18, 1995, **1996:**5.97

Motor vehicle, June 23, 1995, 1996:5.100

Motor vehicle, June 27, 1995, 1996:5.100

Motor vehicle, Sept. 9, 1995, **1996:**5.100

Motor vehicle, Sept. 10, 1995, 1996:5.100

Motor vehicle, Dec. 28, 1996, 1997:5.55

Motor vehicle, May 4, 1997, 1998:5.55

Motor vehicle, March, 2000, 2001:5.79

Motor vehicle, Nov., 2005, 2006:5.64

Motor vehicle, July, 2006, 2007:5.62

Motor vehicle, Jan., 2007, 2008:5.62

Motor vehicle, Dec., 2007, 2008:5.63

Motor vehicle, Aug., 2009, 2010:5.68

Motor vehicle, Feb., 2010, 2011:5.79

Oil refinery, Feb. 23, 1999, 2000:5.59

Outside, trench for pipeline, Nov., 2004, 2005:5.60

Pipeline, Sept., 2010, 2011:5.79

Runway aircraft collision, fire, Feb. 1, 1991, 1992:4.72

Structure fires due to civil disturbance, April 29-May 1, 1992, 1993:5.67

Test facility, July, 2007, 2008:5.61

Tool shed, Sept., 2010, 2011:5.78

Truck, July 29, 1998, 1999:5.56

Underground electrical vault, July 12, 1990, 1991:4.69

Vacant dwelling, July 22, 1990, **1991:**4.67

Wildland, Oct. 20, 1991, **1992:**4.72

Wildland, Oct., 2006, 2007:5.62

Wildland, Oct., 2007, 2008:5.62

Wildland, Aug., 2008, 2009:5.84

Wildland-urban interface, Nov. 2, 1993, 1994:5.108

Wildland-urban interface, Oct., 2003, 2004:5.72, 2004:5.73

Church fire, 2005, **2006:**1.22

Cigarettes, fire-safe, legislation, **2005**:6.10, **2007**:1.12

Condominium complex fire, 1990, **1991**:6.24

Detention facility fire, 1992, 1993:5.36

Dwelling fire, 1991, 1992:4.26, 1992:6.28

Dwelling fire, 1992, 1993:4.25

Dwelling fire, April, 1992, **1993:**6.79

Dwelling fire, Sept., 1992, 1993:6.81

Dwelling fire, 1995, **1996:**2.23, **1996:**3.36

Dwelling fire, Jan., 1998, 1999:6.97

Dwelling fire, 1999, 2000:3.36, 2000:4.18

Dwelling fire, Aug., 2002, 2003:6.81

Dwelling fire, 2003, **2004:**5.18

Dwelling fire, 2004, **2005**:4.20

Dwelling fire, 2005, 2006:5.28, 34

Dwelling fire, Dec., 2006, 2007:6.80

Dwelling fire, 2011, **2012:**5.22

Earthquake, Northridge, Jan. 17, 1994, 1995:3.52

Electric generating plant fire, Jan. 10, 1990, 1991:6.76

Electric generating plant fire, 1998, 1999:4.22

Electric power conversion facility fire, Oct., 1993, 1994:6.92

Electric substation fire, March, 2003, 2004:6.56

Fatal fires

Agricultural building, 2009:4.22

Aircraft, Dec., 1994, **1995:**6.110

Apartment building, 1990, **1991:**4.26

Apartment building, Nov., 1993, 1994:6.89

Apartment building, 1997, **1998:**4.19

Apartment building, 2000, 2001:1.21, 2001:3.32

Apartment building, 2007, 2008:2.26, 2008:3.28

Apartment building, 2008, 2009:6.24

Apartment building, 2010, 2011:1.20, 2.28, 3.34

Apartment building, 2012, 2013:1.24

Automobile, 1990, 1991:2.32

Board and care facility, 1996, **1997:**1.27

Dwelling, 1994, 1995:2.30, 2005:2.22

Dwellings, 1995, 1996:1.23, 1996:6.22

Dwelling, 1997, 1998:5.16

Dwelling, 1998, 1999:6.19

Dwelling, 1999, 2000:1.20

Dwelling, 2000, 2001:6.20

Dwelling, 2001, 2002:4.19

Dwelling, 2002, 2003:5.14, 2003:6.14

Dwelling, 2004, 2005:3.24

Dwelling, 2005, **2006:**5.32

Dwelling, 2006, 2007:4.25

Dwelling, 2008, 2009:3.38, 5.23

Dwelling, 2009, 2010:6.25

Dwelling, 2010, **2011:**1.22, 3.42, 7.15

Dwelling, 2011, **2012:**2.14, 4.23

Dwelling, 2012, **2013:**3.22

Garage, residential, 2008, 2009:1.18

High-rise office building, May 4, 1988, 1992:5.56

Hotel, 2004, 2005:6.21

Manufactured home, 1998, **1999:**5.20, **1999:**6.18

Manufactured home, 2012, 2013:6.20, 2013:6.23

Manufacturing plant, 1997, **1998:**6.22

Manufacturing plant, 2010, 2011:4.14

Motor vehicle, 1995, 1996:1.21

Paint plant explosion, fire, 1991, **1992:**4.28

Pipeline, Sept., 2010, 2011:7.59

Propane truck/clubhouse, 1997, 1998:2.19

Structure fires due to civil disturbances, April 29-May 1, 1992, **1993**:6.81

Test facility, **1995:**4.40

Travel trailer, 2007, 2008:5.30

Wildland, Aug., 1992, 1993:6.88

Wildland, Oct. 16, 1999, 2000:6.94

Wildland, Oct., 2003, **2004**:6.55

Wildland/urban interface, Nov., 1993, 1994:6.99

Wildland/urban interface, Oct., 2003, 2004:6.55

Fire station fire, 1998, **1999:**4.21

Garage, parking, fire, 2009, 2010:3.43

Garage, residential, fire, 1992, 1993:6.29

Garage, residential, fire, 2001, 2002:6.21

Garage, residential, fire, 2010, **2011:2.**27

Garage, residential, fire, 2011, **2012:**5.24

Health clinic fires, 1995, 1996:1.24

High-rise office building fire, Feb. 15, 1992, 1992:5.56

Highway fire, Nov., 2005, 2006:6.69

Hotel fire, 1990, 1991:6.24

Hotel fire, 1993, 1994:2.28

Hotel fire, 2003, 2004:3.18

Hotel fire, 2007, **2008:**6.21

Housing for elderly fire, 1995, 1996:5.24

Laboratory fire, May, 2001, 2001:6.64

Laboratory fire, Jan., 2002, **2003:**6.79

Laboratory fire, Feb., 2011, 2012:6.64

Library fire, Jan., 1992, 1993:6.79

Manufacturing plant fire, 1990, 1991:6.25

Manufacturing plant fire, Jan. 12, 1990, **1991**:6.75

Manufacturing plant fire, 1992, 1993:4.27

Manufacturing plant fire, Jan., 1992, 1993:6.84

Manufacturing plant fire, 1993, **1994**:4.31, **1994**:6.36

Manufacturing plant fire, 1994, 1995:4.40

Manufacturing plant fire, April, 1994, 1995:6.107

Manufacturing plant fire, March, 1994, 1995:6.106

Manufacturing plant fire, 1995, 1996:6.23

Manufacturing plant fire, 1997, **1998**:2.20, 3.41, 4.21, 6.21

Manufacturing plant fire, Aug. 26, 1997, 1998:6.84

Manufacturing plant fire, 1998, 1999:2.26

Manufacturing plant fire, Aug., 1998, 1999:6.91

Manufacturing plant fire, 1999, 2000:3.38

Manufacturing plant fire, March 31, 1999, 2000:6.86

Manufacturing plant fire, 2002, 2003:1.14, 2003:5.18

Manufacturing plant fire, 2003, 2004:2.16

Manufacturing plant fire, Oct., 2003, 2004:6.53

Manufacturing plant fire, July, 2004, 2005:6.46

Manufacturing plant fire, 2006, 2007:6.22

Manufacturing plant fire, 2007, 2008:1.24

Manufacturing plant fire, Sept., 2009, 2010:6.66

Manufacturing plant fire, May, 2011, 2012:6.63

Manufacturing plant fire, 2012, **2013**:2.25, 5.27

Medical research laboratory fire, 1990, 1991:5.30

Mixed-use building fire, 2011, 2012:4.22

Motion picture studio/manufacturing plant fire, Nov. 6, 1990, **1991:**6.74

Motor home fire, 1994, 1995:5.36

Motor vehicle fire, Nov. 18, 1999, 2000:6.94

Motor vehicle fire, April, 2007, 2008:6.45

Motor vehicle repair shop fire, 1990, 1991:2.30

Multiple occupancy building fire, 1990, 1991:6.25

Multiple occupancy building fire, 2000, 2001:3.28

National forest fire, June 27, 1990, 1991:2.30

Naval facility incident, 1993, 1994:3.29

NFPA 5000TM and NFPA 1 adopted by state, **2003:**5.24, **2003:**6.38

Nursing home fire, 2010, **2011:**3.49

Office building fire, 1991, **1992**:1.23

Office building fire, March, 1991, 1992:6.78

Office building fire, 1993, 1994:5.30

Office building fire, 1994, 1995:5.35

Office building fire, 1995, 1996:1.21

Office building fire, Feb. 20., 1999, 2000:6.92

Office building fire, 2001, 2002:2.22

Office building fire, 2002, 2003:6.16

Office building fire, 2004, 2005:6.16

Office building fire, 2012, 2013:4.18

Power plant fire, Jan., 2011, 2012:6.64

Radio station fire, 1994, 1995:4.40

Refinery fire, Oct., 1992, 1993:6.82

Refinery fire, Jan., 1995, 1996:6.63

Refinery fire, Jan. 21, 1997, 1998:4.21

Refinery fire, March 25, 1999, 2000:5.59, 6.83

Refinery fire, Feb. 23, 1999, 2000:6.83

Refinery fire, 2001, 2002:6.75

Refinery fire, Dec., 2006, 2007:6.77

Residential and business structure fire, Aug., 2002, 2003:6.79

Restaurant fire, 1990, 1992:3.34

Restaurant fire, 1992, **1993**:4.28, **1993**:5.35

Restaurant fire, 1997, 1998:3.36, 4.22

Restaurant fire, April, 2005, 2006:6.74

Restaurant fire, 2010, 2011:1.26

Sawmill/manufacturing plant fire, March, 1991, **1992:**6.79

School fire, 1991, **1992**:6.29

School fire, 1992, 1993:4.28

School fire, 1997, 1998:1.21

School fire, 1999, **2000**:4.20

School fire, 2002, 2003:5.20

School fire, Nov., 2003, 2004:6.57

School fire, Feb., 2004, **2005**:6.49

School fire, July, 2010, 2011:7.58

Shed fire, 1991, **1992**:6.26

```
Shopping mall fire, 1993, 1994:6.35
```

Shopping mall fire, Nov., 1998, 1999:6.94

Shopping mall fire, 2000, **2001**:2.23

Shopping mall fire, 2007, 2008:1.22

Shopping mall fire, Oct., 2010, 2011:7.59

Storage facility fire, 1992, **1993:**6.29

Storage facility fire, 1999, **2000**:4.20

Storage facility fire, 2003, **2004:**2.17

Storage facility fire, Jan., 2010, 2011:7.56

Storage facility fire, April, 2011, 2012:6.66

Storage tank fire, Nov., 2012, **2013:**6.57

Store fire, 1990, **1991:**6.26

Store fire, 1992, **1993:**2.19, **1993:**5.38

Store fire, 1995, **1996:**5.26

Store fire, 1996, **1997:**1.27

Store fire, 1997, **1998:**4.21

Store fire, 1998, **1999:**5.22

Store fire, July 2, 1999, 2000:6.91

Store fire, 2001, 2002:4.16

Store fire, July, 2006, **2007:**6.79

Store fire, 2007, 2008:1.24

Store fire, 2011, **2012:**1.22, **2012:**2.22

Store fire, Aug., 2012, 2013:6.56

Theater/lodge fire, 1995, 1996:1.24

Theater fire, 1996, 1997:3.29

Tire and grass fire, 1998, 1999:4.21

Vacant dance studio, in shopping center, fire, 1998, 1999:4.21

Warehouse fire, 1990, **1991**:1.61, **1991**:6.73

Warehouse fire, 1991, **1992:**1.23, **1993:**1.28

Warehouse fire, 1992, **1993:**4.26

Warehouse fire, 1996, 1997:6.23

Warehouse fire, Sept. 25, 1996, 1997:6.57

Warehouse fire, June, 2000, **2001**:6.62

Warehouse fire, 2002, 2003:6.15

Warehouse fire, Nov., 2005, 2006:6.73

Wharf fire, Nov., 1998, 1999:6.96

Wildland fires

Aug. 6, 1990, 1991:6.74

1992, **1993:**4.28

Sept., 1992, **1993:**6.88, **1993:**6.89

Aug. 13, 1997, **1998:**6.92

Aug. 28, 1999, 2000:6.94

Dec. 21, 1999, **2000**:6.94

March, 2007, **2008**:6.43

June, 2008, **2009:**6.80

Aug., 2008, **2009:**6.80

```
Nov., 2008, 2009:6.79
     Aug., 2013, Rim Fire threatened San Francisco water supply and power supply, 2013:5.11
     Recent fires move Californians to become "Firewise," 2004:2.70
     Staffing for, 2004:2.68
  Wildland/urban interface fires
     Nov., 1961, Brentwood-Bel Air fire, 2011:6.80
     June 27, 1990, 1991:1.59, 1991:6.73, 74, 75
     Oct., 1991, 1992:6.74
     Aug., 1992, 1993:6.89
     Oct., 1993, 1994:6.99
     June, 1994, 1995:6.111
     Aug., 1994, 1995:6.111
     Sept. 27, 1997, 1998:6.92
     Feb., 2002, 2003:6.80
     Aug., 2002, 2003:6.80
     Oct., 2003, 2004:6.55
      Dec., 2006, 2007:6.81
     Jan., 2007, 2008:6.43
     June, 2007, 2008:6.43
     Oct., 2007, 2008:6.43
     Nov., 2007, 2008:6.43
     May, 2009, 2010:6.67
     Aug., 2009, 2010:6.67
     2010, 2011:6.16, 18, 19
     Aug., 2012, Ponderosa Fire, 2013:6.54
CAMPING TRAILER FIRES. See also RECREATIONAL VEHICLE FIRES
  California, 2007, 2008:5.30
  Catastrophic
     Alabama, Dec. 6, 1997, 1998:5.56
     North Carolina, Nov., 2004, 2005:5.61
     Ohio, Nov. 29, 1997, 1998:5.56
     Oregon, March, 2007, 2008:5.63
  Fatal
     Michigan, 1998, 1999:1.19
     Texas, 2012, 2013:3.28
  North Carolina, 2006, 2007:5.25
  Ohio, 1996, 1997:6.20
  Trailer parked in aircraft hangar, California, 1998, 1999:2.25
CANADA. See also ONTARIO, CANADA
  Aircraft crash fire, runway overshoot, Toronto Pearson International Airport, Aug. 2, 2005,
         2005:6.34
  Apartment building fire, Alberta, 1990, 1991:5.26
  Apartment building fire, British Columbia, 2012, 2013:5.24
  Canadian Standards Association adopts NFPA 1600, Disaster/Emergency Management and
         Business Continuity Programs, as basis for its standard, 2008:6.13
  Canadian Standards Association and NFPA form alliance to enhance public safety, 2006:2.16
```

Detention facility fire, St. John, New Brunswick, June 21, 1977, 1994:5.50 Fire-safe cigarettes mandated by Parliament, **2004:**3.40 Hazardous materials response, 1992:1.38 Motor vehicle repair shop fire, Ontario, 1989, 1991:1.28 NFPA-Standards Council of Canada partner to adapt NFPA first responder electric vehicle training program for Canada, 2013:3.16 Suncor Energy Inc. oil sands operation addresses fire prevention challenges, 2004:6.36 At Suncor Energy Inc. oil sands operation, teamwork helps fight dangerous cold weather fire, **2005:**6.58 Tire fire, Ontario, 1990, **1991:**1.50 Tire fire, Quebec, 1990, **1991:**1.55 Wildland/urban interface fire, 2010, 2011:6.19 CANARY ISLANDS Tenarife airport aircraft collision disaster, March 27, 1977, **2012:**2.80 **CANDLES** Apartment building fire caused by, **1999**:2.24, **2003**:3.16, **2003**:4.14, **2007**:1.19 Catastrophic fires caused by Apartment, **2006:**5.60 Dwelling, 1993:5.64, 1994:5.97, 1995:5.53, 59, 1997:5.49, 1998:5.49, 2001:5.76, **2002:**5.82, **2004:**5.68, **2007:**5.59 Hotel, **2012:**5.72 Manufactured home, 1998:5.46, 2000:5.58, 2004:5.69 Travel trailer, **2008:**5.63 Vacant dwelling, **1993:**5.67 Warehouse, **2000:**5.59 Dormitory fire caused by, 1991:2.29, 2001:2.20, 2007:2.21, 2011:3.42, 2012:2.16, 2013:6.22 Dwelling fire caused by, **2004:**5.16, 19, **2006:**6.71, **2010:**1.23 Fatal fires caused by Apartment, 2001:5.24, 2006:1.18, 2.28, 6.21, 2008:5.23, 2009:1.22, 2010:3.40, 5.34 Condominium, 2005:4.18 Dwelling, 1995:1.34, 1995:6.37, 1996:6.22, 1997:5.21, 1998:5.17, 1999:4.19, 2000:5.22, **2001**:6.21, **2002**:1.20, 5.18, **2003**:2.22, 6.14, **2005**:5.27, **2006**:3.36, **2007**:3.26. **2007**:4.27, **2008**:6.21, **2009**:2.24, **2010**:2.24, **2012**:3.28, 4.26, **2013**:1.22 Housing for elderly, 1999:6.19 Manufactured home, 1991:4.26, 2002:1.20, 2004:6.17, 2007:4.26, 2009:6.22, 2012:5.26 Vacant dwelling, Alabama, 2009, **2010**:6.21 Holiday season warrants reminder of candle safety issues, 2008:6.34 Home candle fire numbers begin to fall, **2007:**1.11 Hotel fire caused by, 2009:3.38 NFPA candle fire survey finds adults practicing candle safety, 2005:6.11 Office building fire caused by, **2004:**5.19 Power outages, safe use during, 2000:2.96 Residential fires caused by, 2003-2007, 2010:5.71 Residential fires caused by, 2006-2010, 2013:2.77

Residential fires caused by, increase in number of, **2000**:6.112, **2004**:1.13, 6.14 Residential fires caused by, statistics and fire safety information, **1998**:3.160, **2002**:6.35

Safe use is 2005 Fire Prevention Week focus, 2005:5.68

Sorority house fire caused by, 2007:1.16

Store fire caused by, **2009:**4.20, **2010:**2.27

Vigilance needed when using candles to avoid fires, 2004:2.38

Warming candle ignites cloth drape in food station, 2004:1.14

CARBON DIOXIDE EXTINGUISHING SYSTEMS

Electrical fire extinguished by, 1995:5.35

Industrial machine fire extinguished by, 2003:6.15

Lacked sufficient agent for extinguishment, 1995:6.108

Large warehouses, fire protection systems for, 2011:4.42

Nuclear energy plant fire extinguished by, 1995:6.102

Overpowered by fire, **1994:**6.94

Shipboard fire extinguished by, 1992:6.48

Shipboard system discharges accidentally, kills two, 1996:2.83

Total flooding system reset after initial fire, fire reignites, 2003:2.25

CARBON MONOXIDE

Causes, symptoms, and prevention of CO poisoning, 1997:6.120

Dangers and prevention of CO deaths and injuries, 2008:1.32

Deadly effects of carbon monoxide, 2011:3.67

Detector manufacturing standards changed to improve performance; NFPA 720 provides installation guidelines, **1999:**1.68

Detectors and alarms, sample list of available, 1999:1.72

Detectors necessary for household protection, 2001:6.34

Firefighter fatalities caused by, 1991:4.53

Firefighter injuries caused by, 1997:6.75, 2003:1:65, 2009:6.67

Generator use during Hurricane Sandy resulted in numerous carbon monoxide poisonings and deaths, **2013:**1.10

Grieving father spearheads campaign for CO detectors, including mandated basement installation, **2009**:2.15

NFPA 720, Installation of Household Carbon Monoxide Warning Equipment in Dwelling Units, 2009 edition, proposed changes, **2008:**3.83

Questions on gas, its effects, and detectors answered, 1998:5.20

Ships, incidents on, **2013:**2.62

CARDIAC EVENTS

Firefighter fatalities related to, **1998**:4.57, 60, **2000**:4.56, 59, 61, **2001**:4.76, 79, **2004**:4.55, **2005**:4.44, 4.50, 4.57, **2006**:4.61, 62, **2007**:4.60, 70, 71, **2008**:4.76, 90, **2009**:4.64, **2010**:4.79, **2011**:4.64, **2012**:4.81, **2013**:4.68, 70

Firefighter injuries related to, **2005**:6:57, **2006**:6.85, **2008**:6.53

CARPETS AND RUGS

Bedding, ignited by, **2009:**6.20

Carpet plant fire, Georgia, Jan., 1995, **1996:**6.62

Carpet recycling plant fire, Georgia, 2010, 2011:2.29

Cigar, burning shirt, ignited by; fatal fire cause, 2006:3.38

Cigarettes, ignited by; catastrophic fire cause, 1992:4.68

Cigarettes, ignited by; fatal fire cause, 2005:4.20

Clothing dryer malfunction, ignited by, 2006:5.28

```
Cord, damaged, ignited by, 1994:5.28, 2009:4.18
  Cords, spliced, ignited by, 1999:6.19
  Cutting torch, ignited by, 1994:6.97
  Electric heater, ignited by, 2003:6.14, 2004:2.18, 2009:1.18
  Extension cord, ignited by, 1995:6.37, 2003:1.14
  Extension cord, ignited by; catastrophic fire cause, 1992:4.67
  Fan, tipped over, ignited by, 2006:4.27
  Fireplace fire, ignited by, 2004:5.69
  Floor furnace, ignited by; catastrophic fire cause, 1991:4.69
  Incendiary fire accelerated by carpet involvement, 2001:2.22
  Incendiary fire ignited in carpet padding, 2003:3.20
  Incendiary fire ignited in rolled, stored carpet, 2008:6.22
  Kerosene heater fuel spill, ignited by, 1998:6.23
  Kerosene-soaked carpet possible fire factor, 2001:1.22
  Power strip, ignited by, 2011:7.19
  Smoking materials, ignited by; catastrophic fire, 1995:5.56
  Space heater, carpet in area of ignited, 2010:5.64
  Unintentionally ignited; catastrophic fire cause, 1996:5.93
CARSON, MARGARET D.
  Profile of, 1992:2.20
CASTINO, G. THOMAS
  Profile of, 1993:3.20
CATASTROPHIC FIRES, U. S (MULTIPLE-DEATH FIRES)
   1990, study of, 1991:4.60
  1991, study of, 1992:4.62
  1992, study of, 1993:5.56
   1993, study of, 1994:5.88
  1994, study of, 1995:5.48
  1995, study of, 1996:5.86
  1996, study of, 1997:5.46
  1997, study of, 1998:5.42
   1998, study of, 1999:5.46
  1999, study of, 2000:5.52
  2000, study of, 2001:5.71
  2001, study of, 2002:5.76
  2002, study of, 2003:5.70
  2003, study of, 2004:5.64
  2004, study of, 2005:5.50
  2005, study of, 2006:5.54
  2006, study of, 2007:5.52
  2007, study of, 2008:5.52
  2008, study of, 2009:5.78
  2009, study of, 2010:5.62
  2010, study of, 2011:5.72
  2011, study of, 2012:5.68
  2012, study of, 2013:5.58
```

```
CEILINGS. See also CONCEALED SPACES
  Catastrophic fires
     Fire spreads through ceiling, 2008:5.59
     Ignites ceiling coverings, 1992:4.67
     Spread over tiles, 1991:4.64
  Ceiling tiles ignite, suspended ceiling fails, 1992:6.31
  Cloud ceilings, sprinkler location for, 2012:4.34
  Collapse, 2003:4.17, 2009:6.79
     Hampers fire fighting, 1994:6.89, 1996:3.35, 2003:6.81, 2007:6.80
     Prevents rescue, 1993:5.64
     Requires defensive attack, 1998:1.21
     Spreads fire, heat, smoke, 1992:6.76, 2002:2.25
     Traps fire victim(s), 2004:5.69, 2013:1.18
     Traps firefighters, 2003:6.81, 2011:7.14
  Cutting torch ignites material, 1995:6.108
  Drop-out and open grid ceilings used to conceal sprinklers, 2006:6.28
  Dropped
     Dust builds above, leads to explosion, 2004:5.71, 6.52
     Fire spread above, 1996:5.91, 1999:6.95, 2003:2.24, 2004:5.70, 2009:6.25
     Fire started above, 1994:6.95, 2002:2.25, 2005:1.17, 6.49
  False, fire spread across, 1999:6.90
  Fire ignites structural members in, 2010:4.26
  Fire-rated, controlled fire spread, 2012:1.22
  Fire spread through, 1991:5.28, 1992:4.25, 70, 5.30, 1994:6.90, 93, 1996:2.23, 3.35,
         1999:2.25, 6.90, 2000:6.91, 2001:5.77, 6.62, 63, 2005:1.14, 2007:6.77, 2009:5.24,
         2009:5.80, 2010:3.44, 2011:7.59, 2012:6.66
  Fire spread to insulation in, 1999:6.90
  Fire spread to structural members in, 1995:6.100, 2008:5.59
  Fire started in, 1998:1.21, 1999:6.90, 2001:5.75, 6.22, 2005:5.28, 2010:5.63, 2011:5.75,
          2013:6.56
  Multiple ceilings hide fire, limit access, 1992:3.31, 2009:6.79, 2010:6.65
  Panels ignited by sparks, 2002:4.16
  Plywood-covered, contributes to fire spread, 1996:5.96
  Vaulted design factor in fire spread, 1995:6.107
CHAPEL HILL, NORTH CAROLINA
  Fraternity house fire, May 12, 1996, 1996:5.61
CHARLESTON, SOUTH CAROLINA
  Furniture warehouse/store fire, June 18, 2007, 2008:4.84, 5.60, 2011:1.18
CHASES
  Fire spread through, 1994:5.96, 1994:6.89, 1997:5.49, 2008:6.43
  Fire started in, 1997:6.58
CHEMICALS
  Battery acid leaking onto scrap tires, causes chemical reaction, 2007:5.25
  Chemical waste facility explosion and fire, Ohio, May, 2009, 2010:6.67
  Chlorinated pool chemicals, managing fire risks of, 2000:3.95
  Federal haz-mat regulations cover intrastate shipments of agricultural chemicals, 1998:5.25
```

Oxidizers pose fire risk in warehouse occupancies, **2001**:6.70

Oxidizing chemicals classification system studied by Fire Protection Research Foundation, **2007:**1.22

Oxidizing pool and spa chemicals present hazard in warehouse stores, **1998:**1.50

Oxidizing pool chemical storage and retail sales, sprinkler protection for, 2004:4.22

Oxidizing pool chemical storage in warehouse stores needs special attention, 1998:4.44

- U. S. Chemical Safety and Hazard Investigation Board emergency response presentation at NFPA World Safety Conference and ExpositionTM, **2006:**3.71
- U. S. Chemical Safety and Hazard Investigation Board provides reports on chemical incidents worldwide, **2002**:6.17

CHEMICAL FIRES

Acetone vapors ignited by undetermined source during chemical reaction, 2012:6.62

Calcium metal/water reaction cause fire, 1994:6.95

Chemical processing area fire involves Class 1B liquid, 2000:6.91

Chemical reaction ignites manufacturing plant fire, 2005:6.45

Chlorine/antifreeze react, cause warehouse fire, 1998:5.18

CMDP spontaneous ignition causes fire, 1991:5.30

Crude oil refining process interruption causes chemical reaction, fire, 1999:5.54

Foam rubber production chemicals react, cause fire, 1996:6.23

Gasoline additive production chemicals react, ignite fire ball/mushroom cloud, 2008:5.61

Hydrocarbon-caustic solution reaction possible cause of explosion/fire, 1991:6.78

Hydrogen peroxide leak reacts with adhesive, ignites manufacturing plant fire, 2011:7.22

Methanol vapors flash when ignited in chemistry experiment, 2005:1.14

Motor oil/pool chemicals react, cause fire, **1996:**6.70

Muriatic acid/pool chemicals react, ignite fatal fire, 1998:3.36

Oxidizing pool chemicals, factor in retail store fire, 1997:6.54

Oxygen reacts with tetrachlorethane in purification vessel, 2000:5.60

Peroxide/polyurethane chain reaction, 1991:5.28

Polyol level in pump drops, causes exothermic reaction, 1998:3.41

Potassium superoxide reacts with organic material, 1995:6.38

Resin in paper cup ignites, 2013:2.25

Sodium hydrosulfite/aluminum powder react, cause explosion, 1996:5.94

Sodium used in lab experiment ignites trash, 1999:3.43

Sodium/water reaction, causes flash fire, 1997:5.23

Triethylaluminum reactor, fire ignites in, 2000:6.83

Waste chemicals in dumpster react, ignite waste products, 1997:5.24

CHEMICAL PLANTS

Senate committee moves to protect chemical facilities from terrorism, 2002:6.30

CHEMICAL PLANT FIRES

California, 1992, 1993:4.27

Catastrophic

Illinois, April, 2004, **2005:**5.59

Iowa, Dec. 13, 1994, 1995:5.66

Louisiana, May 1, 1991, **1992:**4.70

Minnesota, Nov. 17, 1993, 1994:5.105

Ohio, May 27, 1994, 1995:5.66

South Carolina, June 17, 1991, **1992:**4.70

Texas, July 5, 1990, 1991:4.67

West Virginia, Dec., 2010, 1995:5.79

Fatal, Ohio, 1990, 1991:3.31

Georgia, May, 2004, 2005:6.45

Kentucky, March, 2011, 2012:6.61

Louisiana, May, 1991, 1992:6.75

Louisiana, April 15, 1997, 1998:6.84

Louisiana, July, 1992, 1993:6.83

Maryland, Oct., 1998, 1999:6.91

Minnesota, Nov. 17, 1993, 1994:5.105

Minnesota, Feb. 6, 1997, 1998:6.85

Nevada, 2001, 2002:6.75

North Carolina, 1995, 1996:3.39

Pennsylvania, Feb. 19, 1999, 2000:5.59

South Carolina, June, 1991, 1992:6.80

Texas, March, 1991, **1992:**6.75

Texas, Jan., 1992, 1993:6.83

Texas, July, 1995, 1996:6.64

Texas, Aug., 1995, 1996:6.64

Texas, Dec. 2, 1999, **2000:**6.83

Texas, 2000, **2001:**6.23

Texas, March, 2000, **2001**:6.61

Texas, Oct., 2011, 2012:6.62

Utah, Feb. 1, 1997, **1998:**6.86

CHEMICAL TRANSPORTATION EMERGENCY CENTER. See CHEMTREC

CHEMICAL WAREHOUSE FIRES

Arkansas, May 8, 1997, 1998:5.53

North Carolina, 1992, 1993:2.21

Texas, June/July, 1995, 1996:6.66

CHEMTREC

Vital link for chemical emergencies, 1993:3.86

CHESTER COUNTY, PA.

Emergency response system upgrade, 1994:2.62

CHICAGO, ILLINOIS

Burlington Building fire, 1922, led to NFPA 232, Protection of Records, 2002:2.96

E2 Nightclub fire, Feb. 17, 2003, led to code changes and increased fire service diligence, **2008**:2.68

High-rise building ordinance adopted to increase safety, control costs, 2005:1.34

Lasalle Hotel fire, 1946, 2006:5.96, 2013:3.128

McCormick Place conference center shaped by previous center, which was destroyed by fire, **2009**:3.90

Northwestern Memorial Hospital construction/renovation requires flexibility, **2000**:2.48

Our Lady of the Angels School fire, Chicago, IL, 1958, 1996:1.72

Our Lady of the Angels School fire, Chicago, Illinois, Dec. 1, 1958, Looking Back column, **2003:**5.104

Space program technology applied to tank truck fires by NASA, NFPA, Chicago Fire Dept. partnership, **1998:**2.52

Willis Tower management and Chicago Fire Department join forces to protect country's tallest building, **2013:**3.64

CHIEF'S BRIEFING COLUMNS

Arson's terrible toll, **1995:**2.112

Burdens of command responsibilities, 1995:4.23

Developing professional programs for leadership training, 1993:4.14

Fire department and elderly agencies focus on seniors' fire safety, **1994:**3.13

International Association of Fire Chiefs includes retirees, 1994:6.19

Juvenile firesetters need social services, 1995:3.23

Labor relations eased by seeing both sides, 1994:2.13

Leadership requires political savvy, 1995:6.21

Listening and responding to fire service members, 1994:1.13

Mission statement core of operating plan, 1994:4.15

Networking with external groups, 1994:5.17

New Orleans fire chief Bill McCrossen retires, 1993:5.18

Officer training is key to fire service's success, 1993:3.26

Public fire safety education is long-term answer to fire loss, 1993:6.14

Truck company duties need emphasis in training, planning, 1995:5.19

Urban Fire Forum discusses global trends, 1995:1.104

Urban problems confront fire service, 1993:2.14

CHILDREN. See also FIRE SAFETY EDUCATION; JUVENILE FIRESETTING

Fire-themed video game draws negative response from safety experts, 2013:2.12

Playing with candle, ignite fatal fire, 2000:5.22, 2013:6.19

Playing with candle, smoking materials, ignite fatal fire, **2006**:6.18

Playing with charcoal lighter, ignite fatal fire, **1998:**4.19

Playing with chemicals, ignite fatal fire, 1998:3.36

Playing with fire, ignite catastrophic fire, 2002:5.82, 2008:5.59

Playing with fire, ignite fatal fire, **1995**:1.32, **1996**:2.23, **1998**:1.23, **2000**:5.22, **2003**:3.16, **2008**:4.19, **2010**:1.21

Playing with fire, U.S. statistics, 2011:1.74

Playing with fireworks, ignite dwelling fire, 2012:5.22

Playing with flammable liquid, ignite fatal fire, 2009:1.21

Playing with grill lighter, ignite fatal fire, 1999:3.46, 2000:6.96

Playing with open-flame device, ignite catastrophic fire, 1994:5.100, 1996:5.92

Playing with smoking materials, ignite catastrophic fire, 2001:5.75

Playing with stove, combustibles, ignite fatal fire, 2009:3.40

Safe Place programs include fire stations, 1994:6.128

Smoke-alarm waking effectiveness among children research by U. S. Consumer Product Safety Commission, **2003**:4.44

Stove burner turned on by child, ignites plastic trays, 2000:5.57

Stove burner turned on by unsupervised child, ignites catastrophic fire, 2000:5.57

Victims and cause of fires, statistics, 1995:5.144

CHILDREN AND CIGARETTE LIGHTERS

```
Catastrophic fire cause, 1991:4.65, 66, 1992:4.70, 1993:5.64, 1994:5.97, 1995:5.54, 1997:5.50, 1999:5.53, 2001:5.78, 2004:5.69, 2008:5.60

Fatal fire cause, 1991:6.24, 1992:1.22, 1993:4.25, 5.35, 6.28, 1995:3.38, 4.38, 5.34, 6.36, 1996:1.23, 1997:5.21, 6.19, 1998:3.38, 5.16, 2000:2.22, 2001:1.21, 2.22, 5.25, 2002:2.22, 3.32, 4.19, 2003:3.14, 2004:4.16, 2007:3.34, 2007:5.26, 2007:6.21, 2009:3.39, 2010:3.33, 4.25, 2011:3.38, 2012:3.35, 4.23, 6.24
```

Fire cause, **1991**:5.26, **1993**:3.33, **1994**:1.30, 2.28, **1995**:4.37, **1996**:5.24, **1997**:6.21, **2000**:6.17, **2005**:2.18, 3.26, **2009**:2.25, 5.23, **2013**:4.23

CHILDREN AND FIREWORKS

Dwelling fire cause, 1992:4.26, 2009:5.23

Manufacturing plant fire cause, 1995:3.40

CHILDREN AND MATCHES

Catastrophic fire cause, 1991:4.64, 66, 1995:5.59, 1996:5.92, 2001:5.77, 2004:5.68

Fatal fire cause, **1992**:5.25, **1993**:1.27, **1995**:3.37, **1997**:2.22, 5.21, **1998**:2.18, 3.38, 5.16, 6.23, **2001**:5.25, **2008**:2.23, **2010**:3.33, **2012**:5.24

Fatal fire, possible cause, 1991:2.32, 2003:5.16

Fire cause, **1991**:6.24, **1998**:6.90, **2005**:2.18, 4.16, **2006**:1.20, **2010**:3.37, **2013**:1.24

CHILDREN, UNATTENDED

Apartment building fire ignited by, **2010:**3.37

Catastrophic fire victims, **1991**:4.65, 66, **1992**:4.70, **1994**:5.96, **1995**:5.54, **1998**:5.45, **2008**:5.59

Fatal fire started by, **1999:**2.24, **2000:**2.22

Fatal fire victims, **1992**:1.22, **1993**:2.21, **1993**:3.57, **1993**:5.36, **1995**:1.34, **1995**:4.38, **1996**:3.39, **1998**:1.23, **1999**:1.17, **1999**:2.24, **2006**:2.28, **2009**:2.22, 3.36, **2010**:1.21

Fire risks faced by, **1993:**3.54

School fire ignited by, 2006:1.20

Wildland fire ignited by, 1993:6.89

CHIMNEYS

Creosote in chimney flue ignites, heat ignites bird's nest in attic, 2004:1.14

Ember from chimney probable wildland fire cause, 2003:6.80

Fire spread through, **1997:**5.49, 6.57

Firefighter fatalities related to collapse of, 1994:4.66

Firefighter injuries related to collapse of, **2000**:6.48

Lightning strike starts fire in concealed chimney space, 2003:3.16

Overheated, improperly maintained, fire ignites framing, 1996:6.22

CHINA

For 2008 Olympics, NFPA codes to be translated into Chinese to aid China's preparation, **2005:**1.11

2008 Olympics Bird's Nest venue incorporates performance-based design to provide fire/earthquake safety, **2008**:2.44

2008 Olympics Water Cube venue balances design and safety, **2008:**2.51

Fire Protection Research Foundation conducts fire detection seminar in Beijing, 2007:3.20

Jin Mao Tower, Shanghai, incorporates NFPA codes and standards, 2002:3.66

Manufacturing plant fire, Nov. 19, 1993, **1994:**1.48

NFPA participates at China Fire 2010 Conference provides opportunity for beneficial dialogue, **2010:**6.16

```
Performance-based design techniques applied in China, 2005:4.60
CHRISTMAS TREE FIRES
  Arizona, 1993, 1994:6.34
  Artificial tree components ignite club fire, 2003:4.16
  California, 1990, 1991:6.24
  Catastrophic
     Arkansas, Dec., 2002, 2003:5.75
     Artificial tree, Michigan, Dec. 3, 1992, 1993:5.64
     Michigan, Dec. 22, 1990, 1991:4.64
     Ohio, Dec., 2003, 2004:5.68
  Colorado, 2010, 2011:2.28
  Fatal
     Artificial tree, Ohio, 1992, 1993:6.28
     California, 2002, 2003:6.14
     Illinois. 2007, 2008:2.24
     Iowa, 1991, 1992:1.22
     Michigan, 1993, 1994:6.33
     Oklahoma, 2002, 2003:1.16
     Tennessee, 2005, 2006:6.20
     Virginia, 2003, 2004:6.16
  Illinois, 1994, 1995:6.36
  Massachusetts, Dec. 24, 1994, 1995:5.54
  Michigan, 1991, 1992:6.28
  Michigan, 1992, 1993:6.28
  Precautions to protect trees from fire, 1999:6.80
  Utah, Dec., 1993, 1994:6.90
CHURCHES
  Church structure fires, statistical summary of, 2002:1.16
  Church structure fires pose special challenges for firefighters, 2009:5.34
  Holiday season warrants reminder of candle safety issues, 2008:6.34
  NFPA 909, Protection of Cultural Resources Including Museums, Libraries, Places of
          Worship, and Historic Properties, provides fire protection guidance for historical,
         cultural properties, 2000:6.28
  Statistics on U.S. fires, 2007-2011, 2013:5.74
CHURCH FIRES
  California, 2005, 2006:1.22
  Connecticut, Oct., 1992, 1993:6.79
  Connecticut, Nov., 2011, 2012:6.66
  Florida, 2001, 2002:3.34
  Georgia, 2001, 2002:1.19
  Illinois, 1989, 1991:1.30
  Illinois, 1998, 1999:5.21
  Illinois (Barrington), Oct. 28, 1998, fire investigation report, 1999:3.102
  Indiana, 1993, 1994:4.31
  Indiana, Sept., 1993, 1994:6.89
  Iowa, 1998, 1999:3.43
```

```
Kansas, 1998, 1999:6.17
  Massachusetts, 1992, 1993:2.21
  Massachusetts, June, 2005, 2006:6.73
  Massachusetts, 2009, 2010:4.23
  Missouri, 1997, 1998:2.19
  New Hampshire, 2003, 2004:6.19
  Ohio, 1994, 1995:3.39
  Ohio, 1999, 2000:3.38
  Pennsylvania, Feb., 1995, 1996:6.73
  Pennsylvania, 1996, 1997:5.23
  Pennsylvania, Sept.. 11, 1997, 1998:6.92
  Pennsylvania, 2005, 2006:3.30
  Tennessee, 1992, 1993:6.30
  Tennessee, Oct., 2006, 2007:6.83
  Texas, 1992, 1993:6.30
  Texas, 1996, 1997:1.27
   Texas (Lake Worth), Feb. 15, 1999, 2000:4.55, 2000:5.60
  Texas (Lake Worth), Feb. 15, 1999, fire investigation report, 1999:4.76
  Texas, 2003, 2004:3.22
  Texas, Jan., 2010, 2011:7.55
  Utah, Dec., 2010, 2011:7.55
  Virginia, July, 1994, 1995:6.98
   Wisconsin, rectory, 2004, 2005:6.19
CIGARETTE LIGHTERS. See also CHILDREN AND CIGARETTE LIGHTERS
  Catastrophic fire ignition source, 1991:4.68, 69, 2006:5.62
  Elderly man ignites box with lighter, 2002:2.24
  Employee playing with lighter, fire cause, 2000:5.24
  Fire ignition source, 1993:6.87, 1994:5.104, 2008:3.28
  Incendiary fire ignition source, 1994:5.105, 1994:6.34, 1995:2.31, 1995:4.37, 1998:4.20,
         1999:1.18, 2004:5.70, 6.20, 2007:6.78, 79, 2008:3.24, 6.21, 2010:3.42, 4.23,
         2011:2.30, 2012:1.22, 6.64, 2013:6.59
  Lighter fluid used to ignite fireplace fire, 1996:1.23
  Lighter fluid used to ignite incendiary fire, 2012:5.69
  LP-gas leak ignited by, 2012:6.25
  Storage tank fire ignited by youth with cigarette lighter, 2001:1.23, 2004:5.71
  Store display of lighters and lighter fluid, fire started in, 2009:4.20
  Vapors from gasoline container in car ignited by, 2005:2.28
  Zippo cigarette lighter "tricks" Web site shut down by NFPA, others, 2003:6.18
CIGARETTES. See also SMOKING MATERIALS
  Careless disposal of
     Apartment building fire cause, 1993:3.35, 1996:1.22, 1996:5.24, 1997:3.30, 2000:3.36,
            2000:5.23, 2002:6.18, 2006:4.26, 2007:2.20, 2007:3.24, 2007:3.28, 2007:6.80,
            2008:5.27, 2009:1.19, 6.22, 79, 2010:3.38, 2010:4.27, 2011:2.28, 5.16, 2012:5.27
     Assisted living facility fire cause, 2003:6.12
     Board and care facility fire cause, 1994:2.30, 1994:6.33, 2012:1.18
     Bridge fire cause, 1997:3.34
```

```
Building-under-construction fire cause, 2002:5.18
  Catastrophic dwelling fire cause, 1992:4.68, 69, 1994:5.102, 1995:5.60, 1997:5.49,
          2000:5.56
  Catastrophic manufactured home fire cause, 2007:5.58, 2011:5.76
  Catastrophic rooming house fire cause, 1992:4.67
  Dormitory fire cause, 2001:2.20, 2010:5.30
  Dumpster fire cause, possible, 1996:5.26
  Dwelling fire cause, 1994:1.31, 1996:5.25, 1999:2.23, 2001:1.20, 2002:4.20, 2004:6.17,
          2005:2.20, 2008:6.18, 20, 2009:2.24, 2010:1.26, 4.24, 2011:2.24, 7.15, 2012:6.20,
  Hospital fire cause, 1998:1.24
  Limited care facility fire cause, 2003:4.17
  Manufactured home fire cause, 1999:6.18
  Manufacturing plant fire cause, 1995:6.107, 2009:3.44
  Nursing home fire cause, 1991:4.25, 2004:2.17
  Office building fire cause, 1996:2.24
  School fire cause, 2004:5.20
  Store fire cause, 1992:1.21, 1994:6.35, 2004:2.16, 6.56
  Warehouse fire cause, 1996:6.66
  Wildland fire cause, 1993:6.89, 2011:6.18
Careless use of
  Apartment building fire cause, 1991:2.29, 3.26, 1992:3.34, 1994:1.32, 1997:2.22,
          1999: 3.48, 2001: 3.32, 2002: 1.21, 6.21, 2007: 2.20, 2008: 3.28, 4.20, 5.27, 6.17,
          2009:6.21, 2010:2.22, 23, 5.34, 6.21, 22, 2011:1.25, 3.34, 5.16, 2012:3.35,
          2013:5.24
  Assisted living facility fire, 2011:4.17
  Board and care facility fire cause, 1997:1.27, 2004:1.16, 2009:5.25, 2010:5.31
  Catastrophic apartment building fire cause, 1998:5.49
  Catastrophic dwelling fire cause, 1991:4.65, 1991:4.66, 1993:5.64, 2012:5.71
  Catastrophic manufactured home fire, possible cause, 1998:5.46
  Dwelling fire cause, 1994:1.31, 1997:1.25, 1998:1.23, 5.16, 1999:1.18, 4.19, 6.18,
          2001:3.30, 3.36, 2005:3.24, 4.20, 2007:1.20, 2007:3.28, 2007:4.25, 2008:2.24, 27,
          4.23, 5.28, 6.20, 2010:3.36, 5.33, 6.20, 24, 2011:1.24, 3.33, 5.17, 2012:3.36, 4.27,
          5.27, 28, 6.24, 25, 2013:1.22
  Elderly housing fire cause, 1996:5.24
  Fireworks plant fire cause, 1993:3.35
  Group home fire cause, 1992:1.26, 1995:6.35
  Hotel fire cause, 2009:5.26
  Limited-care facility fire cause, 1998:4.21
  Manufactured home fire cause, 2003:1.16, 2007:6.19, 2008:1.20, 3.30, 2013:2.21, 22
  Nursing home fire cause, 1992:2.26, 1996:4.24, 1998:1.24, 2006:3.32
  Rooming house fire cause, 1997:6.19
  Shed fire, possible cause, 1993:2.20
  Shopping mall fire cause, 1999:4.22
  Substance abuse treatment center fire cause, 2013:1.21
  Trailer fire cause, 2009:4.22
```

Coalition for Fire-Safe Cigarettes' successes, 2009:1.15

Coalition for Fire-Safe Cigarettes website provides information, on-line petition, 2006:4.38

E-cigarettes raise questions on their fire safety, **2010:**1.16

Fire-safe cigarette coalition coordinated by NFPA, 2006:2.15

Fire-safe cigarette legislation adoption by states is focus of NFPA-Harvard School of Public Health conference, **2009**:5.18

Fire-safe cigarette legislation introduced by Congressman Joe Moakley, ongoing struggle to pass, **2002:**6.42

Fire-safe cigarette legislation passed by 49 states and D.C.; focus now on implementation and enforcement, **2010**:1.16

Fire-safe cigarette legislation passed in Alaska, 2007:5.18

Fire-safe cigarette legislation passed in California, **2005:**6.10

Fire-safe cigarette legislation passed in Massachusetts, **2006:5**.19

Fire-safe cigarette legislation passed in New Hampshire, 2006:4.18

Fire-safe cigarette legislation passed in Oregon, 2007:3.17

Fire-safe cigarette legislation supported in Kentucky, 2007:2.15

Fire-safe cigarette legislation supported in Massachusetts, 2005:4.12

Fire-safe cigarette legislation takes effect in California, 2007:1.12

Fire-safe cigarette legislation update, 2008:3.14

Fire-safe cigarette regulatory success threatened by roll-your-own machines, 2012:2.9

Fire-safe cigarette self-extinguishes in Oregon nursing home incident, 2008:1.14

Fire-safe cigarette standards adopted in Europe, 2012:1.11

Fire-safe cigarette state laws threatened by proposed U.S. Farm Bill amendment, 2013:6.34

Fire-safe cigarettes aid 2008 drop in smoking-material fire deaths, 2010:6.16

Fire-safe cigarette's "father" Andrew McGuire talks about success of NFPA campaign in US and future goals, **2010:**3.17

Fire-safe cigarettes linked to decline in smoking-related fires and deaths, **2013:**6.12

Fire-safe cigarettes mandated by Canadian Parliament, 2004:3.40

Fire-safe cigarettes promoted by NFPA, **2006:**3.62

Fire-safe cigarettes to be manufactured by R.J. Reynolds for all brands, 2008:1.14

Incendiary fire started by, 1997:6.54

NFPA finds stunning increase in cigarette-caused fires, 2004:5.10

Patient, receiving oxygen, ignites flash fire with cigarette, 1999:6.20

Statistics on cigarette use, fires, 1995:3.160

Victim suffers heart attack, drops lit cigarette to ignite dwelling fire, 2012:2.14

CINCINNATI, OHIO

Crown Coliseum arena updates fire protection system, 1998:3.120

Riverfront Stadium concert disaster, Dec. 3, 1979, 2002:1.80

CIVIL DISTURBANCES

Rioters burn shopping mall, impede fire fighters, Nevada, 1992, 1993:2.19

Rioters damage/destroy 862 structures by incendiary fires, California, April 29-May 1, 1992, 1993:5.67, 1993:6.81

CLEAN AGENTS

Clean agent alternatives to halons protect essential business equipment, 2002:2.68

NFPA 2001, Clean Agent Fire Extinguishing Systems, 2007 edition, proposed changes, **2007**:4.42

```
NFPA 2001, Clean Agent Fire Extinguishing Systems, revised rules for safe human exposure,
          2004:5.60
CLEVELAND, OHIO
  Cleveland Clinic fire, 1929, led to hazardous materials storage standards, 2012:1.80
CLOTHING FIRES
  Baskets of clothing near gas water heater ignite, 1999:5.51
  Catastrophic
     Clothes ignited by smoking materials, 2008:5.57
     Clothes on battery charger, 2002:5.82
     Clothing in dryer ignited, 1999:5.53
     Discarded clothing ignited by faulty extension cord, 2000:5.58
     Donated clothing in shipping/receiving area, 2010:5.66
     Extension cords ignite clothing placed on cord, 1997:5.51
     Flash fire ignites clothes, 1991:4.67
     Gasoline-fueled kerosene heater ignites clothing, 1999:5.56
     Hot plate ignites clothing, 1999:5.50
     Laundry and holding bins ignited, 1997:5.54
     Stored clothing, 1996:5.92, 1997:5.50
  Cigarette, ignited by, 2009:6.22, 2012:2.14
  Clothing on floor ignited by paper towel, 2001:6.21
  Dental office torch fire ignites clothing, 2010:2.26
  Electric space heater ignites nearby clothing, 2007:1.18, 2010:5.30, 34
  Electrical heat source ignited stored clothing, 2000:6.91
  Fatal
     Burning food ignites clothing, 2010:1.24, 2013:3.24
     Candle ignites clothing, 2012:4.26
     Candle ignites clothing in closet, 2008:6.21
     Candle ignites clothing in room, 1999:4.19
     Child with cigarette lighter ignites clothes on floor, 2011:3.38
     Child with grill lighter ignites clothes on bed, 1999:3.46
     Cigar ignites clothing, 2006:3.38
     Cigarette ignites clothing, 1997:1.25, 1.27, 1998:6.23, 2002:1.21, 2005:3.24, 2011:1.25
     Clothes dryer element malfunctions, ignites clothes, 2008:3.26
     Dryer contents ignite, 2009:2.26
     Drying clothes near baseboard heater ignite, 1999:2.23
     Drying clothes near gas furnace ignite, 1998:3.38
     Drying clothes near wall-mounted heater ignite, 2011:1.22
     Electric panel arc ignites workers' clothing, 2005:6.22
     Electric portable heater ignites gasoline vapor, spreads to clothing, 2011:1.23
     Electric space heater ignites clothing, 2006:5.34, 2013:4.21
     Extension cord ignite clothing placed on cord, 2013:5.26
     Fire spreads to clothing, 1999:1.18, 2010:4.24, 2010:4.28
```

Ignition source unknown, 2009:5.23, 2011:2.28 Incendiary fire, ignited in, 2009:6.20

Kerosene heater fire spreads to clothes, 1999:1.17

Gasoline vapor flashback ignites clothing, 2007:2.18, 2012:1.15

Lamp ignites clothing, **1991:**4.25

Robe ignited during dinner preparation, 2009:3.35

Smoking materials ignite clothing, 2008:3.32

Space heater ignites clothing, **2010**:2.23, 6.20

Spontaneously-ignited fire spreads to clothing, 2008:2.26

Stored clothing, 1997:2.22, 2011:1.22

Stove burner ignites clothing, **1999:**3.48, **1999:**6.17, **2008:**1.19, 2.23, **2010:**1.24, 2.24,

2011:7.17, **2012:**1.17, 3.34

Stove ignites clothing, **1998:**2.16, 5.16

Wood stove explosion ignites clothing, 1997:6.20

Wood stove fire spreads to clothes, 2009:6.25

Worker spills molten metal, 1991:1.31

Fuel in aircraft crash fire, ignited by, **1996:**5.99

Gas-fired furnace, ignited by, 1995:5.54

Hallowe'en costume on student ignited by another student, **2004:**5.20

Lamp, ignited by, **1994:**6.33, **2003:**5.16

Laundry basket of clothes ignited by kerosene heater, 1997:5.49

Match, dropped, ignited by, 1996:5.24

Patient ignites hospital gown, 2004:4.18

Smoking materials, ignited by, 1995:5.64, 1996:5.97, 2010:4.25, 26

Space heater, ignited by, 1995:5.53

Stored clothing

Catastrophic fire, factor in, 1996:5.92, 1997:5.50

Fatal fire, factor in, 1997:2.22, 2011:1.22

Fire, factor in, **1997**:6.22, **2006**:6.24, **2012**:2.20

Stove burner, ignited by, 1996:3.39

Student's clothing ignited in laboratory fire, **2001:**1.20

Theater costumes destroyed by spreading fire, 2009:1.17

CLUB FIRES

After Station Nightclub fire, sweeping changes made to assembly occupancy codes, 2004:1.52

Beverly Hills Supper Club, Southgate, Kentucky, May 28, 1977, 1996:2.63, 2011:4.80

Brazil, Kiss nightclub, Jan. 27, 2013, arrests made in connection with fire, 2013:3.14

Brazil, Kiss nightclub, Jan. 27, 2013, in wake of fire, NFPA discusses code changes with Brazilian fire officials, **2013:**2.9

Brazil, Kiss nightclub, Jan. 27, 2013, raises again question of hazardous interior finish materials, **2013**:2.32

Buenos Aires, Argentina, Republica Cromagnon disco, 2005:2.52

California, 1997, 1998:2.19

Catastrophic

Georgia, Dec. 12, 1990; vacant building, 1991:4.68

Massachusetts, June, 2006, **2007:**5.61

New York, March 25, 1990, 1991:4.67

Rhode Island, Feb., 2003, **2004:**5.70

Cocoanut Grove nightclub, five eyewitnesses remember, 1991:3.74

Cocoanut Grove nightclub, investigation into cause and origin, 2000:3.84

Cocoanut Grove nightclub, NFPA project seeks information and artifacts related to, **2012:**5.16, 6.44

Cocoanut Grove nightclub, NFPA website memorializes fire, 2013:1.11

Cocoanut Grove nightclub, report on, 2007:3.90, 6.46

Cocoanut Grove nightclub, walking guide to site, 2011:3.75

Code changes, research, and legislation related to club fires, 2007:3.90

Crowd manager training is essential but what should it include, 2010:4.70

Florida, 1993, **1994:**5.30

Florida, Jan., 2005, **2006:**6.73

Gothenburg, Sweden, Oct. 28, 1998, fire investigation, 2000:3.117

Happy Land Social Club Fire, Bronx, NY, 1990, 1991:4.67, 2003:3.144, 2013:1.72

Idaho, Dec., 2008, country club, 2009:6.84

Illinois, 1994, country club, **1995:**3.39

Illinois, Oct. 18, 1996, 1997:6.59

Illinois, Feb. 17, 2003, E2 nightclub fire led to code changes and increased fire service diligence, **2008**:2.68

Indiana, 1992; athletic club, 1992:6.31

Major club fires covered by *Quarterly* and *NFPA Journal*, **2007:**2.96

Maryland, Aug., 1993, 1994:6.89

Massachusetts, 2003, 2004:6.18

Michigan, 1990, 1991:6.23

New Jersey, 2003, 2004:4.19

Ohio, 2005, 2006:1.22

Oklahoma, Jan., 1994, 1995:6.98

Overcrowded clubs, handling and planning for fires in, 2009:6.32

Pennsylvania, 2002; country club, 2003:4.16

Rhode Island, Feb., 2003, 2004:5.70

Rhode Island, Feb., 2003, The Station nightclub, led to code changes in several states and increased fire service diligence, **2008**:2.68

Rhode Island, Feb., 2003, The Station nightclub, NIST investigation summary, 2005:3.44

Rhode Island, Feb., 2003, The Station nightclub, report on, 2007:3.90

Rhode Island, Feb., 2003, The Station nightclub, Station, The, survivor Robert Feeney describes his advocacy of sprinkler systems and remembers the lost, **2013:**1.12

Rhode Island, Feb., 2003, The Station nightclub, witness statements, 2011:1.15

South Carolina, 2010, **2011:**1.26

South Carolina, March, 2010, 2011:7.56

Texas, 1991; nightclub, **1992**:6.25

Texas Fire Marshal's fire safety campaign urges students to "have an exit strategy" when clubbing, **2007:**3.98

Thailand, Jan. 1, 2009, Santika Pub, Bangkok, 2010:1.42

Thailand, Jan. 1, 2009, Santika Pub, Bangkok, court verdicts, 2011:7.12

Washington, May 11, 1990, 1991:6.77

Wisconsin, 1993, 1994:3.29

COAL MINE FIRES. See also MINE FIRES

Catastrophic

Alabama, Sept., 2001, **2002:**5.82

Kentucky, July 31, 1990, 1991:4.69

Kentucky, May, 2006, 2007:5.60

Virginia, Dec. 7, 1992, 1993:5.66

West Virginia, March 19, 1992, 1993:5.67, 1993:6.82

West Virginia, Jan., 2006, 2007:5.60

West Virginia, April, 2010, 2011:5.77

Illinois, Sept. 1991, **1992:**6.77

COAN, STEPHEN D.

Profile of, **1999:**4.42

COCKLOFTS. See CONCEALED SPACES

COCOANUT GROVE FIRE

Five eyewitnesses remember, 1991:3.74

Investigation into cause and origin, **2000:**3.84

NFPA forms Cocoanut Grove Coalition to collect information and artifacts on fire, **2012:**5.16, 6.44

NFPA website memorializes fire, 2013:1.11

Report on, 2007:3.90, 6.46

Site, walking guide to, 2011:3.75

CODES AND STANDARDS. See also CODES ON THE FIRELINE COLUMNS; IN COMPLIANCE COLUMNS; NFPA CODES AND STANDARDS

ANSI and NFPA support *United States Standards Strategy* (USSS), **2007:**1.50

ANSI Audited Designator status requires rigorous audit of standards development process, **1999:**2.70

ASME A17.1, *Safety Code for Elevators and Escalators* task groups addressed fire-related elevator safety issues, **2006:**2:42

Basis-for-design reports help authority having jurisdiction, building owner, 1995:4.24

Canadian Standards Association adopts NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, as basis for its standard, 2008:6.13

Colocation computer facilities (remote data centers) outpace fire protection standards, **2001:**4.51

Coordination of model codes, discussion of, **1991:**2.72

Development process and future trends, 1991:4.36

Elevator recall and shut down requirements increase safety, 1997:5.64

Evaluating equivalencies and exceptions to standards, 1995:1.16

Federal law requires agencies to use voluntary consensus standards, 1996:6.40

Fire models to evaluate alternative designs, 1995:2.68

Fuel cells, development of codes and standards for, 2001:1.58

High technology detectors require new standards, 1995:5.42

International Building Code 2003 and NFPA 101[®], Life Safety Code, egress capacity factors differ, **2007:**1.28

International Code Council and NFPA settle copyright infringement lawsuits, 2006:5.19

International electrical standards, developing, 1994:1.34

International Residential Code to require home sprinklers after Sept., 2008, vote, 2008:6.26

International standards, developing consensus for, 1994:1.36

Making performance-based codes work, **1997:**1.73

Model building codes, overview of history and content of, 1992:3.42

NFPA and ICC collaborate to develop one national model fire code, 1997:4.36

NFPA and International Code Council work on national fire code, 1996:5.46

NFPA and offshore oil industry work to resolve dueling federal fire standards, 2001:5.46

Nursing home fire verifies authority having jurisdiction/engineers sprinkler design, 1995:2.85

Occupant load calculations crucial to accurate model building code application, 2001:4.32

Passive fire protection systems, 1997:2.30

Performance-based codes

Assembly occupancies performance-based design aids risk management, 2000:3.50

Benefits of, 1997:1.72

China's new construction applies performance-based techniques, 2005:4.60

Compliance requires review of computerized design methodologies, 2002:3.86

Designing buildings for, 1995:5.20

Development of, 1994:6.16, 1995:2.16, 1996:1.46, 1996:3.43

Existing buildings, performance objectives for, 1995:6.22

Existing codes, based on, 1995:3.24

Fire safety, performance-based design applied to, 2000:1.76

"Green" corporate headquarters protection uses performance-based design, 2005:2.40

Historic building preservation, fire protection aided by, 1999:5.28

Japan Airlines' performance-based approach to Kennedy Airport air cargo facility, **2002:**5.62

Life Safety Code, performance-based design chapter proposed for, 1999:1.24, 1999:4.82

Need for structural fire resistance affected by performance-based design, 2000:5.34

NFPA 5000, Building CodeTM, performance-based design option in, **2002:**2.28

North America, use in, 1994:3.70

Sprinkler reliability in high-rise buildings, application to, 1999:4.24

U. S. Department of Energy, adopted by, 1997:3.94

Regulations affect use of new construction methods, 1996:2.32

Residential sprinklers requirement, Scottsdale, Arizona, analysis, 1997:4.40

Stratosphere Tower (Las Vegas) designed using performance and prescriptive codes, 1997:3.72

Total building commissioning ensures all building systems perform correctly, **2000**:1.60

U. S. Appeals Court decision on copyright law leaves future of code writing unclear, 2003:1.34

- U. S. cable/wire manufacturers promote NEC over IEC as European standard, 1998:4.64
- U. S. response to European economic unification and global standards, ANSI's role in, **1991:**6.54

Underwriters Laboratories, Inc. (UL) revised standards for wet- and dry-type sprinklers, **2004**:2.54

World Trade Organization criteria for standards-developing organizations, **2002:**1.65 CODES ON THE FIRELINE COLUMNS

Consensus requirement can slow adoption of innovations, 1996:2.29

Evaluating department's initial attack capability, 1996:5.29

Fire service role in code-making, **1996:**1.27

Marketing residential sprinklers, 1996:4.27

New Zealand fire service operation and code development provide insights, 1996:3.43

Regional fire code development committees provide input to NFPA, 1996:6.27

COLLEGE BUILDINGS

All-hazard approach to emergency preparedness decrease fire- and life-safety risk, 2010:5.50

App offers fire safety tips for students and parents, **2011:**5.12

Campus Fire Data Project of Center for Campus Fire Safety provides college fire statistics, **2009:**6.9

Campus fire safety increased by increasing smoke detector reliability, **2006:**5.42

Campus Fire Safety Right-to-Know Act has good prospects for passage, 2003:6.28

Clarice Smith Performing Arts Center, University of Maryland, uses tested fire protection system, **2000:**5.49

Code enforcement keeps life loss low in educational occupancy fires, 2003:5.32

Colleges can demonstrate value of NFPA 3, Commissioning and Integrated Testing of Fire Protection and Life Safety Systems, 2011:5.24

DVD and online program provide current fire safety information to students, 2009:5.58

Electronically monitored extinguishers control extinguisher vandalism, 2005:1.56

Fire alarm systems requirements, 2003:5.36

Mesa Community College's mass notification system uses existing infrastructure to provide flexibility, **2008:**5.90

NFPA Campus Fire Safety Forum program promotes college fire safety, 2002:6.52

NFPA programs promote college dormitory fire safety, **2002:**1.38

Off-campus housing fire protection requires more attention, 2010:3.50

Sprinkler systems in dormitories save lives, not just property, 2005:4.26

Statistics on U.S. fires, 2007-2011, **2013:**5.73

Students and parents should discuss fire safety, 2008:4.36

Students need fire safety education, 1997:5.34

Texas Fire Marshal's fire safety campaign urges students to "have an exit strategy," **2007:**3.98 University of Utah fire prevention program, **2005:**1.52

Virginia Tech and other schools look beyond technology to create effective emergency communication systems, **2009:**5.52

Wesleyan University efforts to make dwellings used for student housing fire safe, **2008:**5.84 COLLEGE BUILDING FIRES. *See also* DORMITORY FIRES

Apartment building, Oregon, 2012, 2013:5.26

Bell tower, West Virginia, 1993, 1994:4.30

Cafeteria, Minnesota, Jan., 2002, 2003:6.81

Classroom building, Indiana, 1994, 1995:5.35

Classroom building, Kentucky, 1994, 1995:5.35

Classroom building, Pennsylvania, 2009, 2010:2.26

Classroom building and tunnel, Ohio, Feb., 2009, 2010:6.69

Fraternity house, Chapel Hill, North Carolina, May 12, 1996, **1996**:5.61, **1997**:5.50

Fraternity house, Kentucky, 2005, 2006:5.30

Fraternity house, Maine, 2002, 2003:5.16

Fraternity house, Mississippi, 2004, **2005:**5.32

Fraternity house, Missouri, 2007, 2008:1.21

Fraternity house, Nebraska, 2006, 2007:6.17

Fraternity house, Ohio, 1996, 1997:6.21

Fraternity house, Ohio, 2002, 2003:6.14

Fraternity house, Pennsylvania, 1992, 1993:1.27

Fraternity house, Pennsylvania, 2008, 2009:2.22

Fraternity house, Rhode Island, 1994, 1995:3.37

Fraternity houses, multiple fatality fires at, 2000:3.176

Laboratory, Delaware, 2004, 2005:4.22

Laboratory, Ohio, 2011, 2012:1.23

Laboratory, Texas, 1996, 1997:5.23

Mixed-use building, Arizona, Nov., 2007, 2008:6.45

Mixed-use building, Arizona, 2012, 2013:6.25

Mixed-use building, Kansas, June, 1991, **1992:**6.78

Mixed-use building, Texas, May, 2008, 2009:6.84

Office building, Georgia, 2000, 2001:3.26

Office building/student center, Tennessee, May 23, 1999, 2000:6.92

Office/classroom building, Georgia, Aug., 1995, 1996:6.73

Sorority house, Colorado, 2012, 2013:3.24

Sorority house, New Hampshire, 2006, 2007:1.16

Virginia, 2001, 2002:6.75

COLLEGE PARK, MARYLAND

Clarice Smith Performing Arts Center, University of Maryland, uses tested fire protection system, **2000:**5.49

COLLEGE STATION, TEXAS

City uses Jensen Award for fire safety program for property managers, landlords, building owners, **2012**:4.42

COLLINSWOOD, OHIO

Lake View School fire, March 4, 1908, 2008:5.64

COLORADO

Apartment building fire, 1997, 1998:4.20

Apartment building fire, July 18, 1997, 1998:6.90

Apartment building fire, 2000, 2001:5.26

Apartment building fire, 2007, 2008:5.27, 28

Apartment building fire, 2010, 2011:2.28

Assisted living facility fire, 2001, 2002:2.24

Building-under-construction fire, 2004, 2005:3.28, 6.19

Building-under-construction fire, Jan., 2006, 2007:6.81

Building-under-renovation fire, 2010, 2011:7.18

Catastrophic fires

Aircraft, July, 2002, 2003:5.75

Board and care facility, March 4, 1991, **1992:**4.70

Electric generating plant, Oct., 2007, 2008:5.60

Hotel, Jan. 27, 1997, 1998:5.49

Motor vehicle, June, 2002, 2003:5.75

Restaurant, Nov., 2008, 2009:5.84

Wildland, July 3, 1994, 1995:2.51, 1995:5.67, 2007:4.56

Wildland, March, 2012, 2013:5.65

College building fire, 2012, 2013:3.24

Dwelling fire, 1999, **2000:**5.20

Dwelling fire, April 23, 1999, 2000:6.93

Dwelling fire, 2011, 2012:5.22

Fatal fires

Aircraft, Nov., 2004, 2005:6.48

Apartment building, 2005, **2006:**4.26

Automobile repair shop, 1996, 1997:1.26

Dwelling, 2002, **2003:**1.16

Dwelling, 2007, 2008:2.27

Dwelling, 2010, 2011:1.24

Dwelling, 2012, 2013:1.21

Garage, 2010, **2011:**1.23

Manufactured home, 1997, 1998:1.23

Manufactured home, 2007, **2008:**3.30

Manufactured home, 2012, 2013:1.18

Office building, Sept. 28, 1992, 1993:2.33

Fuel tank storage facility fire, Nov. 25, 1990, 1991:6.73

Hotel fire, Nov., 2000, 2001:6.64

Hotel fire, 2008, 2009:3.38

Laboratory fire, July, 2011, 2012:6.64

Manufacturing plant fire, 2006, 2007:6.22

Manufacturing plant fire, 2008, 2009:4.17

Manufacturing plant fire, 2010, 2011:3.47

Resort fire, 1992, 1993:1.25

Restaurant fire, May 10, 1999, 2000:6.96

Restaurant fire, 2000, 2001:5.22

Restaurant fire, 2002, 2003:1.12

Restaurant fire, 2010, 2011:3.45

Store fire, 1999, **2000:**4.16

Store fire, 2005, **2006:**1.20

Store fire, 2007, 2008:1.23

Warehouse fire, Nov., 1992, 1993:6.87

Warehouse fire, July 23, 1997, 1998:6.87

Warehouse fire, Nov., 1998, 1999:6.92

Warehouse fire, Dec., 2002, 2003:6.78

Wildland/urban interface fire, Sept., 2010, 2011:7.58

Wildland/urban interface fire, March, 2012, North Fork Fire, 2013:6.54

Wildland/urban interface fire, June, 2012, High Park Fire, 2013:6.54

Wildland/urban interface fire, June 23, 2012, Waldo Canyon Fire, 2013:6.54

Wildland/urban interface fire, June 23, 2012, Waldo Canyon Fire offers lessons on pre-fire mitigation, **2012:**5.60

Wildland/urban interface fire, June 23, 2012, Waldo Canyon Fire report indicates how wildfire safety programs affected fire damage and response, **2013**:3.12

COLORADO SPRINGS, COLO.

Computer mapping used by fire service, 1995:1.84

COLUMBUS, OHIO

Fire service addresses ason threat of foreclosure-swelled inventory of vacant homes, **2009:**5.44 COMBUSTIBLE PRODUCTS

Effectiveness of current product labeling systems, **1994:**1.71

COMMERCIAL OCCUPANCIES. See also specific occupancies

Site testing smoke detectors, **1998:**3.110

COMMUNICATIONS. See FIRE SERVICE COMMUNICATIONS

COMMUNICATIONS INDUSTRY

Fire protection for, 1992:2.32

COMMUNITY CENTER FIRES

Pennsylvania, 1996, 1997:5.23

COMPARTMENTATION

Calculating flow rates based on compartmentation, 2002:2.32

Ineffective, fire spread overhead, 1999:6.95

Lack of

Building-under-construction fire, factor in, 2005:4.19

Kennel fire, factor in, 1993:2.20

Library fire, factor in, 1993:6.79

Sawmill fire, factor in, 1992:6.79

Warehouse fire, **1992:**6.78

Limited spread of dormitory fire, 2001:3.30

NFPA 5000, NFPA Building CodeTM, has new approach to fire compartments, **2001:**3.46

Through-penetration protection systems, 1994:1.54

COMPRESSED NATURAL GAS

Motor vehicle filling station service becomes more common, 2002:6.46

Motor vehicles fueled by, handling incidents involving, 1994:4.84

NFPA 30A, *Automotive and Marine Service Station*, expanded to cover alternative fuels, **2000:**4.83

COMPRESSED NATURAL GAS FIRES

CNG vehicle fueling station fire, Wisconsin, 1999, 2000:2.23

Cylinder ruptures, causing explosion and fire, 1994:4.30

High-pressure tanks being vented, fuel ignited by static discharge, 1994:4.29

Tanks explodes, hamper fire service operations, 2009:6.82

COMPTON, DENNIS

Profile of, **2000:**5.45

COMPUTER-AIDED DISPATCH

Los Angeles implements new CAD system, 1994:2.66

COMPUTER MODELS. See also FIRE MODELS

NFPA 13, *Installation of Sprinkler Systems*, 2002 edition, allows computerized water delivery predictions in dry-pipe systems, **2002**:4.24

Performance-based design code compliance requires review of computerized design methodologies, **2002:**3.86

COMPUTER SOFTWARE. See also FIRE MODELS

Fire alarm software requires careful management, 1995:1.54

Fire Dynamics Simulator provides atrium smoke control design for real world enforcement, **2008:**1.50

Fire protection community, software useful to, 1997:1.50

Fire service software, **1991:**3.90

Responders linked to hazardous materials databases by software, 1997:3.66

COMPUTERS AND RELATED EQUIPMENT. See also APPS

Assisted living facility fire, Florida, 2009, 2010:3.40

Clean agent alternatives to halons protect essential equipment, 2002:2.68

Colocation computer facilities (remote data centers) outpace fire protection standards,

2001:4.51

Computer and peripheral fires, 1999-2003, NFPA report, 2006:6.14

Data center fire protection systems, discussion of, **2012:**3.42

Dwelling fire, Michigan, 2004, 2005:2.18

Electronic equipment room fires, loss data, 1997:3.100

Fire alarm/computer system/Ethernet interconnectivity issues considered by NFPA task group, **2013:5**.38

Fire alarm system/computer system connectivity concerns addressed in proposed changes to NFPA 72, *National Fire Alarm and Signaling Code*, **2013**:6.46

Fire in uninterrupted power supply spreads to cables, 1995:2.30

Fire protection for, **1992:**2.32

Fire protection information available on Internet, 1996:6.44

Fire Protection Research Foundation workshop addresses fire protection challenges of information technology facilities, **2011**:4.28

Fire service use of, **1992:**2.32, **1995:**1.76

Fire statistics for electronic equipment areas, 2004:2.13

Fuel high-rise office building fire, 1992:5.56

Hospital fire, Connecticut, 2005, 2006:1.20

Hospital fire, Pennsylvania, 2012:5.29

Laptop computer overheats, ignites backpack, 2013:6.25

NFPA 75, *Protection of Information Technology Equipment*, provides guidance for fire protection and business continuity, **2006:**4.64

School fire, Massachusetts, 2004, 2005:4.16

Warehouse fire, Minnesota, Nov., 2004, **2005**:6.47

CONCEALED SPACES

Above door, fire started in, 1998:5.15

Attic

Fire spread into/through, **1995**:5.64, 3.35, 5.25, 6.64, 65, **1997**:2.22, **1998**:6.22, **1999**:5.52, 53, 6.97, **2002**:4.16, 20, **2003**:4.16, 17, **2009**:6.79

Fire started in, **1996:**1.24, **1997:**2.23

Attic/roof

Fire spread into, **1995**:4.37, 40, **1995**:6.98, **2007**:5.31

Fire started in, **1994:**4.29

Balloon frame construction voids, fire spread through, **1999:**5.21, 52, **2007:**1.15 Ceiling

Fire spread into, **1992**:6.78, **1995**:5.64, 6.99, 104, **1996**:2.23, 3.35, 5.91, **1997**:6.22, 53, **1998**:1.21, 6.85, 6.90, **1999**:6.91, **2004**:6.16, **2006**:6.74, **2007**:4.26, **2007**:5.57, **2009**:3.43, 5.24, **2011**:5.22

Fire started in, **1991**:4.64, **1994**:6.93, **2004**:2.18, **2005**:1.17, 5.28, **2006**:6.74, **2009**:6.79, **2012**:4.29, 30

Flashover, factor in, **1992:**6.31

Ceiling/floor

Fire spread into, **1995**:4.37, **1999**:5.53, **2009**:2.21

Fire started in, **1995**:5.56, **1997**:5.23, 6.58, **1998**:6.92, **2013**:6.55

```
Ceiling/roof
     Fire spread into, 1993:5.35, 36, 1993:6.30, 79, 1994:5.97, 1994:6.89, 1995:5.59,
            1995:6.107, 2007:3.23, 24
     Fire spread through, 1998:1.21, 2.19, 5.16
     Fire started in, 1995:6.106, 1998:6.84, 2009:5.28, 6.84
  Ceiling/wall, fire spread into, 2000:4.16, 2002:3.32, 2003:3.16
  Chimney, fire started in, 2003:3.16
  Cockloft
     Catastrophic fire spread through, 1991:4.65
     Fire spread into, 1995:4.39
     Fire spread through, 1994:5.98, 1998:1.21
     Fire started in, 1994:6.90
  Fire spread through, 1991:4.67, 1991:6.77, 1992:3.31, 1992:6.78, 1992:6.79, 1993:5.64,
          1993:6.81, 1994:5.95, 1994:6.36, 1994:6.89, 1995:6.108, 1998:5.45, 49, 6.24, 89,
         1999:1.17, 1999:2.24, 1999:3.48, 1999:5.19, 21, 2001:1.21, 2001:5.26, 2001:6.62,
         2002:1.19, 2002:2.25, 2002:5.22, 2002:6.20, 21, 2004:6.55, 2005:1.14, 18, 3.24, 4.18,
         2006:2.30, 3.30, 6.24, 2009:5.24, 2013:5.20
  Fire started in, 1998:2.19, 2001:3.26, 2001:4.20, 2001:6.64, 2009:6.79
  Floor
     Fire spread through, 1993:3.36, 1993:6.79, 1994:6.93
     Fire started in, 1995:5.54, 2007:5.59
  Pier, fire traveled underneath, 2007:6.78
  Roof
     Fire spread through, 1994:6.94, 95, 1995:6.107, 1996:2.23, 1998:4.19, 22, 6.22, 90,
            2003:3.18, 2013:2.18
     Fire started in, 1996:1.24, 1999:6.90
  Utility voids, fire spread into, 1999:6.17
  Walls
     Fire spread through, 1993:4.33, 1994:5.96, 1996:2.24, 1997:6.19, 2002:4.20, 2004:3.22,
            4.19, 6.19, 56, 2006:6.73, 2009:2.21, 2010:6.68, 2012:5.25, 2013:2.20, 4.25
     Fire started in, 1991:4.67, 1997:5.49, 2004:6.16, 2012:5.31, 2013:5.28
CONDOMINIUM FIRES
  California, 1990, 1991:6.24
  Delaware, Feb. 17, 1996, 1997:6.57
  Florida, 1998, 1999:4.21
  Illinois, 1990, 1991:6.23
  Illinois, Nov. 17, 1996, 1997:6.58
  Massachusetts, 2010, 2011:1.20
  Massachusetts, 2013, 2013:2.19
  Missouri, Aug., 2012, 2013:6.55
  New Jersey, Sept., 2005, 2006:6.72
  North Carolina, Sept., 1993, 1994:6.90
   Texas, Dec. 14, 1996, 1997:6.58
  Virginia, 2005:4.18
   Wisconsin, Feb., 2005, 2006:6.68
CONFERENCE CENTER FIRES
```

```
New Jersey, 1993, 1994:2.30
```

CONFINED SPACES

Firefighter fatalities related to, **2011:**4.67

NFPA maritime codes, standards, and training aid marine industry life safety, 2004:4.38

NFPA promotes confined space safe work practices and improved first responder tactics, **2012:**2.52

OSHA regulation aims to reduce incidents in, 1994:5.80

Stockroom fire, 1994:6.91

CONGRESSIONAL FIRE SERVICES INSTITUTE

Fire services/safety publicized by, 1998:1.31

CONNECTICUT

Apartment building fire, 1996, 1997:2.21

Apartment building fire, 2002, **2003:**3.16

Apartment building fire, 2005, 2006:2.26

Apartment building fire, April, 2008, 2009:6.79

Apartment building fire, 2009, **2010**:4.30, **2010**:5.32

Apartment building fire, 2010, **2011:**7.16

Bridge fire, 1996, 1997:3.34

Building-under-construction fire, Aug., 2005, 2006:6.69

Catastrophic fires

Aircraft, April 27, 1994, **1995:**5.67

Board and care facility, Feb. 10, 1996, 1997:5.53

Dwelling, Feb. 16, 1991, 1992:4.67

Dwelling, Dec., 2011, 2012:5.72

Electric generating plant, Feb., 2010, 2011:5.78

Nursing home, Feb., 2003, **2004:**5.70

Church fire, Oct., 1992, 1993:6.79

Church fire, Nov., 2011, 2012:6.66

Detention facility fire, July 7, 1977, **1994:**5.51

Dormitory fire, 2004, 2005:6.18

Dormitory fire, 2009, 2010:5.30

Dwelling fire, 1991, **1992:**4.26

Dwelling fire, 2009, **2010:**2.22

Electric generating plant, Feb., 2010, **2011:**5.78, 7.42

Fatal fires

Apartment building, 1996, **1997:**5.21

Apartment building, 2011, 2012:2.17

Dwelling, 2006, 2007:3.30

Dwelling, 2008, 2009:6.23

Dwelling, 2011, 2012:4.21

Dwelling, 2012, **2013:**5.24

Nursing home, Feb. 26, 2003, **2003**:3.80

Rooming house, 1998, 1999:6.18

Store/apartment building fire, 1999, 2000:3.32

Highway fire, March, 2004, 2005:6.48

Hospital fire, Dec. 8, 1961, 2009:1.46

```
Hospital fire, 2003, 2004:4.18
  Hospital fire, 2005, 2006:1.20
  Hotel fire, Great Cedar Hotel, Foxwood Resorts, Ledyard, Jan. 29, 2008, 2008:3.69
  Library fire, 1996, 1997:1.26
  Limited care facility fire, 2002, 2003:4.17
  Manufacturing plant fire, 1996, 1997:4.22
  Manufacturing plant fire, 1997, 1998:3.42
  Manufacturing plant fire, 1999, 2000:2.23
  Manufacturing plant fire, Nov. 28, 1999, 2000:6.83
  Manufacturing plant fire, 2005, 2006:2.30
  Manufacturing plant fire, 2012, 2013:3.30
  Marina fire, 1990, 1991:6.26
  Mill fire, 1995, 1996:2.25
  NFPA 1, Uniform Fire Code™ and NFPA 101, Life Safety Code® adopted by state, 2006:2.18
  Nursing home fire, 1999, 2000:2.21
  Nursing home fire, 2003, 2004:2.17, 2004:3.22, 2005:5.14
  Office building fire, 2008, 2009:3.45
  Restaurant fire, 1996, 1997:4.22
  Sandy Hook Elementary School, mass-casualty shooting, Dec. 14, 2012, 2013:5.52
  School fire, 2001, 2002:6.22
  School fire, 2003, 2004:5.20
  School fire, 2005, 2006:1.20
  School fire, 2007, 2008:1.22
  School fire, 2008, 2009:4.22
  Storage facility fire, 2005, 2006:2.30
  Store fire, 1993, 1994:6.35
  Store fire, 2007, 2008:1.23
  Truck trailer fire, 1998, 1999:3.46
CONSTRUCTION, FIRE-RESISTIVE
  Limited fire spread, apartment building fire, 1993:3.35
CONSTRUCTION METHODS. See also CODES AND STANDARDS:
       COMPARTMENTATION; NFPA CODES AND STANDARDS
  Balloon construction, factor in fire spread, 1997:6.58, 2002:6.20, 2004:6.19, 2007:1.15,
         2010:5.63, 2013:1.23
  Lightweight construction and heavy fuel loads increase hazards, 2007:5.38
  Lightweight construction materials pose serious fire risks, 2013:2.13
  Lightweight (engineered wood) construction's relationship with fire detailed in two studies,
         2009:4.38
  MASTERFORMAT® changes proposed, 2003:3.26
  NARRP and other codes address rehabilitation of existing buildings, 2000:6.24
  Northwestern Memorial Hospital, Chicago, construction/renovation requires flexibility,
```

Openings in construction, factor in fire spread, **1997**:6.58 Smoke barriers and smoke partitions, purpose, application, and use of, **2001**:6.28

2000:2.48

Total building commissioning ensures all building systems perform correctly, **2000**:1.60

Total building commissioning ensures an building system of the correctly, 20001.

Truss construction technique can mean greater risk for firefighters, 2009:2.32, 4.38

Using NFPA 72®, *National Fire Alarm Code*®, to prevent false alarms during construction, **2002:**1.34

CONTAINERS

Combustible liquids storage in composite intermediate bulk containers, Fire Protection Research Foundation studies of, **2007:**1.22

Composite intermediate bulk container fire tests indicate fire safety differences, **2009:**1.54 Intermediate bulk containers, test data for, **1999:**3.122

CONVENTION CENTERS. See ASSEMBLY OCCUPANCIES

CONVEYORS

Friction between belt and roller ignites fire, 1994:6.92

Heat produced by belt ignites combustibles, dust, 1998:6.91

Hot slag drops onto freezer conveyor, ignites freezer, 1998:6.84

Mechanical failure causes grain to ignite, 1992:4.28

Mechanical failure causes sugar dust to ignite, 1997:6.49

Motor fails, ignites sawdust, wood stock, 2011:7.22

Overheated bearing ignites cardboard, 1996:6.23

Welding sparks ignite belt, 1996:6.68

COOKING-AND-HEATING EQUIPMENT FIRES. See HEATING-AND-COOKING EQUIPMENT FIRES

COOLING TOWER FIRES

Rooftop tower of high-rise office building, Massachusetts, 1991, 1992:5.28

CORRECTIONAL FACILITY FIRES. See DETENTION FACILITY FIRES

COTE, ARTHUR E.

Profile of, **2006:**6.38

COX, PHIL

Profile of, **1996:**4.36

CRAWFORD, JIM

Profile of, **1993:**5.23

CROWD MANAGEMENT. See ASSEMBLY OCCUPANCIES

CROWDED BUILDINGS

Catastrophic fire, factor in, 1994:5.102

CULTURAL FACILITIES. See also CHURCHES; HISTORIC BUILDINGS; LIBRARIES; MUSEUMS

NFPA 909, Protection of Cultural Resources, 2010 changes, 2009:3.88

NFPA 909, Protection of Cultural Resources, questions answered, 2008:5.20

NFPA 909, Protection of Cultural Resources Including Museums, Libraries, Places of Worship, and Historic Properties, provides fire protection guidance for historical, cultural properties, **2000:**6.28

NFPA Technical Committee on Cultural Resources hosts workshop on standard changes, **2003:**1.32

Property loss statistics, 2003:1.11

Sprinkler systems for cultural resource properties addressed by NFPA codes and standards, **2007:**6.26

CUTTING AND WELDING OPERATIONS. See WELDING AND CUTTING OPERATIONS

```
D
D
```

DALY, WENDY L.

Profile of, **1994:**3.20

DANBURY, CONN.

Detention facility fire, July 7, 1977, 1994:5.51

DANIEL, MICHAEL

Profile of. 1999:4.45

DAVIS, SAM

Residential sprinkler advocate and homebuilder offers customers free systems and supports sprinkler ordinances, **2013:**1.7

DAY CARE CENTER FIRES

Catastrophic, Alabama, Jan. 11, 1999, 2000:5.59

Catastrophic, Texas, Feb., 2011, 2012:5.74

DE NOOIJ, TOM

Seminars offered at international locations at urging of De Nooij, 2010:4.18

DEARBORN, MICHIGAN

Ford Motor Company Rouge plant, Feb. 1, 1999, fire investigation, 2004:4.58

DEFEND-IN-PLACE

Nursing home, successful, 2004:3.22, 2011:7.20

DELAWARE

Building-under-construction fire, Delaware, Oct., 2000, 2001:6.63

Catastrophic fires

Dwelling, April 10, 1990, 1991:4.66

Dwelling, Jan. 20, 1993, 1994:5.97

Dwelling, Oct., 2000, 2001:5.77

Dwelling, Jan., 2001, 2002:5.82

Dwelling, Jan., 2002, 2003:5.75

College building fire, 2004, **2005**:4.22

Condominium fire, Feb. 17, 1996, 1997:6.57

Detention facility fire, 1990, 1991:3.25

DELUGE SYSTEMS

Satisfactory performance, manufacturing plant fire, 2000:6.84

Satisfactory performance, nuclear energy plant fire, 2004:1.16

Satisfactory performance, refinery fire, 1997:6.49

Unsatisfactory performance; activated after water outage, cause major damage, 1994:3.29

Unsatisfactory performance, mill fire, 2000:6.84

DEMOLITION

Fire service needs to plan for fires, entrapments, and other emergencies prior to demolition, **2011:5**.32

DENVER, COLORADO

Fatal office building fire, Sept. 28, 1992, **1993**:2.33

Fire department is progressive, innovative, **1995**:3.118

Fueling accident at Denver International Airport leads to aircraft fueling policy changes, **2002:**5.66

Pepsi Center designed for safety, 2000:3.72

Tank farm fire, Nov. 25, 1991, 1992:1.60

```
DETECTION SYSTEMS. See also ALARM SYSTEMS
```

Automatic, did not cover area of fire origin, 1992:5.28

Intelligent systems eliminate false alarms without compromising protection, 1997:6.78

Life safety system installed at Winterthur Museum, 1992:5.63

Not a factor in fire

Fire on exterior of building, 2013:5.27

Not in service, **1995:**5.35, **2008:**6.45

Not located in area of origin, 2004:3.18, 6.21, 2010:5.29, 2013:6.23

Not operational due to poor maintenance, 1995:6.104

Optical flame system design, 1995:3.105

Satisfactory performance, **2004**:4.17, 5.71, **2008**:5.26, **2013**:1.26, 27, 3.27, 31, 4.21, 6.55, 56

Tunnel environments, international research report on performance of detection systems in, **2008**:4.62

Unsatisfactory performance, 1998:6.92, 2004:6.57

Warehouse detection system requirements focus of NFPA study, 2012:2.58

DETECTORS

Carbon monoxide detector questions answered, 1998:5.20

Carbon monoxide detectors necessary for household protection, 2001:6.34

High technology requires new standards, integration with building controls, 1995:5.42

Lack of detectors allowed school fire to spread, 1998:1.21

Motion detector sets off alarm in library fire, 1997:1.26

NFPA 72, The National Fire Alarm Code, consolidates detection standards, 1993:5.70

Not a factor in fire

Absence of detectors; catastrophic dwelling fire, 1994:5.97

Building empty, not monitored, 2002:4.18

Fire above detectors, 1995:6.99, 1997:6.52

Fire on building exterior, **1998:**5.16, **2005:**2.26

Methane gas detectors, disabled, in mine explosion/fire, 1993:5.66

Motion detectors covered with tape, fail to detect fire, **1996:**6.24

Not located in area of origin, 1999:2.25

Not operational, 1994:5.95, 2002:5.22, 2011:7.18, 2013:5.22

Operated after suppression started, 2002:3.34

Rendered inoperable by explosion, 1991:6.74

Sample training exercise for detector placement, **1996:**4.49

Satisfactory performance, **1994**:6.95, **1996**:6.62, 69, 72, 73, **1999**:6.95, **2004**:3.20, **2009**:2.26,

27, 6.79, 6.80, **2010**:2.26, 3.41

Unsatisfactory performance, 1999:3.48, 2007:6.78

DETECTORS, FLAME

Designing optical detection systems, 1995:3.105

DETECTORS, HEAT

Residential detectors, performance in fire tests, 1993:1.48

DETECTORS, HEAT, NOT A FACTOR IN FIRE

Fire above detectors, **2003:**5.20

Not located in area of origin, **2007:**5.61, **2010:**5.66

Not operational, **1993**:6.88, **2001**:6.62, **2005**:1.20, 5.28, **2007**:6.79

Not operational due to explosion, **2003:**6.77, **2009:**5.83

DETECTORS, HEAT, SATISFACTORY PERFORMANCE, **1992**:5.30, **1993**:2.21, **1993**:5.37, 64, 66, 79, **1994**:6.90, **1996**:6.22, **1998**:1.24, 2.20, 5.53, 6.85, 88, **1999**:6.90, 91, **2001**:6.64, **2003**:5.16, 6.79, **2004**:1.16, 6.52, **2006**:6.72, 73, **2008**:4.20, **2009**:2.26, 4.18, 5.83, **2010**:2.22, **2011**:5.16, 7.17, **2012**:6.66

DETECTORS, HEAT, UNSATISFACTORY PERFORMANCE, **1991**:6.77, **1992**:4.70, **1993**:6.87, **1998**:6.92, **2000**:6.96, **2002**:6.21, **2003**:6.16, **2006**:2.28, 6.73, **2007**:1.19 DETECTORS, SMOKE

Air sampling detectors, overview of, **1992:**3.80

Alarm installation programs work better with firefighter support, 2010:5.46

Alarm signals to reduce older adults fire deaths, 2006:5.26

Blocked by interior renovations, delayed detection, 1992:6.26

Campus fire safety increased by increasing smoke detector reliability, 2006:5.42

Catastrophic fires, factor in, 2005:5.54

Community access television publicizes Vaughn, Ontario, fire service smoke alarm education program, **2007**:4.40

Control system used for safe elevator recall, 1993:3.28

Door release methods, health care occupancies, 2005:6.30

Fire prevention week theme, 1992, **1992:**5.68

Free detector distribution program by NFPA for Mississippi, Alabama, Navajo Nation, **2005:**2.10

Free detector distribution program links fire departments with NFPA, Home Depot, and Kidde, **2013:**1.8

Free detector distribution program pays off in Picayune, Mississippi, 2005:5.76

Free detector distribution program saves residential occupants, 1998:3.38

History of smoke detector development based on Duane Pearsall's accidental discovery, **2013:**2.50

Holmes County, Mississippi, works with NFPA on smoke detector distribution project, **2003:**6.42

Inspection, testing, and maintenance to ensure reliability, 1996:5.68

Installation and maintenance are both important fire safety education goals, 2005:6.32

Insufficient number, location, factors in catastrophic fire, 1991:4.68

Internet "viral" campaign to increase consumers' detector safety awareness, 2013:1.38

Location delayed notification, factor in catastrophic fire, 1991:4.69

Many U. S. detectors not operable, most due to batteries missing or dead, 1998:3.98

Medicare rules on nursing home requirements, 2005:3.16

NFPA 72, *National Fire Alarm and Signaling Code*®, 2010, requirements for ionization or photoelectric detectors, **2009:**3.71

NFPA 302, Fire Protection for Pleasure and Commercial Motor Craft, 2004 edition, requires detectors on boats, **2004**:4.36

NFPA and Navajo Nation Fire and Rescue install detectors in Navajo, Hopi Nations, 2008:4.15

NFPA community awareness kit educates public on smoke alarms, **2010:**1.17

NFPA report emphasizes need to maintain and/or replace home smoke alarms, 2005:1.12

North Charleston, South Carolina, receives Jensen Award for Smoke Alarm Assistance Program, **2007:**5.20

Nuisance alarms: field study in Native American community, 1996:5.65

Preventing nuisance alarms, 1993:5.16

Questions on location and type answered, 1998:6.26

Residential detectors, performance in fire tests, 1993:1.48

Site testing in commercial occupancies, 1998:3.110

Sleeping children not roused by alarms, research finds, 2011:4.10

Spacing guidelines in NFPA 72®, National Fire Alarm Code®, 2006:4.36

Ten-year batteries in smoke alarms, pros and cons, 1999:1.48

Tuscaloosa, Alabama, receives Jensen award to fund smoke alarm installation and educational campaign, **2007**:4.72

- U. S. Consumer Product Safety Commission study of detector failure, 1997:5.40
- U. S. experience, home fires, 2009:6.86
- U. S. experience with, **1994:**5.36

Waking effectiveness among children and elderly research by U. S. Consumer Product Safety Commission, **2003**:4.44

Working detectors basic to home fire safety, **2002:**5.40

DETECTORS, SMOKE, NOT A FACTOR IN FIRE, 2010:1.21

Aircraft crash, 1992:6.79

Batteries disconnected, **1998**:3.38, **1999**:2.23, **2004**:5.68, **2005**:1.17, 18, **2006**:5.34, **2013**:1.18 Batteries incorrectly installed, **1993**:5.64, **2008**:6.17, **2009**:2.23, **2011**:3.34

Batteries missing or dead, **1991**:4.26, **1991**:5.26, **1992**:4.67, 68, 4.68, 5.25, 6.28, **1993**:1.27, 2.22, 4.25, 5.35, 36, 62, 64, 6.28, **1994**:1.30, 5.96, 97, 98, 100, 102, **1995**:1.34, 4.37, 38, 5.34, 54, 56, 60, **1995**:6.37, **1996**:2.24, **1996**:5.24, 93, 96, 6.22, **1997**:3.29, 30, 5.21, 51, **1998**:1.23, 5.15, 16, 17, 46, 49, **1999**:2.23, 4.19, 5.19, 50, 52, **2000**:2.22, 3.34, 5.56, 57, 58, 6.17, **2001**:1.21, 2.23, 3.30, 5.25, 76, **2002**:1.20, 2.25, 4.20, 5.18, 20, **2003**:1.14, 16, 2.22, **2004**:5.68, 5.70, **2005**:1.16, 17, 18, 2.18, 24, 26, 4.20, 5.27, 28, 56, 58, **2006**:2.28, 5.61, 6.21, 71, **2007**:1.15, 2.19, 20, 3.26, 34, 4.24, 5.28, 59, 60, 6.21, **2008**:4.19, 5.24, 57, 58, 6.18, 20, **2009**:2.24, 3.40, 5.79, 81, 82, 6.22, 24, **2010**:1.22, 5.64, 6.20, 24, **2011**:3.33, 7.19, **2012**:2.14, 3.36, 4.20, 5.71, 74, 6.23, 24, **2013**:1.18, 3.24, 4.21, .22, 5.23, 26, 6.23

Closed door delayed detection, 2007:5.26

Damaged in earlier fire, 2004:6.16

Defective, 1997:4.19, 2005:5.32

Delayed operation, 1994:5.28, 2001:3.34, 2006:6.72, 2012:2.16

Disconnected, **1991**:3.26, **1996**:5.91, 92, **1997**:2.22, **1999**:4.19, 5.19, **2000**:5.57, **2001**:6.21, **2004**:3.24, **2006**:2.24, **2007**:3.34, **2008**:6.17, **2009**:5.81, **2010**:4.27, 6.20

Electrical system shorted, **1997:**5.49

Electricity to hardwired detectors shut off by utility, 2006:2.28, 2009:5.24

Explosion, 1992:6.28, 2009:5.83, 6.75

Fire above detectors, **1994**:4.29, 6.95, **1995**:6.106, **1996**:6.24, **2003**:5.20, **2004**:1.14, **2007**:4.26

Fire extinguished quickly, **1998:**5.17

Fire on exterior of building, **1994**:6.90, **2005**:4.18, **2007**:6.80

Fire too small to activate, **2013:**2.22

Hardwired detector circuit had tripped, **2008:**4.20

Hardwired detector did not operate, **2011:**4.17

Hardwired detector removed from mounting, 2003:6.14

Hardwired detector with battery backup did not operate, 2011:4.16

Hardwired detectors had no battery backup, 2003:6.14

Hearing impaired, home had not detectors for, 2008:4.22

Hearing impaired person may not have heard detector, 1993:2.22, 2008:5.29

Improperly installed, **1992:**3.34, **2007:**6.21

Intoxicated occupants do not respond, 1996:5.24

Not in service, **1991**:3.27, **1993**:6.88, **1994**:4.32, **1995**:4.38, 6.35, 37, 99, **1998**:5.45, **1999**:5.56, **2000**:1.20, 3.36, **2001**:6.21, 6.62, **2002**:1.20, 3.30, **2003**:1.14, 6.77, **2004**:2.18, **2005**:1.20, 5.28, **2006**:6.69, **2007**:6.79, **2008**:5.57, **2012**:5.28, **2013**:6.19

Not installed, **1998**:5.17, 5.49, **1999**:2.23, **1999**:3.48, **2000**:6.93, **2001**:6.20, **2009**:4.19, 20, **2010**:4.25

Not located in area of origin, **1994**:6.91, **1996**:5.97, **1997**:1.26, 6.22, **1998**:5.49, 6.89, **1999**:3.43, 5.21, 6.92, 94, 95, **2001**:5.78, **2002**:1.20, 4.16, 5.20, 6.21, **2004**:4.17, **2005**:1.16, **2006**:6.74, **2007**:2.21, 5.61, **2008**:5.24, **2010**:1.21, 4.28, 5.66, **2012**:1.18, **2013**:2.20, 3.30, 5.28

Not maintained, **2004:**3.20

Not monitored, 2008:4.24

Occupant aware of fire, 2010:5.34

Occupant ignored alarm, 2005:6.21, 2013:1.24

Power supply shut off, **1995:**5.54, **1996:**6.22

Previous activation of alarm in absence of fire led occupants to ignore alarm, **1993:**1.27, **2001:**5.75

Reason unknown, **1995**: 5.53, 60, **1997**: 5.52, **1998**: 5.16, **2000**: 5.22, **2000**: 6.83, **2006**: 3.30, 5.61, **2008**: 4.19, **2011**: 1.25, 5.73, **2012**: 5.23, **2013**: 1.20, 5.62

Removed, **1991**:5.26, **1992**:3.34, **1993**:1.26, **1995**:5.60, **1997**:2.22, 4.19, **1998**:5.50, **1999**:2.23, 4.19, 5.20, **2001**:2.22, **2004**:5.71, **2007**:1.18, 6.20, **2010**:3.36, **2011**:5.73, **2013**:1.22

Short circuit caused breaker to trip, **1995:**5.59

Switched off, **1999:**5.52

DETECTORS, SMOKE, SATISFACTORY PERFORMANCE, **1992**:1.22, 26, 2.27, 6.28, 29, **1993**:3.33, 5.66, 6.28, 81, **1994**:1.31, 2.29, 30, 5.27, 28, 97, 100, 102, 6.33, 6.89, 90, 94, **1995**:2.29, 3.38, 6.107, **1996**:1.22, 2.23, 4.21, 24, 5.24, 97, 6.22, 23, 24, 70, **1997**:2.22, 5.22, 49, 50, 52, **1998**:1.22, 24, 2.18, 3.38, 41, 4.21, 5.53, 6.90, **1999**:1.17, 2.24, 3.46, 5.19, 50, 53, 6.17, 90, 91, **2000**:2.21, 3.38, 6.16, 90, 93, **2001**:3.30, 5.24, 26, 6.63, 64, **2002**:1.20, 2.24, 26, 3.30, 4.19, 5.21, 22, 6.20, 22, **2003**:5.16, 6.79, 81, **2004**:1.15, 3.20, 5.14, 5.69, 5.70, 6.52, 6.56, **2005**:2.18, 20, 3.26, 6.18, 46, **2006**:1.20, 2.26, 3.32, 4.26, 6.22, 24, 71, 72, 73, 75, **2007**:2.22, 3.24, 3.32, 5.57, 58, 6.22, 77, 79, 82, **2008**:1.19, 22, 2.24, 3.28, 4.19, 21, 22, 5.23, 27, 58, 6.21, 43, 45, **2009**:1.19, 21, 22, 23, 2.21, 22, 25, 3.34, 38, 39, 42, 4.18, 5.23, 25, 26, 27, 28, 83, 6.20, 22, 23, 76, 79, **2010**:1.23, 25, 27, 2.22, 23, 4.25, 26, 30, 31, 5.30, 31, 63, 67, 6.20, 22, 24, 25, 27, 68, **2011**:1.20, 24, 25, 2.22, 24, 26, 3.40, 4.15, 17, 5.18, 21, 73, 76, 78, 7.14, 16, 17, 58, 59, **2012**:2.15, 3.32, 35, 36, 4.26, 5.70, 72, 74, 6.18, 22, 25, 27, 64, 66, **2013**:1.21, 22, 2.21, 23, 3.29, 32, 6.51, 55, 56

DETECTORS, SMOKE, UNSATISFACTORY PERFORMANCE, **1991**:4.26, 68, 69, **1992**:6.26, **1993**:3.35, **1994**:1.31, **1995**:2.30, 37, 6.98, 107, **1996**:1.22, 5.96, **1997**:1.25, **1998**:1.21, 23, 2.16, 5.45, 49, 50, **1999**:3.46, 5.51, 52, 53, 6.19, **2000**:3.34, 5.57, **2001**:5.78, **2004**:4.17, 5.70, **2005**:4.16, 5.32, 56, **2006**:1.18, 5.60, **2007**:1.19, **2008**:1.20, 2.24, 25,

3.22, 6.17, 19, 21, **2009:**1.17, 23, 6.20, 24, 79, **2010:**3.34, 36, 40, **2011:**2.23, **2012:**3.28, **2013:**4.19

DETENTION FACILITIES

NFPA 101®, Life Safety Code® addresses lockup safety, 2011:7.34

Sprinkler systems as solution to problem of prison fires, 2012:3.44

DETENTION FACILITY FIRES

California, 1992, 1993:5.36

Catastrophic, Missouri, Sept. 14, 1991, **1992:**4.70

Catastrophic, North Carolina, May, 2002, 2003:5.75

Comayagua, Honduras, Feb., 2012, 2012:5.50

Danbury, Conn., July 7, 1977, 1994:5.51

Delaware, 1990, 1991:3.25

Fire protection in correctional facilities, 1994:5.49

Florida, 1992, **1993:**3.33

Maury County, Tenn., June 26, 1977, 1994:5.50

North Carolina, 1996, 1997:1.27

Ohio State Penitentiary, April 21, 1930, **1994:**5.54, **1995:**5.84, **2011:**5.96

Pennsylvania, 1994, 1995:5.33

St. John, Brunswick, June 21, 1977, 1994:5.50

Washington, 2002, 2003:3.14

DETROIT, MICH.

Catastrophic aircraft collision at airport, Dec. 3, 1990, **1991:**3.69, **1991:**4.70

Dwelling fire, Feb. 17, 1993, 1993:3.57

Fatal board and care facility fire, June 2, 1992, 1993:1.29

DIESEL FUEL

Catastrophic truck fire ignited by, 2003:5.75, 2007:5.62

Locomotive fuel tanks rupture, vaporized fuel ignites, factor in catastrophic fire, **1997:**5.54, 6.59

Used as fire starter, ignites fireplace fire, 1992:2.29

Used as fire starter, ignites wood stove fire, 2009:6.25, 2013:3.26

DINENNO, PHILIP J.

Profile of, **1992:**4.20

Remembering former NFPA Board member and active supporter of organization, **2013:**5.13 DISABILITIES, PERSONS WITH. *See also* AMERICANS WITH DISABILITIES ACT;

GROUP HOMES

Accessibility of built environment and programs covered in NFPA *Emergency Evacuation Planning Guide for People with Disabilities*, **2007:**3.102

On Americans with Disabilities Act 20th anniversary, NFPA efforts to address needs of people with disabilities reviewed, **2010**:4.48

Blind, nonambulatory woman dies when smoking materials ignite bedding, 1995:2.30

Blind man dies when stove burner ignites bathrobe, 1994:2.29

Blind woman dies when burning food ignites clothing, 2010: 1.24

Blind woman dies when burning towel ignites combustibles, 2011:2.24

Child in wheelchair dies in catastrophic fire, 1995:5.58

Developmental disabilities, preparing emergency responders to help people with, 2011:4.38

Disabled grandmother unable to rescue children, 1995:1.34

Evacuation plan development for people with disabilities, 2005:2.54

Fire Prevention Week to include People with Disabilities Day, 2005:5:42

Fire safety principles and education for, **1996:**4.112

Hearing-impaired audible alarms required by NFPA 72®, 2010 edition, 2010:1.36

Hearing-impaired fire victim may not have heard smoke alarm, 1993:2.22, 2008:5.29

High-rise building evacuation plans for people with disabilities, 2002:4.58

Legally blind man ignites fatal fire, **1997:**6.20

Mentally and developmentally disabled children die in board-and-care facility fire, **2001:**5.78

Mentally disabled person(s) die in board and care facility fire, **2012:5**.73

Mentally disabled person(s) die in catastrophic fire, 1995:5.62, 1998:5.53

Mentally disabled person(s) die in dwelling fire, 2011:2.25, 2013:2.20

Mentally disabled person(s) dies in apartment building fire, 1999:1.17, 2008:5.23, 2009:3.35

Mentally disabled person(s) dies in limited-care facility fire, 1998:4.21

Mentally disabled person(s) sets rooming house fire, 1997:1.26

Mentally disabled(s) person dies in dwelling fire, 2003:6.14, 2010:2.24

National Council on Disability Executive Director Michael Collins urges further disabilities awarness for safer communities, **2009:**6.17

NFPA 70[®], *National Electrical Code*[®], 2014, considers electrical design for people with disabilities, **2012:**5.44

NFPA Center for High-Risk Outreach task force addresses fire safety needs of disabled, **2004**:6.34

NFPA Disability Access Review and Advisory Committee members, including Toby Olson, develop public outreach efforts and disabilities-related provisions in codes and standards, **2010**:4.60

NFPA joins other organizations to aid emergency preparedness of disabled, 2006:6.11

NFPA report on fire victims with disabilities, 2009:4.23

Physical disability as factor in home fire deaths, 2009:6.85, 2011:4.77

Physically disabled person ignites bedding while lighting cigar, 2009:3.42

Physically disabled person ignites clothing while smoking, ignites catastrophic fire, 1997:5.50

Physically disabled person(s) die in apartment building fire, **1997**:6.20, **1998**:4.19, **2000**:3.36, **2008**:3.24, 28, **2009**:6.20, **2011**:3.34, **2012**:3.29, 6.25, **2013**:3.28, 4.21, 6.21

Physically disabled person(s) die in board and care facility fire, 1996:5.96, 2012:5.73

Physically disabled person(s) die in catastrophic board and care facility fires, **1997:**5.52, **2004:**5.71, **2013:**5.62

Physically disabled person(s) die in catastrophic fire, 1995:5.64

Physically disabled person(s) die in dwelling fire, 1996:5.24, 1998:3.38, 5.15, 16, 50,

1999:1.17, 18, **1999:**2.24, **1999:**3.48, **1999:**6.18, **2000:**4.19, **2000:**5.56, **2001:**3.30, **2003:**1.15, **2006:**4.24, 26, 5.28, **2007:**3.30, 5.29, **2008:**4.22, **2009:**1.23, 2.23, 4.18, 20,

6.23, **2010**:1.20, 2.24, 25, 3.34, 36, 4.24, 26, **2011**:1.24, 2.23, 25, 3.36, 5.17, **2012**:1.14,

2.14, 3.28, 31, 4.20, 27, 5.28, **2013:**1.21, 22, 2.20, 3.26

Physically disabled person(s) die in housing for elderly fire, **1999:**6.19

Physically disabled person(s) die in manufactured home fire, **1998:**2.16, **1999:**6.18, **2011:**3.36, **2012:**5.26, **2013:**2.21

Physically disabled person(s) die in storage facility fire, **2010:**2.28

Residential facility fire, Ontario, Canada, 2006:2.28

Visually impaired person dies in dwelling fire, 2008:5.29

Wildfire mitigation planning needs to include preparation for those with disabilities, **2013:**2.40 DISASTER DRILLS

Logan International Airport, Boston, Mass, 1991:2.54

Plane crash simulation at Hancock Tower high-rise, Boston, 1993:6.35

DISASTER RESPONSE. See also BUSINESS CONTINUITY; EMERGENCY MANAGEMENT; TERRORISM

Aircraft crash, São Paulo, Brazil, July 17, 2007, 2008:1.36

Amtrak trains rescuers to respond to railroad disasters, 2000:3.78

Centers for Disease Control and Prevention study finds U.S cities vary widely in disaster preparedness, **2012:**2.11

Congress considers natural disaster relief policy reform, 1997:5.31

Crowd management factors in Riverfront Stadium, Cincinnati, concert disaster, Dec. 3, 1979, **2002:**1.80

Dynamics of Disaster, by Susan Kieffer, addresses geological underpinnings to disasters, plus preparation and remediation, **2013:**6.14

FEMA Project Impact focus groups gauge public awareness of disaster mitigation, 2000:2.32

Florida tornadoes, Feb. 22, 1998, fire service response to, 1998:3.60

High-speed train crash, Germany, June 3, 1998, 1999:6.40

Implementing NFPA 1600, *National Preparedness Standard*, explains development of compliant programs, **2008:**1.16

Los Angeles County Fire Department's response program, 1991:6.60

National Electrical Code® article references NFPA 1600 requirements, 2008:1.49

NFPA 472, Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition, can be used to develop HAZMAT/WMD emergency responder training program, 2008:2.54

NFPA 1600, Disaster/Emergency Management and Business Continuity Program, available as iPhone app, **2009:**5.21

NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, adopted by Canadian Standards Association adopts as basis for its standard, **2008**:6.13

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, 2007 edition, available at no cost, **2007**:3.20

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, as national preparedness standard, **2005**:1.44

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, fall meeting review, **1999:**5.97

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, implementation case study: Goodyear Global Business Continuity Program, **2008:**1.44

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, is important tool for response and recovery, **2002:**4.88

NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, proposed as National Preparedness Standard basis by 9/11 Commission, **2004:**5.58

NFPA 1600, Disaster Management, 1995:4.49

NFPA 5000, NFPA *Building Code*TM, references best guidelines for natural disasters, **2001**:4.42

Oklahoma City bombing, 1995, NFPA documentation of response, 1996:1.50

Oklahoma City bombing, 1995, USAR task force response to, 1996:1.59

Risk assessment methods, 1999:2.67

School disaster planning's value learned after high school burns, 2009:5.64

Terrorist attacks, preparation for, **1996:**1.54, **1996:**2.35

Tropical Storm Allison overwhelmed Houston, Texas, hospitals, incident investigation report, **2002:**4.48

United Airlines Operations Control Center fire, Elk Grove, Aug. 11, 1999, 2001:1.55

US Fire Administration and FBI programs can mitigate risk to modern infrastructures,

2001:6.30

DISNEY WORLD, ORLANDO, FLA.

Epcot Center VISION House® showcases environmental benefits of home fire sprinklers, **2012:**3.16

Fire protection systems, **1996:**3.119

DISPATCH. See COMPUTER-AIDED DISPATCH

DISPATCH CENTERS

Los Angeles designs state-of-the-art center, 1994:2.66

DISTRICT OF COLUMBIA. See WASHINGTON, D. C.

DOMESTIC DISPUTES

Fatal fires, factor in, 1.23, 1998:2.16

DOORS. See also EXITS

Access-controlled egress doors and locks, NFPA 101®, *Life Safety Code*® requirements, **2007:**5.40

Blocked

Catastrophic fire factor, **1997:**5.51, **1998:**5.50, **2000:**5.58, **2009:**5.80

Fatal fire factor, 1999:4.19, 2002:2.24, 2003:1.16, 2011:1.24, 2013:4.22

By fire, **2001**:5.25, **2001**:5.76, 78, **2002**:2.24, **2002**:3.30, **2002**:4.19, **2007**:6.18, **2010**:1.24

Hampered fire fighter access, 2002:1.19, 2007:1.15

Boarded-up, fatal fire factor, **2010:**6.21

Closed

Delayed smoke alarm activation, 1999:3.46, 48

Limited fire spread, **1994:**5.105, **2000:**6.17, **2001:**3.28, 34, **2004:**3.22, 5.69, 5.70, **2007:**5.32

Limited heat, gas exposure, 1994:6.34

Failed glass door, fire spread by draft caused by, 2010:4.23

Fire (See DOORS, FIRE)

Fire burned through, **2013:**3.22

Fire vented through, **1998:**2.18, **2006:**4.24, 5.60

In fire wall, fire spread through, **1991:**6.75

Inoperable, hamper escape in catastrophic food plant fire, **1992:**1.29

Inspections of doors require special vigilance, 2009:4.30

Jammed, factor in catastrophic motor vehicle fire, 1998:5.55, 2004:5.73

Lack of second exit, factor in fatal fire, 2001:6.20, 21

Locked

Catastrophic dwelling fire, factor in, 1991:4.64, 1996:5.91, 1998:5.45, 2008:5.59

Catastrophic dwelling fire, fire fighting operations hampered, 1993:5.62

Catastrophic fire, factor in, 1997:5.50, 51

Catastrophic recreational vehicle fire, factor in, 2010:5.69

Catastrophic vehicle fire, factor in, 1998:5.55

```
Dead-bolt, delayed escape, 2000:4.19, 2000:6.16, 17
     Dead-bolt, factor in fatal fire, 2001:6.20
     Fatal apartment fire, factor in, 1991:4.26, 1995:3.37
     Fatal dwelling fire, factor in, 2008:4.19, 2009:1.20
     Fatal fire, factor in, 1997:6.19, 2001:1.21, 5.25, 6.20
     Fire, factor in, 1997:3.30, 2004:6.56
     Fire fighting operations hampered by, 1994:2.27, 6.93, 2012:6.64
     Fire fighting operations hampered by; shopping mall fire, 1991:1.29
     Padlock, factor in fatal fire, 2001:5.25
  Main store doors closed by electrical problem, occupants limited to two single doors, 2000:6.91
  Motor vehicle passenger door inoperable from interior, factor in catastrophic fire, 1996:5.100
  Nailed shut
     Catastrophic fires, factor in, 1998:5.49, 5.50, 2001:5.77
     Fatal fire, factor in, 1995:3.37
  NFPA 105, Installation of Smoke-Control Doors, recommended practice considered for
          upgrading to standard, 2001:5.59
  Open
     Catastrophic fire spread through, 1991:4.66, 1997:5.49, 52, 53, 2004:5.70
     Fire spread by draft caused by, 1992:5.25, 2004:6.21, 2009:4.18, 2009:5.79, 2010:1.21,
             5.66
     Fire spread through, 1991:6.24, 1992:4.67, 69, 1994:5.96, 100, 105, 6.95, 96, 1995:5.64,
             6.35, 6.99, 1996:6.63, 6.64, 1997:6.20, 1998:5.45, 49, 6.90, 1999:5.50, 51, 52, 54,
             1999:6.18, 2000:5.23, 56, 2001:1.21, 5.77, 6.23, 2002:5.20, 6.21, 2005:2.20, 6.18,
             44, 47, 2008:4.24, 5.57, 2009:6.20, 2011:1.24, 2012:5.69
     Fire vented through, 1991:4.67, 1995:5.56, 59, 1996:5.91, 93, 1997:5.21, 51, 6.56,
             1998:5.49, 2008:4.23, 6.19, 2010:5.63
     Flashover caused by, 2005:6.48, 2009:1.23
     Garage door, fire spread through, 1992:1.21
     Heat spread through, 1998:5.17, 53
     Lacking self-closing devices, fire spread through, 1997:5.52, 53
     Smoke spread through, 1991:3.26, 1995:5.64, 1998:5.17, 53, 2009:4.22
  Panic hardware and fire exit hardware, NFPA 101®, Life Safety Code® definitions and
          requirements, 2007:4.36
  Security bars
     Catastrophic fire, factor in, 1996:5.93, 1997:5.51, 1998:5.50, 2001:5.77, 2005:5.56, 58,
             2006:5.60, 2007:5.58
     Fatal fire, factor in, 2001:4.22, 2001:6.20
  Security door, factor in catastrophic fire, 1999:5.53
  Smoke, ventilation through, 2013:1.27
  Smoke door release methods, health care occupancies, 2005:6.30
  Steel screens hinder escape in catastrophic fire, 1993:5.62
  Wood, fire spread through, 1992:4.67
DOORS, FIRE
  Absence of, allowed fire spread, 1998:6.85
   Automatic
```

Limited fire spread, **1995:**1.31, **1997:**5.49

Operated correctly, 1997:5.52

Controlled fire spread, **1999**:6.95, **2000**:1.19, **2012**:1.22

Did not function properly, **2012:**4.29

Failed to close, 1993:6.85, 1998:6.84

Failed to operate due to poor maintenance, 1996:6.63

Field modifications of, 1992:6.12

Fire protection-rated door requirements included in different codes, 2008:1.29

Limited/prevented fire spread, **1992**:4.27, **1993**:1.28, **1994**:5.105, **1995**:1.31, **1995**:6.38, **1997**:6.52, **1998**:6.92, **2011**:1.27, 7.55, 59

NFPA 80, *Fire Doors and Fire Windows*, provides installation and maintenance guidelines, **2001:**3.79

NFPA 80, Fire Doors and Other Opening Protectives, 2010 changes, 2009:3.86

NFPA 288, Fire Tests of Floor Fire Door Assemblies Installed in Fire Resistance Rated Floor Systems, annual meeting review, **2001:**2.81

Open, fire spread through, **1993**:5.64, **1994**:5.95, **1994**:6.96, **1995**:6.35, 103, **1997**:4.19, 5.21, 49, 54, **1998**:6.92, **1999**:2.24, **2000**:5.24, **2005**:4.22

Overhead doors, failed to operate, factor in fire spread, 1995:6.103

Removed, factor in fire spread, 1994:5.95

Roll-down, limited fire spread, 1995:6.38

Self-closing, prevent fire spread, 1992:4.27, 1997:6.21

Self-closing device deactivated, factor in catastrophic fire, 1998:5.53

Self-closing devices removed, factor in catastrophic fire, 1997:5.52

DORMITORIES. See also COLLEGE BUILDINGS

Fire safety and fire protection in dorms remains pressing, unresolved issue, 2003:5.48

Fire safety and life safety combined in construction of Northeastern University dormitory, **1999:**1.60

NFPA 101, Life Safety Code, requirements, 2000:5.30, 38

NFPA programs promote college dormitory fire safety, 2002:1.38

Sprinkler systems in dormitories save lives, not just property, 2005:4.26

Statistics, fire, **1997:**3.152

Statistics on U.S. fires, 2007-2011, 2013:5.73

DORMITORY FIRES

Catastrophic

North Carolina, May 12, 1996, 1997:5.50

Texas, April 19, 1993, 1994:5.95

College/university

Arizona, 1990, 1991:2.29

Catastrophic, North Carolina, May 12, 1996, 1997:5.50

Connecticut, 2004, **2005**:6.18

Illinois, 1999, 2000:6.16

Illinois, 2001, **2002:**6.21

Indiana, April, 2002, **2003:**6.81

Kansas, 2010, 2011:3.42

Maine, 2000, **2001:**3.30

Massachusetts, April, 2005, 2006:6.72

Massachusetts, 2011, 2012:2.16

```
Massachusetts, building-under-renovation, 1997, 1998:3.42
     Michigan, 2000, 2001:2.20
     New Jersey, Jan. 19, 2000, 2009:5.62
     North Carolina, 2003, 2004:1.15
     Ohio, 1996, 1997:6.21
     Rhode Island, 2006, 2007:2.22
     Texas, 2001, 2002:3.32
     Vermont, 2005, 2006:2.28
     Washington, D. C., 1990, 1991:4.25
     Washington, under construction, March, 2006, 2007:6.81
     Wyoming, March, 2004, 2005:6.45
     Wyoming, 2005, 2006:6.23
  Connecticut, 2009, 2010:5.30
  Fire station dormitory, California, 1998, 1999:4.21
  Fraternity houses (See COLLEGE BUILDING FIRES)
  Maine, 2012, 2013:6.22
  Military barracks, Washington, May 11, 1990, 1991:6.77
  School
     Nebraska, 2006, 2007:2.21
     Pennsylvania, April, 1994, 1995:6.99
     Washington, 2003, 2004:6.16
DRAFT CURTAINS
  Satisfactory performance, warehouse fire, 1996:4.23
  Unsatisfactory performance, mill fire, 2000:6.84
DRILLING PLATFORM FIRES
  Catastrophic, Louisiana, Feb. 15, 1991, 1992:4.71
DRILLING RIG FIRES
  Track-mounted, Wisconsin, July 9, 1991, 1992:4.72
DRILLS. See DISASTER DRILLS; FIRE DRILLS
DROUGHT
  Water supply limited by, 2002:6.20
  Wildland fire factor, 1991:1.59, 1991:4.70, 1991:6.74, 75, 78, 1992:4.72, 1992:6.74, 76,
         1993:3.36, 1993:4.28, 1993:6.88, 89, 1994:5.108, 1994:6.99, 1995:5.67, 1995:6.111,
         1996: 2.26, 1996: 6.74, 1997: 4.21, 1999: 6.97, 2001: 6.63, 2003: 6.80, 2007: 6.80, 81,
         2008:6.43, 2009:6.80, 2010:6.67, 2011:6.21, 2012:6.65, 66, 2013:6.54
DROWNING
  Firefighter fatalities related to, 1996:4.73, 2003:4.62, 2006:4.63, 2007:4.68, 2011:4.63,
         2012:4.77, 2013:4.72
DRUGS, ILLEGAL
  Alcohol used to smoke crack cocaine ignites rooming house fire, 1999:6.18
  Careless disposal of marijuana cigarette ignites apartment building fire, 1997:5.22
  Careless smoking of illegal drugs ignites fatal hotel fire, 2002:6.21
  Catastrophic dwelling fire, factor in, 1994:5.102, 1995:5.60, 2011:5.75
  Cooking chemicals ignite apartment building fire, 1995:6.36
  Drug manufacturing ignites recreational vehicle fire, 2010:5.69
  Fatal fire, factor in, 1997:6.20, 2003:5.16, 2011:4.15
```

Home fire deaths, report on drug use as factor in, 2010:2.75

Methamphetamine/amphetamine use, possible fatal fire factor, 2006:1.18

Methamphetamine lab, possible fire cause, 2004:1.15

Methamphetamine lab discovered during dwelling fire suppression, 2011:5.16

Methamphetamine lab fire ignites apartment fire, 2005:2.20

Methamphetamine lab fire ignites spilled camping fuel, ignites fatal dwelling fire, 2003:1.16

Methamphetamine manufacture ignites nursing home fire, 2013:5.20

Torch used to heat illegal drugs ignites office fire, 2005:6.16

DRUGS, PRESCRIBED

Fatal fire, factor in, **2013:**4.22, **2013:**6.22

Fire, factor in, **2013:5.**24

DRY CHEMICAL EXTINGUISHING SYSTEMS

Delayed activation, but partly successful in hospital cafeteria fire, 2003:2.22

Delayed activation, but partly successful in restaurant fire, 1995:2.31

Electrical substation plant fire extinguished with, 1995:6.100

Manual system in hood over grill not activated, 2000:6.96

Not a factor in fire, fire above system, 1997:6.52, 1997:6.53

Unsatisfactory performance, failed to operate in restaurant fire, 1997:6.22, 2006:2.30, 3.30

Unsatisfactory performance, food processing plant fire, 2012:6.63

DRYING OVENS

Dust and lacquer in vent system, ignited by heat source, 1996:4.24

DUBAI

Construction plans for world's tallest building include crisis response plan, 2007:2.44

DUBAY, CHRISTIAN

Profile of, 2007:1.34

DUCTS. See also CHASES

Aluminum dust in ductwork ignites, explodes, **2004:**5.20

Broiler heat ignites grease in, 2006:2.30

Clothes dryer fire spreads through ductwork to rooftop ventilation unit, 2011:4.22

Clothes dryer heat ignites lint in exhaust duct, 1993:3.36

Combustible ducts in vapor removal system spread fire, 1998:6.84

Deep fat fryer fire ignites grease in, 1994:3.28

Dust in ducts, factor in explosions and fires, 1999:6.94, 2000:5.60, 2000:6.85

Electrical connection grounded through, 1995:5.35

Fan draws fire into exhaust duct, 1999:6.90

Fire gases spread through, **2009:**5.82

Fire spread through, **1992**:4.68, **1993**:6.82, **1994**:5.104, **1997**:6.57, **1998**:6.87, 90, **2013**:4.19

Grill fire ignites grease in, 1996:5.25

Lint in ducts, factor in fire spread, 1999:6.94

Oven heat fire ignites grease in, 2009:3.43

Residue in duct ignited, fire spread through, 1999:5.19

Roof fire spreads through ductwork, 2011:4.22

Sawdust in ducts ignited by sparks, 2004:2.16

Short circuit ignites dust on top of duct, 1998:6.84

Sparks sent through, ignite studs in dust collection bin, 1998:1.24

Sprinkler protection of ducts with combustible contents, 2011:3.52

DUMPSTER FIRES

Hawaii, 1989, 1991:1.31

Michigan, 1996, **1997:**5.24

New York, 1995, 1996:5.26

Oregon, 1999, 2000:4.19

DUNGAN, KENNETH W.

Profile of, **1992:**5.20

DÜSSELDORF, GERMANY

Fatal airport terminal fire, Apr. 11, 1996, 1996:4.43

DUST. See also LINT

Accumulated dust ignited by burning polystyrene, **2004:**5.20

Accumulated dust ignited by overheated fan motor, 2009:3.45

Aluminum dust ignites in fatal manufacturing plant fire, 2004:5.20, 6.21

Carpet recycling plant fire, factor in, 2011:2.29

Chemical Safety Board, OSHA, and NFPA collaborate on code changes to address dust safety issues, **2011**:3.80

Coal dust ignites in generating plant fires, **1999:**6.95

Coal dust ignites in mine explosion, 2011:5.77

Coal dust ignites in power plant fire, 2000:5.60

Coffee dust, ignited by propane gas-fired furnace, 2009:2.26

Conveyor belt heat ignites dust, 1998:6.91

Dryer fire spreads to dust, 2001:5.26

Ducts, accumulation in, factor in fire spread, 1999:6.94, 2000:5.60, 2000:6.85

Dust collection system smoldering fire leads to flash fire, 2011:5.20

Exhaust fan malfunction, ignited by, 1996:5.23

Explosion, dust loosened by, results in second explosion, 2001:5.78, 6.61

Explosion causes and prevention discussed, 2008:6.56

Fiberglass, ignited by heat from oven fire, **2004:**5.71, 6.52

Furniture manufacturing plant explosion/fire, factor in, 1995:6.103

Grain, ignited by hot bearing, 1999:3.44

Grain, ignited by smoldering grain, 1992:4.28

Grain, ignited by unknown source, 2004:6.53

Grain, ignited in grain elevator by undetermined cause, 2012:5.73

Grain, ignited in grain elevator during cleaning, 1999:5.54, 1999:6.92

Grinding mill filter system, fire started in, 2013:1.26

Heat gun ignites dust in church fire, 1999:5.21

Hosiery manufacturing plant fire, factor in, 1997:3.33

For Imperial Sugar, new refinery and new safety culture go hand-in-hand, 2010:2.44

Iron dust ignites in catastrophic manufacturing plant fire, 2012:5.74

Manufacturing process, accumulated dust/powder from, self-ignites, 2001:1.23

Metal dust ignites, manufacturing plant, **2012:**1.19

NFPA 654, Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, 2011 edition, proposed changes, **2010**:2.54

NFPA 654, Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, process hazard assessment requirement, **2010**:2.50

Overheated bearing box, ignited by, 1993:6.83

Paper, factor in fire spread, 1993:6.84

Paper, ignited by heat from gas heater, 1991:6.75

Phenol formaldehyde resin dust ignites catastrophic explosion, 2000:6.85

Polyethylene dust, in area above dropped ceiling, ignites catastrophic explosion, **2004:**5.71, **2004:**6.52

Polymer dust ignited by kerosene space heater, 2013:5.28

Polyurethane dust ignites, fire spreads through dust collection system, 1998:6.87

Sawdust, fire spreads to combustibles from, 1994:4.30

Sawdust ignited by electrical arc, 1999:6.90

Sawdust ignited by electrical failure or malfunction, 2013:2.23

Sawdust ignites, explodes, contributes to fire spread, manufacturing plant fire, 1997:6.49

Sawdust in attic ignited by spreading fire, 1998:6.86

Sawdust pile smoldering fire ignites processing facility fire, 2012:2.20

Sugar dust ignited by spark or heat, refinery fire, 1997:6.49

Sugar dust ignited in refinery explosion/fire, 2009:5.83, 2009:6.75

Synthetic fabric dust ignited by short circuit, knitting mill fire, 1998:6.84

Tryptophan, powdered, ignited in manufacturing plant fire, 2002:6.22

Wood product manufacturing bag filter system, fire started in, 2013:6.23

DUST COLLECTION SYSTEMS

Explosion causes secondary explosions in system, 2004:6.21

Metal dust fire, 2012:1.19

Polyurethane dust ignites, fire spreads through dust collection system, 1998:6.87

Sparks from saw, ember in hopper, ignite sawdust, 2004:2.16

Sparks sent through ducts, ignite studs in dust collection bin, 1998:1.24

DWELLING FIRES. See also MANUFACTURED HOME FIRES

Alabama, 1995, **1996:**3.39

Alabama, 1998, 1999:3.46

Alabama, 1999, **2000:**4.19

Alabama, 2001, **2002:**3.32

Alabama, 2002, 2003:6.14

Alabama, 2007, 2008:4.19, 2008:6.20

Alabama, 2008, 2009:5.24

Alabama, 2009, **2010:**6.23

Alabama, 2010, **2011:**5.18

Alaska, 2009, **2010:**3.36

Alaska, 2012, **2013:**2.20

Arizona, 1993, **1994:**6.34

Arizona, 2003, **2004:**6.17

Arizona, 2009, 2010:1.23

Arizona, 2012, 2013:5.26

Arkansas, 1997, 1998:1.23, 4.19, 6.23

Arkansas, 1998, 1999:2.24

Arkansas, 2005, 2006:6.18, 24

Arkansas, 2009, **2010**:1.21, 23

Arkansas, 2012, 2013:4.22

California, 1991, 1992:4.26, 1992:6.28

California, 1992, 1993:4.25

California, April, 1992, **1993:**6.79

California, Sept., 1992, 1993:6.81

California, 1994, 1995:2.30

California, 1995, 1996:1.23, 1996:2.23, 1996:3.36, 1996:6.22

California, 1997, 1998:5.16

California, 1998, 1999:6.19

California, Jan., 1998, 1999:6.97

California, 1999, 2000:1.20, 2000:3.36, 2000:4.18

California, 2000, **2001**:6.20

California, 2002, 2003:5.14, 2003:6.14

California, Aug., 2002, 2003:6.81

California, 2003, 2004:5.18

California, 2004, 2005:2.22, 3.24, 4.20

California, 2005, 2006:5.28, 32, 34

California, Oct., 2005, 2006:6.68

California, Dec., 2006, 2007:6.80

California, 2007, 2008:5.26

California, 2008, 2009:3.38, 5.23

California, 2009, **2010**:6.25

California, 2010, 2011:1.22, 3.42, 7.15

California, 2011, 2012:2.14, 4.23, 5.22

California, 2012, 2013:3.22

Colorado, 1999, 2000:5.20

Colorado, April 23, 1999, 2000:6.93

Colorado, 2002, 2003:1.16

Colorado, 2007, **2008:**2.27

Colorado, 2010, **2011:**1.24, 7.18

Colorado, 2011, 2012:5.22

Colorado, 2012, **2013**:1.21

Connecticut, 1991, 1992:4.26

Connecticut, 2006, **2007:**3.30

Connecticut, 2008, **2009:**6.23

Connecticut, 2009, 2010:2.22

Connecticut, 2011, **2012:**4.21

Connecticut, 2012, **2013:**5.24

Delaware, Oct., 2000, 2001:6.63

Florida, 1992, **1993:**2.21, **1993:**5.35

Florida, 1993, **1994**:4.32

Florida, May 4, 1997, **1998:**6.90

Florida, Oct. 22, 1997, **1998:**6.90

Florida, 2000, **2001:**3.36, **2001:**4.22, **2001:**6.21

Florida, Feb., 2000, **2001**:6.64

Florida, 2003, 2004:3.20

Florida, Oct., 2005, 2006:6.71

```
Florida, 2008, 2009:4.19
```

Florida, 2009, 2010:2.25, 5.29, 6.20

Florida, 2010, **2011:**3.33

Florida, 2012, **2013:**4.23

Georgia, 1991, 1992:2.29

Georgia, 1996, 1997:2.22

Georgia, 1998, **1999:**1.18, **1999:**3.48

Georgia, 1999, 2000:3.36

Georgia, 2006, **2007:**6.20

Georgia, 2007, 2008:6.21

Georgia, 2012, 2013:5.26

Hawaii, March, 2010, 2011:7.59

Idaho, 1995, **1996:**4.22

Idaho, 2008, 2009:3.36

Illinois, 1994, **1995:**6.36

Illinois, 1997, 1998:1.23, 3.38

Illinois, 1998, 1999:3.46

Illinois, 2002, 2003:5.16

Illinois, 2006, **2007:**3.26

Illinois, 2007, **2008:**2.24, 3.26, 5.24

Illinois, 2008, **2009:**5.25

Illinois, 2009, **2010:**5.32

Illinois, 2010, **2011:**5.16

Illinois, 2011, 2012:6.21

Indiana, 1993, **1994:**1.30

Indiana, 1998, 1999:1.17

Indiana, 1999, **2000:**5.22

Indiana, 2001, **2002:**1.20

Indiana, 2004, **2005:**1.16, 3.24, 5.27

Indiana, 2007, 2008:2.23

Indiana, 2008, **2009:**3.39

Indiana, 2011, **2012:**4.20

Indiana, 2012, **2013:**3.22

Iowa, 1991, **1992:**1.22, **1992:**4.26

Iowa, 1992, **1993:**3.35

Iowa, 2003, **2004:**5.14

Iowa, 2008, **2009:**4.20

Iowa, 2011, **2012:**3.34

Kansas, 1998, **1999:**4.20

Kansas, 2001, 2002:2.25

Kansas, 2006, 2007:1.17

Kansas, 2008, 2009:5.26

Kansas, 2011, **2012:**1.15, 6.23

Kansas, 2012, **2013:**1.22

Kentucky, 1990, 1991:5.26

Kentucky, 1997, 1998:4.19

```
Kentucky, 1998, 1999:4.19
```

Kentucky, 2002, 2003:1.14

Kentucky, 2004, **2005:**4.20

Kentucky, 2006, 2007:6.20

Kentucky, 2007, 2008:5.29

Kentucky, 2008, 2009:4.18

Louisiana, 2008, 2009:4.20

Louisiana, 2010, 2011:5.15

Maine, 1998, **1999:**6.17

Maine, 2003, **2004:**5.19

Maine, 2006, **2007:**2.18

Maine, 2012, 2013:3.26

Maryland, 1993, 1994:1.31

Maryland, 1994, 1995:3.38

Maryland, 1997, 1998:5.16

Maryland, 1998, 1999:1.18

Maryland, 1999, 2000:5.22

Maryland, 2003, 2004:2.18, 6.16

Maryland, March, 2004, 2005:6.45

Maryland, 2007, 2008:1.19

Maryland, 2008, 2009:1.21

Maryland, 2011, 2012:2.15

Maryland, 2012, 2013:1.22

Massachusetts, 1989, 1991:1.27

Massachusetts, 1991, 1992:1.21

Massachusetts, 1992, 1993:1.27, 1993:5.36

Massachusetts, 1993, 1994:6.34

Massachusetts, 1995, 1996:4.21, 1996:6.22

Massachusetts, 1996, **1997:**1.25, 4.19

Massachusetts, 1997, 1998:5.15

Massachusetts, 1999, 2000:5.20, 2000:6.16

Massachusetts, Nov. 5, 1999, 2000:6.93

Massachusetts, 2000, 2001:6.20

Massachusetts, 2001, 2002:5.20

Massachusetts, 2003, 2004:1.14

Massachusetts, 2005, 2006:1.18

Massachusetts, 2007, **2008**:2.26, 5.23

Massachusetts, 2008, 2009:2.21, 3.39

Massachusetts, 2009, **2010**:6.23

Massachusetts, 2010, 2011:2.22

Massachusetts, 2011, 2012:1.17

Michigan, 1991, 1992:6.28

Michigan, 1993, 1994:6.33

Michigan, Feb. 17, 1993, 1993:3.57

Michigan, 1995, **1996:**3.39

Michigan, 1996, 1997:1.25

```
Michigan, Jan. 6, 1996, 1997:6.58
```

Michigan, Nov. 14, 1996, 1997:6.58

Michigan, 1998, 1999:6.18

Michigan, 1999, 2000:3.34

Michigan, 2000, 2001:3.30, 2001:4.24

Michigan, 2002, 2003:2.22, 2003:4.14

Michigan, 2003, 2004:4.16, 2004:4.17

Michigan, 2004, 2005:2.18

Michigan, 2007, 2008:2.24

Michigan, 2009, 2010:2.24, 25, 5.33

Michigan, July, 2009, 2010:6.68

Michigan, 2011, 2012:3.28, 5.27

Michigan, 2012, **2013:**4.22

Minnesota, 1991, 1992:2.28

Minnesota, 2001, 2002:3.30

Minnesota, 2005, 2006:4.24

Minnesota, 2006, 2007:1.18

Minnesota, 2011, **2012:**3.34, 5.26, 6.22

Minnesota, 2012, 2013:5.21, 6.19

Mississippi, 1994, 1995:4.38

Mississippi, 1998, 1999:5.19

Mississippi, 2004, 2005:2.26

Mississippi, 2006, 2007:5.29

Missouri, 1991, 1992:3.34

Missouri, 1992, 1993:4.25

Missouri, 1994, 1995:5.34

Missouri, 1998, 1999:1.18

Missouri, 2000, 2001:1.21

Missouri, 2002, 2003:1.15

Missouri, 2003, **2004:**1.15, **2004:**5.17

Missouri, 2005, **2006:**6.23

Missouri, 2006, 2007:5.26

Missouri, 2007, 2008:4.19

Missouri, 2009, **2010:**3.36

Missouri, 2010, 2011:2.26

Missouri, 2011, **2012:**5.28

Montana, 2006, 2007:1.20

Nebraska, 2003, 2004:4.17

Nebraska, 2007, **2008:**5.29, 6.23

Nebraska, 2009, 2010:6.24

Nevada, Feb. 19, 1999, **2000:**6.95

Nevada, 2003, 2004:2.19

Nevada, 2009, 2010:1.24

Nevada, 2011, 2012:4.26

New Hampshire, 2010, **2011:**4.17

New Jersey, 1994, **1995:**6.37

```
New Jersey, 1998, 1999:4.19
```

New Jersey, 1999, 2000:6.17

New Jersey, 2004, 2005:2.20

New Jersey, Aug., 2005, 2006:6.72

New Jersey, 2007, 2008:6.17

New Jersey, 2010, 2011:1.24

New Jersey, 2012, 2013:1.20, 5.22

New Mexico, 2009, 2010:6.20

New Mexico, 2010, 2011:7.19

New Mexico, 2012, 2013:3.32

New York, 1991, **1992:**5.25

New York, 1992, **1993:**2.22

New York, 1993, **1994:**1.31

New York, 1994, **1995:**4.37

New York, 1998, **1999:**2.23, **1999:**3.48

New York, 1999, **2000:**5.22

New York, Dec. 18, 1999, 2000:6.93

New York, 2000, 2001:5.26

New York, 2002, 2003:3.16

New York, Sept., 2005, 2006:6.69

New York, 2008, 2009:4.17, 6.24

New York, 2009, 2010:4.25

North Carolina, 1994, 1995:1.34

North Carolina, 2000, 2001:1.22

North Carolina, 2001, 2002:2.25

North Carolina, 2004, 2005:1.17

North Carolina, 2006, 2007:1.19

North Carolina, 2007, **2008**:3.26, 4.22

North Carolina, 2008, **2009:**4.18

North Carolina, 2009, **2010**:1.20, 21, 4.24, 5.30, 32, 34

North Carolina, 2010, **2011:**1.22

North Carolina, 2011, 2012:1.14, 4.20, 27

North Carolina, 2012, **2013:**2.22, 6.20

North Dakota, 2011, **2012:**3.38

Ohio, 1992, **1993**:2.22, **1993**:5.36, **1993**:6.28

Ohio, 1993, **1994:**1.31, **1994:**5.28

Ohio, 1996, **1997**:5.21, 6.19

Ohio, 1999, **2000**:2.22, **2000**:6.16

Ohio, 2000, **2001:**2.23

Ohio, 2001, 2002:2.22

Ohio, 2002, **2003:**3.18

Ohio, 2004, 2005:1.16, 4.16

Ohio, 2005, **2006:**2.28, 21

Ohio, 2006, **2007:**3.26, 4.24, 5.25, 28

Ohio, 2008, **2009:**3.42, 5.24

Ohio, 2009, **2010**:3.33, 4.25, 6.20

```
Ohio, 2011, 2012:1.14, 6.24
```

Ohio, 2012, 2013:1.20, 3.24, 4.21

Oklahoma, 1991, **1992:**6.28

Oklahoma, 1996, **1997:**3.29

Oklahoma, 1997, 1998:3.38

Oklahoma, 2001, 2002:5.20

Oklahoma, 2002, 2003:1.16

Oklahoma, 2010, 2011:1.21, 2.25, 3.34

Oklahoma, 2011, 2012:1.16

Operations at dwelling fires should not be considered routine, 2003:4.26

Oregon, 2003, 2004:3.20

Oregon, 2004, 2005:5.26

Oregon, 2008, **2009:**2.22

Oregon, 2009, 2010:3.34

Oregon, 2010, 2011:3.38, 7.16

Oregon, 2012, **2013:**1.23

Pennsylvania, 1994, **1995:**1.34

Pennsylvania, multiple dwellings, 1996, 1997:4.19

Pennsylvania, 1997, 1998:1.22, 23

Pennsylvania, 1998, 1998:3.38

Pennsylvania, 1999, 2000:6.17

Pennsylvania, 2000, 2001:3.34

Pennsylvania, 2001, 2002:3.30

Pennsylvania, 2003, 2004:5.16

Pennsylvania, 2004, 2005:5.26, 6.21

Pennsylvania, 2005, 2006:2.24, 26, 3.36, 5.34

Pennsylvania, 2006, 2007:3.32, 6.21

Pennsylvania, 2007, **2008**:2.23, 4.23, 5.24, 6.18

Pennsylvania, 2008, **2009:**1.23, 3.33, .40

Pennsylvania, 2009, 2010:1.22

Pennsylvania, April, 2012, **2013**:6.55

Products first ignited in, 1983-1987, 1991:5.72

Rhode Island, 1995, **1996:**6.22

South Carolina, Aug. 13, 1999, 2000:6.93

South Carolina, 2001, **2002:**1.21

South Carolina, 2005, 2006:5.30

South Carolina, 2008, **2009**:2.24, 6.23

South Carolina, 2009, **2010**:4.24

South Carolina, 2011, **2012:**3.32

South Dakota, 2008, 2009:4.20

Tennessee, 2000, **2001:**5.25

Tennessee, 2005, **2006:**5.28, 6.20, 24

Tennessee, 2008, 2009:1.18

Tennessee, 2011, **2012**:4.24, 28, 6.20

Texas, 1994, **1995:**2.29

Texas, 1995, **1996:**5.25

Texas, multiple dwellings, 1995, 1996:4.21

Texas, 1997, 1998:5.17

Texas, March 20, 1997, 1998:6.90

Texas, 1999, **2000:**3.34

Texas, Dec. 6, 1999, **2000:**6.93

Texas, 2001, **2002**:2.24, **2002**:3.30, **2002**:4.19, **2002**:6.18

Texas, July, 2002, **2003:**6.79

Texas, 2003, **2004:**4.16, **2004:**6.17

Texas, 2004, **2005:**3.28, 5.28

Texas, 2006, **2007:**5.29

Texas, 2007, 2008:6.18

Texas, 2008, 2009:2.24, 6.25

Texas, 2009, **2010:**3.34, 36, 6.26

Texas, 2010, **2011:**2.24, 25, 26

Texas, 2011, **2012:**4.25, 6.26

Texas, 2012, **2013:**4.20

Utah, 1997, **1998:**6.23

Utah, 2010, **2011:**2.23, **2011:**3.38

Vermont, 2009, 2010:2.24

Virginia, May 3, 1999, **2000:**6.93

Virginia, 2003, 2004:6.16

Virginia, 2005, 2006:4.26

Virginia, 2006, 2007:4.28, 6.18

Virginia, 2007, 2008:3.21

Virginia, 2009, 2010:1.25

Virginia, 2010, 2011:4.15

Virginia, 2011, 2012:3.31

Virginia, 2012, **2013**:6.19

Washington, 1994, 1995:6.36

Washington, 1998, **1999:**4.19

Washington, 2000, **2001:**1.20, **2001:**6.21

Washington, 2008, 2009:3.35

Washington, 2009, 2010:1:24

Washington, 2010, 2011:3.36, 5.17

Washington, 2011, 2012:6.21

Washington, D.C., July, 2009, 2010:6.68

West Virginia, 2003, **2004:**2.19

West Virginia, 2004, 2005:4.18

West Virginia, 2008, 2009:1.23

West Virginia, 2009, **2010:**5.30

West Virginia, 2011, **2012:**6.25

Wisconsin, 1998, 1999:2.23

Wisconsin, 2006, 2007:3.28

Wisconsin, 2008, 2009:2.23

Wisconsin, 2011, 2012:4.27

Wisconsin, 2012, 2013:3.24, 26

Wyoming, 1991, 1992:5.26

DWELLING FIRES, CATASTROPHIC

Alabama, Aug. 27, 1990, 1991:4.64

Alabama, Nov. 12, 1996, 1997:5.51

Alabama, July 20, 1997, 1998:5.50

Alabama, July 5, 1999, 2000:5.58

Alabama, May, 2004, 2005:5.58

Arizona, Nov. 5, 1993, 1994:5.97

Arizona, March 26, 1995, 1996:5.92

Arizona, April, 2001, 2002:5.82

Arkansas, Dec., 2002, **2003:**5.75

Arkansas, March, 2008, 2009:5.82

Arkansas, Feb., 2010, 2011:5.75

California, Aug. 3, 1992, 1993:5.64

California, Nov. 29, 1994, 1995:5.62

California, May 29, 1995, 1996:5.91

California, Dec. 14, 1995, 1996:5.92

California, Dec. 19, 1996, 1997:5.51

California, April 26, 1997, 1998:5.45

California, June 1, 1997, 1998:5.49

Connecticut, Feb. 16, 1991, 1992:4.67

Connecticut, Dec., 2011, 2012:5.72

Delaware, Jan. 20, 1993, 1994:5.97

Delaware, Oct., 2000, 2001:5.77

Delaware, Jan., 2001, 2002:5.82

Delaware, April 10, 1990, 1991:4.66

Delaware, Jan., 2002, 2003:5.75

Florida, Jan. 13, 1990, 1991:4.64

Florida, Feb. 25, 1990, **1991:**4.66

Florida, Oct. 15, 1990, 1991:4.64

Florida, March 13, 1993, **1994:**5.98

Florida, Mar. 13, 1998, 1999:5.52

Florida, June, 2001, **2002:**5.82

Florida, Feb., 2004, 2005:5.57

Florida, Sept., 2004, 2005:5.58

Florida, Nov., 2010, 2011:5.76

Georgia, Jan. 26, 1993, 1994:5.97

Georgia, Feb. 3, 1993, **1994:**5.96

Georgia, June 27, 1993, **1994:**5.98

Georgia, Feb. 4, 1995, 1996:5.92

Georgia, Jan. 23, 1997, **1997:**5.50

Georgia, June, 2001, **2002:**5.82

Hawaii, Oct. 15, 1997, 1998:5.45

Illinois, Jan. 11, 1990, **1991:**4.65

Illinois, Jan. 1, 1991, 1992:4.68

Illinois, Aug. 14, 1994, **1995:**5.54

Illinois, Aug. 12, 1995, 1996:5.93

Illinois, Jan. 14, 1995, **1996:**5.91

Illinois, Jan., 2000, **2001:**5.75

Illinois, April, 2007, 2008:5.59

Indiana, June 30, 1994, **1995:**5.60

Indiana, Aug. 9, 1994, 1995:5.56

Indiana, Dec. 4, 1995, **1996:**5.93

Indiana, Jan. 18, 1998, **1999:**5.50

Indiana, Feb., 2004, **2005:**5.57

Indiana, Sept., 2005, 2006:5.61

Indiana, March, 2006, 2007:5.57

Iowa, March 24, 1994, 1995:5.54

Iowa, Dec. 9, 1995, **1996:**5.93

Iowa, Mar. 13, 1998, 1999:5.52

Iowa, Sept. 6, 1999, 2000:5.56

Kansas, Oct., 2000, 2001:5.75

Kansas, Oct., 2004, 2005:5.58

Kansas, Sept., 2006, 2007:5.59

Kentucky, Sept. 30, 1994, 1995:5.60

Kentucky, Nov. 9, 1996, 1997:5.51

Kentucky, April 3, 1999, 2000:5.57

Kentucky, Jan., 2000, 2001:5.76

Kentucky, Nov., 2001, 2002:5.82

Kentucky, Feb., 2003, 2004:5.68

Kentucky, Feb., 2004, 2005:5.57

Kentucky, Feb., 2007, 2008:5.57

Kentucky, July, 2009, 2010:5.63

Louisiana, Nov. 16, 1991, 1992:4.68

Louisiana, Oct. 9, 1997, **1998:**5.50

Louisiana, Mar. 23, 1998, **1999:**5.50

Louisiana, Jan. 13, 1999, **2000:**5.57

Louisiana, Dec., 2000, 2001:5.77

Louisiana, Aug., 2002, 2003:5.75

Maryland, July 7, 1992, 1993:5.62

Maryland, April 23, 1993, 1994:5.98

Maryland, Feb. 26, 1994, **1995:**5.53

Maryland, Jan. 9, 1994, 1995:5.54

Maryland, Jan. 30, 1996, 1997:5.50

Maryland, March 3, 1997, 1998:5.45

Maryland, Jan. 14, 1998, 1999:5.52

Maryland, Sept. 3, 1999, **2000:**5.56

Maryland, June, 2000, 2001:5.76

Maryland, June, 2001, 2002:5.82

Maryland, Jan., 2007, 2008:5.58

Maryland, Oct., 2012, 2013:5.60

Massachusetts, May 27, 1990, 1991:4.65

Massachusetts, Dec. 24, 1994, 1995:5.54

Massachusetts, Nov. 24, 1999, 2000:5.58

Massachusetts, Oct., 2004, 2005:5.58

Michigan, Feb. 28, 1990, 1991:4.64

Michigan, Dec. 22, 1990, 1991:4.64

Michigan, Oct. 3, 1992, 1993:5.62

Michigan, Dec. 3, 1992, 1993:5.64

Michigan, Feb. 17, 1993, **1994:**5.96

Michigan, Nov. 30, 1993, 1994:5.102

Michigan, July 13, 1994, 1995:5.56

Michigan, June 17, 1998, 1999:5.51

Michigan, Aug. 7, 1998, 1999:5.53

Michigan, Dec. 27, 1998, 1999:5.50

Michigan, Dec. 30, 1998, 1999:5.53

Michigan, Feb. 4, 1999, **2000:**5.56

Michigan, April 8, 1999, 2000:5.57

Michigan, May 23, 1999, 2000:5.56

Michigan, Dec. 2, 1999, 2000:5.57

Michigan, April, 2000, 2001:5.76

Michigan, Sept., 2002, 2003:5.75

Michigan, Jan., 2003, 2004:5.68

Michigan, July, 2003, 2004:5.68

Michigan, Dec., 2003, 2004:5.68

Michigan, Jan., 2004, 2005:5.57

Michigan, Sept., 2005, 2006:5.61

Michigan, May, 2007, 2008:5.58

Michigan, Feb., 2008, 2009:5.82

Michigan, April, 2009, 2010:5.65

Minnesota, Jan. 1, 1999, **2000:**5.56

Mississippi, April 3, 1994, **1995:**5.59

Mississippi, Feb. 3, 1996, 1997:5.49

Mississippi, March 13, 1996, 1997:5.50

Mississippi, Jan. 2, 1998, **1999:**5.51

Mississippi, Jan., 2002, 2003:5.75

Mississippi, Oct., 2003, 2004:5.69

Missouri, Aug. 19, 1992, 1993:5.64

Missouri, Dec. 5, 1997, 1998:5.45

Missouri, Sept., 2000, 2001:5.75

Missouri, Nov., 2001, **2002:**5.82

Missouri, Jan., 2002, 2003:5.75

Missouri, Aug., 2006, 2007:5.59

Missouri, Aug., 2007, 2008:5.58

Missouri, Jan., 2010, 2011:5.74

Montana, Sept. 7, 1991, 1992:4.68

Montana, Sept. 24, 1994, 1995:5.60

New Jersey, June 11, 1991, 1992:4.69

- New Jersey, June 16, 1991, 1992:4.69
- New Jersey, Feb. 13, 1992, 1993:5.62
- New Jersey, Dec. 28, 1994, **1995:**5.53
- New Jersey, Jan. 22, 1995, 1996:5.92
- New Jersey, July 22, 1995, 1996:5.92
- New Jersey, March, 2001, 2002:5.82
- New Jersey, July, 2002, 2003:5.75
- New Jersey, Feb., 2012, 2013:5.59
- New York, Dec. 27, 1990, 1991:4.65
- New York, Feb. 8, 1991, 1992:4.68
- New York, April 10, 1991, 1992:4.67
- New York, April 21, 1991, 1992:4.69
- New York, Nov. 22, 1991, 1992:4.68
- New York, Dec. 22, 1991, 1992:4.68
- New York, June 7, 1993, 1994:5.98
- New York, Aug. 28, 1993, **1994:**5.100
- New York, Dec. 21, 1993, 1994:5.102
- New York, Jan. 28, 1994, 1995:5.58
- New York, Feb. 10, 1994, 1995:5.54
- New York, June 28, 1994, **1995:**5.60
- New York, Dec. 4, 1994, **1995:**5.62
- New York, June 23, 1995, 1996:5.92
- New York, Dec. 18, 1995, 1996:5.93
- New York, Jan. 9, 1999, 2000:5.57
- New York, Nov., 2001, 2002:5.82
- New York, March, 2003, 2004:5.69
- New York, Aug., 2004, **2005:**5.56
- New York, March, 2007, 2008:5.57
- New York, Jan., 2009, **2010**:5.63
- New York, June, 2010, 2011:5.73
- New York, July, 2011, 2012:5.70
- North Carolina, Nov. 13, 1992, **1993:**5.64
- North Carolina, Feb. 28, 1994, **1995:**5.58
- North Carolina, Feb. 23, 1996, 1997:5.49
- North Carolina, Feb. 17, 1997, 1998:5.49
- North Carolina, April 1, 1998, **1999:**5.52
- North Carolina, Nov., 2000, **2001:**5.75
- North Carolina, June, 2002, 2003:5.75
- North Carolina, March, 2006, 2007:5.58
- North Carolina, Oct., 2007, 2008:5.58
- North Dakota, Oct. 7, 1994, **1995:**5.53
- Ohio, Oct. 21, 1990, 1991:4.66
- Ohio, Dec. 25, 1990, **1991:**4.66
- Ohio, Dec. 15, 1991, 1992:4.69
- Ohio, Jan. 26, 1992, **1993:**5.62
- Ohio, Feb. 14, 1993, **1994:**5.98

Ohio, Dec. 22, 1993, 1994:5.96

Ohio, Jan. 26, 1994, 1995:5.56

Ohio, Dec. 28, 1995, 1996:5.91

Ohio, March, 2000, 2001:5.76

Ohio, Jan, 2002, **2003:**5.75

Ohio, Dec., 2003, 2004:5.68

Ohio, May, 2005, 2006:5.60

Ohio, Sept., 2007, 2008:5.60

Ohio, Jan., 2008, 2009:5.80

Ohio, March, 2008, **2009:**5.79

Ohio, Oct., 2010, 2011:5.76

Ohio, June, 2011, 2012:5.70

Ohio, Nov., 2012, 2013:5.61

Oklahoma, Feb. 1, 1991, 1992:4.68

Oklahoma, Aug. 31, 1991, **1992:**4.69

Oklahoma, Sept. 21, 1993, 1994:5.100

Oklahoma, Nov. 20, 1994, 1995:5.62

Oklahoma, Sept., 2004, 2005:5.56

Oklahoma, March, 2005, 2006:5.60

Oklahoma, July, 2006, 2007:5.57

Oklahoma, Aug., 2010, 2011:5.73

Oklahoma, Dec., 2012, 2013:5.61

Pennsylvania, March 3, 1990, 1991:4.64

Pennsylvania, July 30, 1990, 1991:4.66

Pennsylvania, Feb. 14, 1991, 1992:4.67

Pennsylvania, Dec. 14, 1991, 1992:4.69

Pennsylvania, March 13, 1992, 1993:5.62

Pennsylvania, July 24, 1992, 1993:5.62

Pennsylvania, Oct. 2, 1992, 1993:5.64

Pennsylvania, Dec. 5, 1992, 1993:5.62

Pennsylvania, July 25, 1993, 1994:5.97

Pennsylvania, April 6, 1994, **1995:**5.59

Pennsylvania, Oct. 21, 1994, 1995:5.60

Pennsylvania, Dec. 23, 1994, 1995:5.58

Pennsylvania, Feb. 12, 1995, 1996:5.92

Pennsylvania, May 24, 1997, **1998:**5.49

Pennsylvania, Oct. 24, 1997, **1998:**5.50

Pennsylvania, Mar. 22, 1998, 1999:5.50

Pennsylvania, Feb., 2002, 2003:5.75

Pennsylvania, Dec., 2002, 2003:5.75

Pennsylvania, Oct., 2003, 2004:5.68

Pennsylvania, Nov., 2003, 2004:5.70

Pennsylvania, Oct., 2004, 2005:5.57

Pennsylvania, Feb., 2007, 2008:5.58, 59

Pennsylvania, June, 2007, 2008:5.59

Pennsylvania, April, 2008, 2009:5.79

Pennsylvania, Dec., 2008, 2009:5.80

Pennsylvania, Feb., 2011, 2012:5.71

Pennsylvania, March, 2011, 2012:5.69, 71

Rhode Island, Feb., 2010, 2011:5.75

South Carolina, Nov. 7, 1992, 1993:5.64

South Carolina, May 23, 1993, 1994:5.96

South Carolina, Nov. 13, 1993, **1994:**5.102

South Dakota, May 8, 1990, 1991:4.66

Tennessee, March 9, 1991, 1992:4.67

Tennessee, March 31, 1992, **1993:**5.62

Tennessee, Apr. 13, 1996, 1997:5.49

Tennessee, Oct. 5, 1999, 2000:5.58

Tennessee, Dec., 2000, 2001:5.77

Tennessee, Jan., 2003, 2004:5.69

Tennessee, Nov., 2005, 2006:5.61

Tennessee, March, 2006, 2007:5.57

Tennessee, Aug., 2008, 2009:5.80

Tennessee, Jan., 2010, 2011:5.74

Texas, Oct. 7, 1991, 1992:4.68

Texas, Feb. 2, 1995, **1996:**5.92

Texas, July 22, 1995, **1996:**5.92

Texas, Oct. 21, 1995, 1996:5.93

Texas, Oct. 26, 1998, 1999:5.53

Texas, July, 2000, 2001:5.76

Texas, Jan., 2011, 2012:5.71

Utah, Nov. 18, 1992, 1993:5.64

Vermont, Dec., 2005, 2006:5.62

Virginia, Sept. 10, 1995, **1996:**5.99

Virginia, Jan. 20, 1996, **1997:**5.50

Virginia, May 15, 1996, **1997:**5.50

Virginia, July 8, 1996, 1997:5.51

Virginia, Nov. 19, 1997, 1998:5.46

Virginia, Dec. 25, 1998, **1999:**5.51

Virginia, May, 2004, 2005:5.58

Washington, Dec. 17, 1992, 1993:5.66

Washington, Apr. 7, 1995, 1996:5.91

Washington, May 31, 1996, 1997:5.49

Washington, D. C., Jan. 7, 1993, **1994:**5.97

West Virginia, March 7, 1993, 1994:5.96

West Virginia, Nov. 21, 1997, 1998:5.50

West Virginia, Jan., 2009, 2010:5.64

West Virginia, March, 2012, 2013:5.59

Wisconsin, March 13, 1990, 1991:4.66

Wisconsin, May 10, 1990, 1991:4.65

Wisconsin, Oct. 4, 1990, 1991:4.66

Wisconsin, April 22, 1991, 1992:4.68

Wisconsin, Feb. 28, 1996, **1997:**5.49

Wisconsin, March 10, 1996, 1997:5.50

Wisconsin, Nov. 1, 1998, 1999:5.53

Wisconsin, July 10, 1999, 2000:5.58

DWELLING-UNDER-CONSTRUCTION FIRES

California, 1993, 1994:3.27

California, 2007, 2008:5.26

Catastrophic

New Hampshire, Feb. 26, 1990, 1991:4.68

West Virginia, April, 2006, 2007:5.60

Colorado, 2004, 3.28, 2005:6.19

Delaware, Oct., 2000, 2001:6.63

Illinois, 1990, **1991:**3.27

Maine, 2008, 2009:1.21

Massachusetts, 1994, 1995:1.34

Pennsylvania, 1995, 1996:6.23

DWELLING-UNDER-RENOVATION FIRES

California, 1999, 2000:3.36

Catastrophic, Arkansas, June 18, 1993, 1994:5.104

New York, Dec. 18, 1999, 2000:6.93

Tennessee, 2008, 2008:3.21

Texas, 2003, 2004:4.16

Washington, 2000, 2001:1.20

DWELLING, VACANT, FIRES. See VACANT BUILDING FIRES

Ε

EARTHQUAKES AND SUBSEQUENT FIRES

2008 Olympics Bird's Nest venue incorporates performance-based design to provide fire and earthquake safety, **2008**:2.44

Earthquake kits for home and car, 1995:3.55

How to react to quake, **1995:**3.64

Japan, Kanto earthquake fires, Sept. 1, 1923, 2013:6.72

Japan, July 12, 1993, 1994:3.89

Methodology to deter and mitigate risk of earthquake-caused fires, 1994:3.82

NFPA 13, *Installation of Sprinkler Systems*, 2007 edition, limits lateral brace spacing in order to meet seismic load requirements, **2008**:4.28

NFPA 13, *Installation of Sprinkler Systems*, earthquake protection coordinated with ASCE/SEI 7, **2006:**5.36

NFPA 13, Installation of Sprinkler Systems, earthquake provisions are important, 2013:3.36

NFPA 13, *Installation of Sprinkler Systems*, earthquake provisions endorsed in International Building Code amendment cycle, **2007:**4.32

NFPA 13, *Installation of Sprinkler Systems*, includes revised earthquake protection standards, **2000:**4.72

NFPA 13, *Installation of Sprinkler Systems*, includes seismic protection for sprinkler systems, **2005:**1.58

NFPA 5000, NFPA *Building Code*TM, references best guidelines for natural disasters, **2001:**4.42

Northridge, Calif., Jan. 17, 1994, 1995:3.52

Palace Hotel fire, San Francisco, Calif., 1906, 2000:4.70

San Francisco, Calif., Oct. 17, 1989, 1994:3.88

EDITORIALS. See also FIRST WORD COLUMNS

Agreement for single model fire code is blueprint for progress, 1997:3.10

Back to fire safety basics, 1993:5.4

Call for consensus on NFPA standards, 1993:2.4

Cast a vote for fire safety, 1992:6.4

Children's sleepwear regulations threatened by proposed amendments, 1995:5.6

Connections, 1992:5.4

Constructive criticism from members keeps NFPA on toes, 1998:2.6

CPSC amendment of children's sleepwear standard opposed, 1996:4.6

Dedication to fire safety can save lives, 1997:1.8

Defining NFPA's mission for year 2000, 1994:5.4

Federal government as partner in code/standard development, 1996:6.6

Fire protection's future, 1992:1.4

Fire safe design for high-rise buildings, 1993:6.4

Fire safety: tough challenges, great rewards, 1994:1.4

Fire safety implications of home security systems, 1994:3.4

Fire safety knowledge is power, 1995:1.6

Firefighter fatalities, prevention of, 1991:4.4

Fireworks are too risky for amateurs, 2000:4.6

High technology's value for fire protection, 1992:2.4

Home Fire Sprinkler Coalition supports residential sprinklers, 1997:2.8

Homeowner responsibility for wildfire protection efforts, 1994:2.4

HUD turns to NFPA to update manufactured housing safety standards, 1998:6.6

Ignition-resistant cigarette legislation needs member support, 1999:4.6

Imagining more fire safety achievements, 1996:3.6

National Electrical Code celebrates 100th anniversary, 1995:3.6

National Fire-Incident Reporting System provides important data, 1995:2.6

National model building code, 1996:1.6

New Latin American Section part of NFPA's international outreach, 1997:5.8

NFPA, IAPMO to develop codes and standards for built environment, 1999:6.6

NFPA, International Code Council (ICC) end agreement to develop one U. S. fire code, 1998:3.8

NFPA, leading the way on codes and standards, 1991:6.4

NFPA, the old and the new, 1991:2.5

NFPA 101, Life Safety Code uses performance-based approach, 2000:1.6

NFPA 1710, Organization Deployment of Fire Suppression and NFPA 1720, Volunteer Fire Service Deployment focus on firefighter safety, **2000:**5.6

NFPA commitment to Learn Not to Burn programs, 1993:4.4

NFPA develops long-range plan, 1993:3.4

NFPA enters the new millennium, 1999:1.6

NFPA faces stiff competition on international acceptance of codes, standards, 1997:4.8

NFPA has made great strides in developing consensus codes, 2000:6.6

NFPA joins fight against smoking, 1994:4.4

NFPA must balance tradition, transition, 1994:6.4

NFPA needs to educate people on home sprinkler system benefits, 1999:2.6

NFPA opposes any use of fireworks by consumers, 1999:3.8

NFPA responds to demands of global community, 1995:4.6

NFPA service to members, 1991:1.5

NFPA to develop *Consensus Codes* set, **2000:**3.8

NFPA's new president, George D. Miller, 1992:3.4

NFPA's second century of service, 1996:2.6

NFPA's sense of mission, 1991:5.4

Partnerships between NFPA and others aid fire/life safety, 1999:5.6

A plumber's nightmare, 1992:4.4

Protecting NFPA copyrights and trademarks protects the NFPA's mission, 1998:4.6

Renewing our commitment to fire safety, 1993:1.4

Residential sprinkler systems need promotion to contractors, homeowners, 2000:2.6

Risk Watch, critical to child safety, deserves support, 1998:5.6

Risk Watch program addresses child safety issues, 1998:1.8

Sparky campaign and community fire safety, 1996:5.6

Using new ideas for fire safety, 1991:3.5

Values of publicity, perseverance in spreading NFPA message, 1997:6.8

EDUCATIONAL OCCUPANCIES

Code enforcement keeps life loss low in educational occupancy fires, 2003:5.32

Fire alarm systems requirements, **2003:**5.36

McMurdo Station, Antarctica, research outpost, fire safety and fire protection at, 2011:5.54

Pre-incident planning should emphasize life-safety tactics, **2010:5**.40

EDUCATIONAL OCCUPANCY FIRES. See also COLLEGE BUILDING FIRES; SCHOOL FIRES

Day care center, Alabama, Jan. 11, 1999, **2000:**5.59

EGRESS. See also DOORS; EVACUATION; EXITS

Blocked by furniture, stored goods in catastrophic fire, 1995:5.53

Building performance to foster correct occupant egress behavior, 1993:3.62

Building site plan needs exit discharge from exit to public way, 1998:5.22

Catastrophic fire victims took wrong turn in escape attempt, 1998:5.49

Disabilities, evacuation plans for people with, 2005:2.54

Elevators as means of egress, 1996:1.30

Establishing alternative egress/access paths at structural fire incidents, 2004:5.28

Evaluating occupant load for egress, 1994:1.14

Exit access, exterior exits, and exit discharge must be clear of obstructions, 1998:6.28

Inadequate, factor in fatal fire, 1992:6.77, 1993:1.29, 1993:2.44

Limited from second floor, factor in large-loss-of-life club fire, 1991:4.67

NFPA 101®, Life Safety Code®, 2009 edition, elevator egress regulations in, 2009:5.36

NFPA 101®, Life Safety Code®, addresses egress path design issues, 2001:5.36

NFPA 101®, Life Safety Code®, addresses three egress distance issues, 2008:6.30

NFPA 101®, Life Safety Code®, elevator lobby egress requirements, 2011:5.34

NFPA 101®, *Life Safety Code*®, number of means of egress requirements for different occupancies, **2012:**2.34

Occupational Safety and Health Administration (OSHA) and Life Safety Code egress standards compared, **1993:**5.45

Office building space rearrangement can affect egress, 2002:2.36

School lockdown procedures can run counter to NFPA 1, *Fire Code*, and NFPA 101[®], *Life Safety Code*[®] egress requirements, **2013:**5.55

ELDERLY. See also ASSISTED LIVING FACILITIES; HOUSING FOR ELDERLY FIRES Fire deaths of elderly

Attempt to extinguish fire, **2005:**5.26

Board and care facility fire, **1997:**1.27

Candle ignites combustibles, 1999:6.19

Careless use of cigar as cause, 1998:5.15

Careless use of cigarette as cause, **1998**:1.23, **1999**:3.48, **1999**:6.18, **2000**:3.36, **2001**:3.32, **2008**:4.23, **2010**:3.36, 6.24, **2013**:2.21, 22

Careless use of smoking materials as cause, 2006:1.18, 2013:4.19

Cause undetermined, **2013:**4.22, 5.22

Causes and prevention, 1991:2.36

Clothing fire, **1996**:3.39, **1997**:1.25, **1998**:2.16, 3.38, **1999**:1.17, **1999**:3.48, **1999**:6.17, **2008**:2.23, **2010**:2.24, **2012**:3.34

Electric arc ignites dwelling exterior, 2012:4.21

Electric cord ignites combustibles, **2013:**6.23

Electric space heater, dwelling fire, 2006:2.28

Electric stove burner ignites cookbook, **2013:**2.20

Electrical light fixture malfunction, **2010:**1.20

Electrical outlet overheats, ignites combustibles, 2013:4.22

Escape slowed by age, dwelling fire, 2001:4.24

Extension cord overheats, ignites clothing placed on cord, 2013:5.26

Extension cord overheats, ignites hoarded combustibles, **2013:**4.20

Faulty home repairs by homeowner, 1999:3.48

Fire in vicinity of refrigerators, **2013:**3.22

Fire in vicinity of wood stove, kindling, 2012:3.30

Furnace malfunction ignites dwelling fire, 2008:5.29

Heating system problem ignites dwelling fire, **2010**:2.25

Kerosene fire, **1999:**1.17, **2010:**1.23

Leaking propane ignites, use of propane system as issue, 2004:5.14

LP-Gas explosion and fire, 1999:1.18

Man dies after entering burning home, 2013:3.26

Man dies rescuing wife from fire, 1999:1.18

Oily rags spontaneously ignited, 2012:4.23

Oxygen machine use, **2000:**3.36, **2001:**3.32

Paper/trash being burned in fireplace ignites apartment fire, 2009:6.24

Pot, unattended, ignites fire, 2008:4.22, 2012:4.28

Pot melts, ignites fire, 2010:1:24

Power outage factor in, 2013:1.20

Propane heater ignites combustibles, 2013:1.25

Risk of fatalities higher for elderly, 1997:1.44

Statistics, 1999:4.112

Stove burner ignites stored items, **2013:**3.22

Walker catches, opens gas valve, 2004:4.16

Wall heater ignites bedding, dwelling fire, 2011:3.36

Wiring, improperly installed, dwelling fire, 2011:3.38

Wood stove used with accelerants. dwelling fire, 2013:3.26

Fire department and elderly agencies focus on seniors' fire safety, **1994:**3.13

Fire Protection Research Foundation addresses fire safety needs of aging population, **2012**:4.32 Fire risk to elderly, statistics, **1996**:2.104

Home fire death risk higher for elderly according to NFPA report, **2010**:3.23

NFPA joins other organizations to aid emergency preparedness of older Americans, **2006:**6.11 *Remembering When*TM curriculum (*See* FIRE SAFETY EDUCATION)

Residential sprinkler systems provide important protection for elderly who stay in their homes, **2013:**5.40

Senior fire safety with Jonathan Winters, 1991:2.44

Smoke alarm signals to reduce older adult fire deaths, **2006:**5.26

Smoke-alarm waking effectiveness among children and elderly research by U. S. Consumer Product Safety Commission, **2003**:4.44

ELECTRIC GENERATING PLANTS

Bruce Power, Ontario, Canada, applies fire protection advances and NFPA 805 to plant design, **2003:**3.90

NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, fall meeting review, **2000:**5.91

ELECTRIC GENERATING PLANT FIRES. See also NUCLEAR ENERGY PLANT FIRES; POWER PLANT FIRES

Alabama, Nov., 1991, 1992:6.76

Alabama, June, 1993, **1994:**6.92

Arkansas, Aug., 1993, 1994:6.92

California, Jan. 10, 1990, 1991:6.76

California, Oct., 1993, 1994:6.92

California, 1998, 1999:4.22

California, March, 2003, **2004:**6.56

Catastrophic

Colorado, Oct., 2007, 2008:5.60

Indiana, Oct. 5, 1992, 1993:5.67

Kansas, Nov. 24, 1997, 1998:5.54

New Jersey, Dec. 25, 1992, 1993:5.67

Florida, July, 1992, **1993:**6.82

Florida, Aug., 1995, 1996:6.72

Florida, June 30, 1997, **1998:**6.91

Georgia, June, 1993, 1994:6.92

Hawaii, Jan., 2004, 2005:6.49

Illinois, April, 1994, **1995**:6.102

Illinois, Nov., 1994, 1995:6.100

Illinois, Dec. 18, 1996, **1997:**6.58

Illinois, 1998, 1999:6.95

Illinois, Nov., 2007, 2008:6.44

Indiana, July, 1998, **1999:**6.95

Kansas, Aug., 2000, 2001:6.64

Massachusetts, Oct., 2003, 2003:6.80

Michigan, Apr. 26, 1996, 1997:6.59

Michigan, Oct., 2003, 2004:6.56

Missouri, June, 1993, **1994:**6.92

Montana, substation, July, 1998, 1999:6.95

New Jersey, Dec. 25, 1992, 1993:2.44, 1993:6.82

New York, May, 1992, 1993:6.82

New York, March, 1993, 1994:6.91

Ohio, Nov., 2005, 2006:6.75

Pennsylvania, July, 2002, 2003:6.79

South Carolina, Dec., 1994, 1995:6.100

Tennessee, Sept., 2002, 2003:6.79

Virginia, April, 2000, 2001:6.64

Virginia, Nov., 2003, 2004:6.57

Virginia, Jan., 2006, 2007:6.83

ELECTRIC MOTORS

Motor and motor-controller disconnect requirements, 1995:4.42

ELECTRICAL EQUIPMENT. See also EMERGENCY POWER; specific equipment, e.g. AIR CONDITIONERS

Electrical room fire protection and enclosure requirements, 2008:5.38

Emergency lighting, Life Safety Code® requirements, 2005:6.28

Generator use during Hurricane Sandy resulted in numerous carbon monoxide poisonings and deaths, **2013:**1.10

Home electrical fires, report on, 2009:3.130

Home fires involving clothes dryers or washing machines, 2006-2010, NFPA report, 2013:2.80

Home kitchen equipment, not including cooking equipment, fires, 2005, NFPA report, **2008:**5.18

Home kitchen equipment, not including cooking equipment, fires, 2006-2010, NFPA report, **2013:**2.77

NFPA 110, Emergency and Standby Power Systems, 2010 changes, 2009:3.87

NFPA 111, Stored Electrical Energy Emergency and Standby Power Systems, 2010 changes, **2009:**3.87

Vehicles (See VEHICLES)

ELECTRICAL EQUIPMENT FIRES. See also HEATING-AND-COOKING EQUIPMENT FIRES

Air-compressor ignites lubricating oil, **1992:**6.79

Air-compressor malfunction, oil in unit ignites, 2010:3.43

Air conditioner

Aftermarket plug/cord connection arcs, 2007:5.29

Blower motor overheats, ignites combustibles, 2007:5.59

Cord arcs, ignites combustibles, 2007:5.29

Cord short-circuits, ignites wood structural members, 2008:5.58

Fan frozen, factor in fatal fire, **2004:**3.20

Fire started in/near receptacle plugged into, 2009:4.19

Malfunction, roof unit ignites storage facility fire, 2011:7.57

Malfunction causes fatal fire, 1998:4.20

Malfunctions, ignites plastic housing, 2009:4.18

Power cord possibly ignites mattress, 2000:4.19

Short circuit or arc ignites plastic housing, **2004:**3.22

Unit malfunctions, ignites plastic window blinds, 1999:4.21

Wiring overheats, ignites seal, 2004:4.17

Air-handling door conduit box bearing, **2010**:3.42

Air-handling unit coils ignite filter, 2009:6.27

Appliance ignites gas from broken riser, 2003:6.81

Aquarium operating equipment malfunctions, ignites equipment, 2010:2.27

Arc welding sparks ignite stored carpet pads, 1993:1.26

Audio equipment malfunctions, ignites housing, 1996:5.93

Battery charger ignites clothing, 2002:5.82

Battery charger malfunctions, ignites rack storage system pallets, 2010:2.26

Bearing box overheats on conveyor belt, ignites chaff and dust, 1993:6.83

Blower motor ignites, motor supports fail, 1999:5.21

Boat electrical system ignites gasoline, 1991:4.31

Book binding machine overheats, ignites glue, 1993:4.27

Cell phone in charging unit ignites toy, **2004:**4.17

Cellular telephone plugged into AC adapter explodes, **2006**:6.23

Christmas tree, artificial, electrical components malfunction, ignite club fire, 2003:4.16

Christmas tree lights (See also subentry: Holiday decorative lights)

Bulb blows, ignites Christmas tree, 1994:6.34

Improperly spliced, ignite Christmas tree, 1994:6.90

Resistance heating ignites Christmas tree, 2004:6.16

Short circuit, ignites Christmas tree, 1995:6.36

Short circuit, ignites dwelling fire, 2007:6.80

Clothes dryer

Accumulated lint ignites, 2004:5.14

Arcs, ignites lint, 2001:5.24

Clothing ignited by heating element, **2008:**3.26

Clothing in dryer ignites, **2003**:2.22

On cold porch, continual operation ignites lint, 2006:6.24

Commercial dryer, nursing home fire started in, 2011:4.22, 2013:6.23

Feed cable in contact with appliance housing, arcs, ignites fire, 1999:1.17

Heat ignites greasy residue on towels, **2011:**1.26

Heat ignites lint in exhaust duct, 1993:3.36, 2002:5.20, 2008:2.30

Heat ignites oily mops in dryer, **2001:**5.26

Ignites nursing home fire, 1996:2.25

Improperly vented, heat source ignites lint, 2000:5.59

Laundry room fire ignited by, 2010:6.25

Malfunction prevents heating element from cooling, **2000:**1.19

Motor malfunction overheats, ignites clothing, carpet, 2006:5.28

Motor malfunctions, ignites wiring insulation, 2009:3.39

Overloaded, ignites clothing in and near dryer, 2007:6.20

Power cord short circuits at splice, ignites combustibles, 2001:5.75

Clothes iron, unattended, ignites wooden table, other combustibles, **1996:**5.26 Coffee maker

Cord shorts, ignites wall covering, 1997:2.22

Defective, ignites stored materials, 1997:4.21

Malfunctions, ignites cabinets, 2001:1.21

Coffeepot ignites paper products, 1992:2.25

Compressor malfunctions, overheats, ignites wood construction, 1997:3.29

Cooler/freezer controls malfunction, ignite restaurant fire, 1996:3.35

Cooling unit overheats, ignites insulation, 1999:6.90

Cord (See also subentry: Extension cord)

Appliance, damaged, ignites carpet, combustibles, 2009:4.18

Appliance, damaged, ignites cord insulation, 2000:2.21

Appliance, damaged, ignites wall covering, 2010:4.24

Appliance, pinched, ignites bedding, 2006:2.26, 28

Appliance, short circuits, ignites fire, 2005:1.16

Appliance, spliced to extension cords, ignites fatal fire, 2011:3.38

Arcs, ignites living room contents, **2012:**4.27

Damaged, ignites carpet, 1994:5.28

Damaged, ignites combustibles, 2013:6.23

Damaged, ignites dwelling fire, 2001:3.34

Damaged, ignites wooden cabinet, carpet, 2000:3.34

Fails, ignites bedding, 2005:6.18

Improperly modified, overheats, causes short circuit, 1995:5.60

Improperly spliced to air conditioner overheats, ignites combustibles, 1998:3.41

Of lamp, short-circuits, ignites sofa, 1999:2.23

Malfunctioning, ignites catastrophic fire, 2003:5.75

Overheats, ignites carpet, 1992:3.32

Overloaded, shorts, ignites sofa, 1997:3.29

Pinched, overloaded, ignites combustibles, 2002:1.20

Shore power cord ignited by resistant heating, 2012:2.22

Spliced to power heater, ignites carpet, 1999:6.19

Corn popper ignites wood paneling, **1994:**5.95

Curling iron, left on, ignites counter, carpet, 1994:5.27

Dimmer switch, overloaded, ignites wall insulation, 1994:2.30

Dishwasher pump motor fails, ignites structural framing, 2009:5.24

Drop light

Falls to floor, ignites gasoline puddle, **2001:**5.78

Incandescent bulb ignites leaked fuel, 1997:6.23

Trash ignited by, 1991:2.31

Drying machine overheats, ignites pet food, 1994:3.29

Electric blanket heat degrades cord, 2010:6.26

Electrical component in sauna unit short-circuits, ignites wood partitions, 1993:6.79

Electrical equipment malfunctions, ignites manufactured wood products, 2009:5.27

Electrical service equipment failure, explosion ignites furniture, 2002:5.22

Elevator transformer overheats, ignites oil, 1996:5.26

Emergency light ignites stored clothing, 1992:2.27

Energized device on boat ignites combustibles, 2003:6.78

Entertainment cabinet components malfunction probable cause of dwelling fire, **2011:**2.25 Extension cord

Arcs, ignites bedding, **2006:**4.26

Damaged, ignites sofa, 2012:3.31

Damaged by cabinet, ignites carpet, 2004:2.18

Damaged by chair, overloaded, ignites chair, sofa, 2007:5.58

Damaged by forklift traffic, ignites spilled glue, 1998:4.20

Damaged by stored spools, arcs, ignites spools, boxes, 2003:6.16

Defective, ignites Christmas tree, 1992:6.28

Electrical fault ignites stored combustibles, paneling, 1997:5.50

Failed, ignites carpeting, 1995:6.37

Failed, ignites combustibles, 1996:5.92

Fire in area of, **2005:**2.18

Ignites Christmas tree, 2006:6.20

Ignites clothes, chair, 2000:5.58

Joined to heater cord, overheats, ignites living room contents, 1994:5.96

Malfunctions, ignites fabric, 2013:4.22

Melted, ignites combustibles, 2013:4.22

Overheats, ignites cardboard combustibles, 1997:4.22

Overheats, ignites catastrophic fire, 2003:5.75

Overheats, ignites clothing, 2013:5.26

Overheats, ignites combustibles, 2010:5.30, 2013:4.20

Overheats, ignites fatal fire, 2008:2.26, 2010:1.24, 2012:4.20

Overheats, ignites plastic garland, 1994:6.35

Overheats, ignites wooden box, firewood, 2007:4.28

Short circuits, breaks, ignites packaging material, 2007:3.23

Short circuits, ignites couch, 2004:5.18, 2007:5.58

Spliced to appliance cords, ignites fatal fire, 2011:3.38

Spliced together, run under carpet, ignite fatal fire, **2004:**3.20

Used for space heater, creates high-resistance fault, ignites combustibles, 1998:5.46

Extension cord, overloaded

Carpeting ignited by, **1992:**4.67, **2003:**1.14

Christmas tree ignited by, **1993:**5.64, **1994:**6.33

Clothing, toys ignited by, 1997:5.51

Combustibles ignited by, 1996:5.93, 1998:4.19, 2002:6.22, 2012:4.25

Curtains ignited by, 1996:5.92

Door frame ignited by, 1991:4.65

Fabric ignited by, **1991:**4.26

Fire ignited by, **1992:**4.69

Furniture ignited by, 2012:3.32

Possible fire cause, 1998:5.18

Shorts or arcs, ignites combustibles, **1997:**5.51

```
Wood and paper ignited by, 2013:2.19
Exterior lights
  Combustible exterior sidewall ignited by, 1993:1.25
  Fixture possible manufacturing plant fire cause, 2003:4.16
  Fixture used inside ignites carpet, flooring, 1997:6.22
  Ignites wood siding, 2013:1.23
  Short circuit ignites roofing material, 2001:2.20
Fan
  Attic, ignites concentrated fumes, 2003:6.79
  Ceiling, overheats, motor ignites dust and fan cover, 2009:3.45
  Ceiling, wiring dislodged, arced, ignites stored paper, 2002:4.18
  Ceiling exhaust fan, possible fire cause, 2005:2.28
  Improperly wired, causes grounding through ducts, ignites wood, 1995:5.35
  Light motor short circuit, possible fire cause, 2001:2.23
  Malfunctions, ignites carpeting and chair, 2006:4.27
  Malfunctions, ignites dry wood, 1995:6.99
  Malfunctions, ignites dust, 1996:5.23
  Motor ignites cellulose insulation, 2013:3.24
  Motor overheats, ignites housing, 2012:5.30
  Motor overheats, ignites plastic trim, 1995:5.33
  Overheats, ignites plastic housing, 2012:3.29
  Short circuit ignites grease, 1995:6.106
  Short circuit ignites wood framing, 1991:6.25
  Worn bearings freeze fan, wiring overheats, 2005:5.26
Floodlights
  Cold air balloon ignited by, 1994:6.35
  Paint tarpaulins ignited by, 1994:4.30
Fluorescent light ballasts
  Arcs, ignites insulation, 2003:2.24
  Foam insulation ignited by, 1992:1.26
  Overheats, ignites ceiling tiles, 1996:5.25
  Overheats, ignites fabric lint, 1997:3.33
  Overheats, ignites stored film and paper, 2006:6.73
  Overheats, ignites structural members, 1993:2.22
  Short circuit ignites storeroom, 2006:6.73
  Wood framing ignited by, 1995:2.32
Fluorescent light fixtures
  Malfunction ignites paint spray booth, 2001:3.36
  Malfunction ignites plastic light cover, other combustibles, 2011:1.24
  Malfunction ignites wall paneling, 2010:1.20
  Melts, ignites boxes, 2004:1.16
  Sparks ignite fire, 2000:6.85
Freezer, malfunctions, ignites balcony, 2012:4.28
Generators
  Cardboard ignited by, 1991:2.30
```

Overheated exhaust pipe ignites roof decking, 2012:5.25

```
Portable, safe use of, 2000:2.96, 2006:6.16
Glue gun ignites fireworks factory fire, 1991:4.30
Gondola motor overheats, ignites carbon brushes, 1994:3.28
Heat gun
  Unattended, ignites combustibles, 2000:2.22
  Unattended, ignites paper filter and wall covering, 2013:3.32
  Wood and dust ignited by, 1999:5.21
  Wood on roof ignited by, 2009:3.42
Heat tape
  Malfunctions, ignites PVC piping, 1993:1.28
  Structural members ignited by, 1991:5.28
  Wood eaves ignited by, 1992:1.23
Heating blanket short-circuits, ignites, 1994:3.30
Heating element ignites dip tank, 1994:6.36
Heating pad overheats, ignites chair, 2009:5.26
Heating tool fails, 2013:6.24
Holiday decorative lights
  Apartment building holiday display starts fire, 2013:1.18
  House exterior lights short circuit, arc, ignite exposed paneling, 2013:1.18
Hot tub malfunctions, ignites spa, wall, curtains, 1996:3.36
Lamp
  Arcs, ignites combustibles, 2005:5.59
  Blanket ignited by, 2011:5.18
  Cloth ignited by, 1991:4.25, 26
  Clothing draped on lamp ignited, 1994:6.33, 2003:5.16
  Cord short-circuits, ignites sofa, 1999:2.23, 2011:5.75
  Cord short-circuits, ignites sofa and curtains, 2003:1.15
  Halide, explodes, ignites cardboard, 1998:6.87
  Halogen, ignites curtains, 1998:1.23, 2003:6.14
  Halogen, ignites fatal dwelling fire, 2000:1.20
  Halogen, ignites foam padding, 2011:7.23
  Heat, ignites straw, feed, 2004:6.21
  Heat, ignites wood lining of boat engine room, 1991:6.26
  Knocked over, ignites carpet in fatal fire, 1998:2.16
Light, for automobile repair, breaks, ignites vapors, 2000:5.23
Light, portable, ignites flammable liquid, 1991:2.30
Light bulb
  Explodes, ignites combustibles, 1991:5.25
  Explodes in tanning bed, ignites mall fire, 2013:4.19
  Halide bulb, broken, ignites stored paper, 2003:6.77
  Mop ignited by, 1993:2.20
  Speaker enclosure ignited by, 2011:7.55
Light fixtures
  Arc ignites bedding, 2006:4.28
  Arc ignites ceiling insulation cover, 2011:5.20
  Arc ignites fire, 1995:5.54
```

Arc ignites stage curtain, **2005:**1.14

Backdrop ignited by, 2002:6.22

Ballast sparks store display window fire, **2008:**1.22

Cardboard boxes ignited by, 1999:6.94

Fluorescent (See subentry: Fluorescent light fixtures)

Halogen light ignites stored clothing, 2012:2.20

Halogen light ignites walnut dust at movie set, **2005**:6.49

Halogen lighting connection fails, ignites combustibles, 2003:5.14

Hot bulb in closet fixture ignites stored mattress, 2011:5.76

Mercury vapor fixture ignites stored mattresses, 1995:4.39

Recessed lighting ignites combustibles, 2012:6.64

Recessed lighting short ignites ceiling, 2010:5.63

Short circuit, ignites combustibles, **2007**:6.82

Sodium fixture hit by forklift, hot pieces ignite cardboard boxes, **1999:**6.90

Sodium fixture ignites paper warehouse fire, **2012**:2.23

Sparks ignite cardboard and plastic materials, 2007:6.78

Stored combustibles ignited by, **1996**:6.68, **2009**:3.44

Stored foam products ignited by, 1998:1.25

Stored paper ignited by, **1994**:6.94

Structural members ignited by, **2000:**6.93

Track lighting ignites cardboard boxes in window display, 2010:5.35

Lights, decorative, ignite Christmas tree, 1991:6.24, 2008:2:24

Lights, decorative, short circuit, ignite combustibles, wood paneling, 2007:5.60

Lights, temporary, fall onto plastic container, ignite cover, 2004:3.18

Lights, temporary, ignite building-under-renovation fire, 2005:6.45

Mixer cord pulled from receptacle, arcs, ignites lint, 1997:3.33

Motor and wiring malfunction ignites combustibles, **2001**:2.24

Motor malfunction burns through telephone lines, 2011:2.30

Motor malfunctions, overheats, ignites leaked oil, 1997:3.33

Motor on pump and augur malfunctions, ignites fire in basement, 2008:6.42

Motor powering conveyor belt fails, ignites sawdust, wood stock, 2011:7.22

Neon sign

Malfunctions, ignites fire in wall void, **2004:**4.19

Short circuits, ignites siding, 2000:5.23

Office equipment malfunctions, ignites combustibles, 2003:1.14 Outlet

Arcs, ignites bed, **1998:**5.45

Electrical failure ignites combustibles, 2013:1.21

Malfunctions, ignites fatal dwelling fire, **2007**:4.24

Overheats, ignites combustibles, 2013:4.22

Overheats, ignites manufacturing plant fire, **1997:**6.52

Packaging machine malfunctions, ignites combustible materials, **1993:**6.29 Power strip

Arcs, ignites combustibles, **2010:**4.25

Damaged, ignites boat fire, 2003:3.20

Electrical failure ignites combustibles, 2013:1.21

Malfunctions, ignites bench, computers, 1999:2.25

Overheated, ignites combustibles, **2005**:6.45

Overheated, ignites couch, window treatments, 2004:5.68

Overloaded, arcs, ignites fire, 2002:1.19

Overloaded, covered by blankets, ignites combustibles, 2009:4.20

Overloaded, covered by clothes, books, ignites combustibles, 2012:2.14

Overloaded, ignites carpeting, flooring, 2011:7.19

Overloaded, ignites fire, 2010:4.28

Overloaded, melts plastic wires, ignites carpet, combustibles, 2001:6.21

Overloaded, overheats cord, ignites cabinets, 2001:6.23

Partially plugged in, catches fire, 2013:5.24

Power transfer equipment fire, electric generating plant, 1997:6.59

Production equipment malfunctions, ignites combustibles, 1995:6.107

Pump arcs, ignites fuel, 1994:5.106, 1994:6.98

Quartz lighting ignites oil, 1994:6.94

Radio cord

Cabinet ignited by, **1992:**6.29

Short-circuits, ignites rugs, curtains, newspapers, 1994:1.31

Refrigerator

Combustibles behind refrigerator ignited, 2012:3.34

Cord short circuits, ignites fire, 2005:1.16

Malfunction, possible fire cause, 1999:2.25, 2002:5.22

Motor overheats, ignite combustibles, 2007:5.57

Motor overheats, ignite wire insulation, 2006:6.73

Motor seizes, ignites, 2003:2.24

Wood paneling, counter top ignited by, 1992:6.31

Soda machine motor malfunctions, overheats, ignites insulation, 2003:3.14

Soldering gun ignites oil on cord, 1993:5.37

Soldering iron ignites oil-, shellac-soaked workbench, 2007:4.24

Sound equipment malfunction possible fire cause, 2002:2.26

Speakers arc, ignite combustibles, 2012:4.29

Spotlight ignites wood shingles, 1997:1.27

Surge protector malfunctions, ignites combustibles, wood paneling, 1998:5.45

Surgical cauterizing pen ignites sterile drapes, 1998:5.17

Television malfunction ignites dwelling fire, 2011:2.26

Thermostat fails, ignites sauna wood structure, 2013:4.25

Thermostat malfunctions, melts plastic, ignites audiovisual equipment, 2011:5.21

Toaster, fire started in, 1998:6.90

Unspecified equipment failure produced heat, ignites combustibles in basement, 1998:5.49

UPS systems, fighting fires in, 1994:5.33

Vacuum cleaner ignites gasoline vapors, 1992:5.28

Waffle iron ignites workbench, 1991:3.25

Wall receptacle malfunctions, ignites bed and bedding, 1994:2.28

Waste-handling machine overheats, ignites fiber residue, 1992:5.30

ELECTRICAL FIRES

Bus bar malfunctions, ignites hotel fire, 1994:2.29

Capacitator discharges, spark ignites varnish in dip tank, 1997:6.52

Catastrophic fire cause, 2002:5.82

Circuit breaker fails to operate in response to overload, **2009:**4.18

Circuit overload

Room contents ignited by, 1999:5.55

School fire ignited by, 1998:1.21

Conduit

Penetrated by screw, ignites fire, **1995:**6.99

In wall void ignites wood siding, 1994:5.28

Control panel box, possible fire source, 1999:6.95

Cord cap, incompletely inserted in receptacle, exposed blades energize metallic drapes,

1999:3.44

Distribution line arcs, ignites grass fire, 1997:6.59

Electric panel

Arc sparks fatal explosion, **2005**:6.22

Arcs, ignites wood cage, combustibles, 1997:6.22

Box and entrance meter, fire began at, 1999:5.51

Box line fault ignites wood frame, **2001:**5.22

Damaged by roof collapse, arcs, ignites combustibles, 1997:1.28

Main distribution panel fire damages cable insulation, items in room, 2010:5.35

Malfunction ignites laundry room fire, 2005:5.58

Malfunction ignites warehouse fire, 2001:6.62, 2008:6.45

Short circuit ignites mops, cardboard boxes, 2012:3.39

System not adequately grounded, overheats, ignites wood sheathing, 2004:6.16

Electrical arc

480-volt line arc ignites fatal fire, 1999:2.26

Cable tray ignites dust and cable insulation, 1999:6.95

Caused by water in electrical system, ignites ceiling tiles, **1997:**6.49

In computer monitor ignites computer housing, **2006:**1.20

In conduit, ignites mineral oil, 2004:6.56

Conduit/busway contact ignites stored combustibles, 1998:6.24

Electrical system arc ignites unknown items, 2007:5.57

Energizes metal siding, hampers fire service operations, 2001:5.26

Fault-circuit interrupter requirement for bedrooms targets residential fires, 2000:2.69

Flammable gas ignited by, 1992:6.28

Gasoline ignited by, 2007:4.21

Ground fault created by switch, 1998:5.54

Ground vegetation ignited by, 2007:6.81

Hydrogen ignited by, **1995**:6.102

Junction box arc ignites ceiling joist, 2010:4.26

Junction box arc ignites walls, stored items, 2012:5.30

Lacquer thinner came in contact with electrical outlet, **2000**:6.92

Lint ignited by, 1999:6.94

Power cord arcs, ignites living room contents, 2012:4.27

Sawdust ignited by, **1999:**6.90

Speaker cluster arc ignites combustibles, 2012:4.29

Structural framing ignited by, **2007:**2.22

Wall switch arcs, ignites stored linen, 2006:3.32

Wiring splice, arc from, onto metal raceway melts slag, 2000:3.32

Wood floor joist ignited by, 1999:5.52

Electrical cable to recharge batteries overheats, ignites foam insulation, 2000:6.94

Electrical failure causes fire, 1993:1.26

Electrical failure during blackout ignites blast furnace fire, 2004:6.52

Electrical heat source ignites stored clothing, 2000:6.91

Electrical malfunction, probable board and care facility fire cause, 2007:5.60

Electrical malfunction ignites lint, shopping mall fire cause, 2009:5.28

Electrical malfunction ignites theater fire, 2009:1.17

Electrical malfunction ignites wood structural members, 2009:6.84

Electrical service circuit protection fails, arcing ignites cable insulation, 1992:6.78

Electrical system failure ignites ceiling, 1994:6.95

Exterior-mounted box, fire started in, 2004:6.17

Fault ignites combustibles, 2009:1.23

Fault in control cable causes generating plant fire, **1995:**6.100

Fault in transformer vault ignites generating station, 1994:6.91

Forklift control arcs, ignites pentane, 1991:6.26

Friction sparks ignite nylon fluff and oil, 1993:6.82

Fuses, oversize, dwelling fire factor, 2013:5.24

Fuses with incorrect current rating, excessive overcurrent protection, ignite fire, **1999:**4.20

Ground, absence of, key element in fire, 1995:5.35

Ground fault arc and explosion ignites fire, 1992:6.78

Heat trace cable ignites wood framing, 1996:6.24

High-power electrical line hit by construction equipment, arcs, ignites tree, brush, 2001:6.63

High-voltage box malfunctions, burns plastic insulation, 1996:3.40

Home electrical fires, report on, 2009:3.130

Improper electrical alteration, catastrophic fire cause, **2001:5**.75

Improper electrical alteration, fatal fire cause, **2001:**5.75

Junction box

Fault ignites wood paneling, 1997:5.50

Fire in area of, **2004:**3.22

Homemade box malfunctions, 2013:4.20

Short circuit ignites storeroom fires, 2013:6.56

Solar array panel box malfunctions, ignites roofing materials, 2013:5.27

Light switch with poor connection overheats, ignites combustibles, 2000:3.38

On/off switch malfunctions, probable fire cause, 1991:1.30

Outlet, duplex, malfunctions, ignites combustibles, wooden walls, 2000:1.21

Outlet on workbench malfunctions, ignites manufacturing plant fire, 1999:6.91

Power line

Downed, arcs, electrocutes fire fighter, 1997:4.57

Downed, arcs, ignites dwelling exterior, 2012:4.21

Downed, hampers fire service operations, 2008:6.44

Downed, ignites grass, 2007:5.62, 6.80

Downed, ignites wildland fire, 2008:6.43, 2012:6.65

Downed, ignites wildland/urban interface fire, 2008:6.43

Downed cross arm arcs, sparks, ignites grass, 2007:6.81

High-voltage line arcs, ignites bus, 1992:4.26

High wind pushes lines together, ignites wildland fire, 2012:6.65

Loose, arcs, ignites wildland/urban interface fire, 2011:6.18

Short circuit, arcing, ignite dry vegetation, 1991:6.74

Power supply to machinery malfunctions, ignites rolled paper, **1996**:6.62 Receptacle

Arcs, ignites bedding, 1997:5.52

Catastrophic fire originated at, spread to paneling, 2004:5.68

Fire started in or near, 2009:4.19

Improper wiring overheats, ignites combustibles, 2009:4.20

Overloaded, arcs, ignites decorative materials, 1999:5.22

Wiring overheats, wire insulation fails, 1998:3.38

Residential fires, causes of, 2000:2.70

Service cable, damaged, ignites structural members, 1996:5.93

Short circuit

In air conditioner cord ignites wood structural members, 2008:5.58

In appliance ignites fabric, **1998:**6.92

Arc ignites mine fire, 1992:6.77

Arcing from power lines, ignites dry vegetation, **1991:**6.74

Automobile fire possibly ignited by, 1995:2.31

Barn fire ignited by, 1996:2.25

In battery ignites subway car, 1991:4.31

In battery ignites truck, shed, 1992:6.26

In breaker box ignites fire, 2000:5.57

Burns hole in conduit, ignites rafters, **1994:**4.31

In ceiling above audiovisual room, **2006**:6.74

Combustibles ignited by, **2008:**5.57

Created by switch, 1998:5.54

Cubicle walls, materials on, ignited by, 2003:6.15

In dryer motor ignites sawdust, 1993:6.83

In dumbwaiter wiring ignites fire, **2006:**4.28

In electric raceway ignites counter, 1993:1.26

In electrical cord ignites sofa, **1997:**3.29

In extension cord, breaks, ignites packaging material, 2007:3.23

In extension cord, ignites couch, 2007:5.58

In extension cord ignites Christmas tree, 1992:6.28

In extension cord ignites van fire, 1993:1.28

In fan ignites grease, 1995:6.106

In fan ignites wood framing, 1991:6.25

In fixed wiring ignites structural members, ceiling, floor, **1993:**1.27

In freezer cord ignites stored paper products, **1998:**6.21

In heat tape ignites insulation, **2001**:4.20

Ignites fatal dwelling fire, 2007:6.18

Ignites plastic toys in store fire, **2007:**2.17

In junction box ignites stored goods, 1993:4.26

In lamp cord ignites sofa, 1993:6.28

Light ballast material ignited by, 1991:3.29

In light fixture ignites combustibles, 2007:6.82

In lighting, sound equipment ignites fire, 1992:6.25

In lights ignites Christmas tree, 1993:6.28, 1995:6.36

In lights ignites combustibles, wood paneling, 2007:5.60

In lights ignites dwelling fire, **2007:**6.80

In line ignites underground electrical vault, 1991:4.69

In low-voltage wiring ignites beams, 1996:1.24

In neon sign ignites mixed-use building, 1993:6.81

Plywood wall ignited by, 1995:6.107

In refrigerator cord ignites dwelling fire, 2005:1.16

School fire ignited by, 1998:1.21

In sign wiring ignites hotel facade, 1998:5.16

In switchgear area ignites flammable gas, 2006:6.75

In typewriter ignites plastic housing, 1991:5.25

Wall covering ignited by, 1998:6.92

In wall outlet, ignites catastrophic fire, 2003:5.75

In wall receptacle ignites wall paneling, 1993:5.62

In wiring ignites artificial Christmas tree, 1993:6.28

In wiring ignites structure, 2006:6.24

In wiring ignites synthetic fabric dust, 1998:6.84

Wood framing ignited by, **1993:**6.30, **1997:**5.49

Wood structural members ignited by, 2004:6.55, 56

Wooden wharf parts ignited by, 1999:6.96

Sparks, caused by (See SPARKS)

Static electricity ignites alcohol vapors, **2011:**3.47

Static electricity ignites naptha, tank fire, 2008:4.25

Static electricity ignites paint, 1993:5.38

Temporary electrical system malfunctions, ignites fire, 1998:6.24

Transformer

Arcs, ignites oil, **1994:**6.92

Equipment short-circuited by water leak into busway, 1999:2.24

Failure ignites substation fire, 2004:6.56

Fault leads to explosion, ignites mineral oil, 2004:6.57

Malfunctions, ignites building overhang, **2006:**1.20

Malfunctions, ignites components of unit, 2010:1.27

Underground feed lines

Damaged by underground digging, resulting wiring fault ignites framing, 2010:1.25

Penetrated by augur, cause short circuit, 1995:6.100

Uninterrupted power supply unit ignites fire, 1995:2.30

Wiring

Arcs, ignites structural framing, 2009:5.26

Arcs, ignites subfloor, 2013:4.24

Arcs, overheats, ignites plastic common covering, **2011:**7.20

Arcs as power is restored after fire, ignites second fire, 1997:6.54

Cloth-covered, malfunctions, ignites wood framing, 1995:5.62

Connections corrode, arc, ignite framing, 1997:3.30

Defective, ignites fire, 1993:2.22

Defective, ignites wooden structure support, 2011:5.75

Exposed, ignites leaking gasoline, 2002:4.18

Fault in, ignites framing, 1997:5.23, 2005:4.18

Fault in, ignites stage and orchestra pit, **2006:**4.29

Fault in, ignites wall paneling, 1996:5.93

Faulty, ignites fire, 2000:5.58

Fire ignited by, **1995:**4.40

Grounds out on conduit, ignites soffit, 1998:6.86

Improperly altered, catastrophic fire cause, 2001:5.75

Inadequately sized, ignites wall, 1991:4.67

Installed incorrectly, heat nails, ignite joist, 1998:5.15

Installed incorrectly, ignites insulation, 1994:4.32

Insulation ignited by, 1994:4.29

Joist ignited by, 1992:3.34

Knob-and-tube wiring fails, ignites attic fire, 2006:2.24

Knob-and-tube wiring malfunction ignites wooden structural members, 2008:5.59

Malfunction, possible fire cause, **2007:**4.25

Malfunction ignites fire, 1992:4.67, 2004:1.17

Malfunction ignites wood-frame members, **2007:**5.31

Malfunction in concealed space ignites fire, 1995:5.56

Overheats, ignites structural wood, 1996:2.24, 2009:5.82

Overheats in concealed space, ignites structural framing, 1998:2.19

Overloaded, factor in catastrophic fire, 1997:5.51

Overloaded, ignites wood framing, 1995:5.56

Overloaded or damaged, ignites wood framing, 1993:5.64

Short-circuits, ignites insulation, 1994:3.27, 2009:5.25

Short-circuits, ignites laundry room fire, 2009:5.82

Short-circuits, ignites warehouse fire, 2007:6.77

Short-circuits, ignites wood framing, 1992:4.68

In storage area ignites fire, 1999:4.22

Systemic problem leads to arc or overheating, 2005:5.28

Transformer connection, incorrect, heats housing, ignites cardboard, 1998:4.22

U. S. cable/wire manufacturers promote NEC over IEC as European standard, 1998:4.64

Unsecured, in fuse panel, creates resistance, ignites wall, 1999:5.52

From utility pole ignites vehicle after accident, 1996:5.100

Wrapped on nail ignites joist, 1991:3.27

Wiring malfunction ignites vehicle, **2009:**6.24

ELECTRICAL INSPECTIONS

Budget cutback threaten inspections, 1996:6.80

ELECTRICAL SAFETY. See also 70E CONNECTION, THE

Aged electrical infrastructure in single-family dwellings subject of Fire Protection Research Foundation research, **2008**:3.34

Aging electrical infrastructure impacts electrical fire safety, **2006:**2.22

Arc fault-circuit interrupter requirement for bedrooms targets residential fires, 2000:2.69

Arc fault-circuit interrupter requirements enhance home electrical safety, 2008:5.74

Arc fault-circuit interrupters required in dwelling unit bedrooms, 2001:2.31

Electric vehicle safety (See VEHICLES)

Energy-saving technologies safety impact assessed in Fire Protection Research foundation studies, **2012**:2.28

Experts answer questions on National Electrical Code, 1996:1.28

Firefighter injured by electric shock, 1999:6.52, 2001:6.54

Grounding, bonding of sprinkler piping, **2000:**1.72

Human behavior influences number/frequency of incidents, **2000:**1.62

National Electrical Grounding Research Project, 2006:2.22

NFPA 70E, Electrical Safety in the Workplace, 2009 edition, proposed changes, 2008:3.79

NFPA 70E, Electrical Safety in the Workplace, PPE requirements, 2006:6.100

NFPA and IEEE program to better define arc flash hazards for workers, 2006:5.22

NFPA program trains emergency responders to avoid hazards from advanced electric-drive vehicles, **2010**:2.58

Outdoor electrical safety tips offered by NFPA, 2013:3.14

ELECTRICAL SAFETY COLUMNS

Alarm systems ensure safe elevator recall, 1993:3.28

Boat repair safety requirements for wiring, equipment, 1995:5.40

Electrical standards go global, 1994:1.34

Emergency power source installation and operation requirements covered in codes, 2013:2.38

Emergency power source location impacts functioning under adverse conditions, 2013:3.46

Emergency power supply system requirements for emergency power systems, 2013:1.40

Ensuring electrical safety in workplaces, 1994:4.35

Excessive fault current prevention, 1992:2.80

Fighting fires in UPS systems, 1994:5.33

Fire investigation safety precautions, 1992:3.38

Grounding equipment to protect people and equipment, 1994:3.36

Grounding of electrical systems, historical arguments for/against, 1994:2.32

Harmonics and power quality, **1993:**4.30

Holiday lighting hazards, 1995:6.42

Main service disconnect, National Electrical Code terms and requirements, 1991:6.88

Motor and motor-controller disconnect requirements, 1995:4.42

National Electrical Code, 2014, changes hospital receptacle requirements, 2013:6.36

National Electrical Code, 2014, considers electrical design for people with disabilities, **2012:**5.44

National Electrical Code, 2014, proposal for clear work space requirements, 2012:6.40

National Electrical Code, 2014, proposals for five new articles accepted at ROP meeting, **2012:**3.54

National Electrical Code, 2014, proposed changes, 2012:4.44

National Electrical Code, 2014, updates health care occupancy electrical infrastructure requirements, **2013:**5.42

National Electrical Code, and the global marketplace, 1991:3.120

National Electrical Code, importance of using most recent edition, 2013:4.38

National Electrical Code[®] electric vehicle supply equipment/consumer interface requirements, **2012:**1.40

National Electrical Code prevents hot tub, spa accidents, 1992:4.22

National Electrical Code work space requirements for energized electrical equipment, 1995:1.37

NFPA 70E certification programs for electrical workers and supervisors launched by NFPA, **2012:**2.40

NFPA 72, Protective Signaling Systems, combines previous standards, 1991:5.86

NFPA 72, UL alarm standards work together, 1993:5.24

Polychlorinated biphenyls (PCBs), 1991:1.116

Portable tool safety, 1994:6.38

Residential electrical system reinspection, 1991:2.112

Resistance-type heat tape installation to prevent frozen water pipes, 1995:3.45

Service-entrance conductors protect against overloads, 1992:1.72

Sprinklers installed over energized electrical and electronic equipment, 1993:6.31

Staying safe around high-voltage equipment, 1995:2.34

Who interprets the NEC?, 1992:5.12

Workplace safety procedures are important, 1993:2.28

ELECTROCUTION

Firefighter fatalities related to, **1994**:4.65, **1996**:4.72, **1997**:4.57, 58, **1998**:4.61, **1999**:4.57, 70, **2000**:4.61, **2001**:4.77, **2006**:4.59, **2007**:4.69, **2008**:4.89, **2009**:4.63, **2010**:4.77

Firefighter injuries related to, 2000:6.47, 2001:6.54, 2003:1:65, 2011:7.67

Photovoltaic system shocks firefighter, 2009:6.54

ELECTRONIC EQUIPMENT. See COMPUTERS AND RELATED EQUIPMENT

ELECTRONICS INDUSTRY

Fire protection for, 1992:2.32

ELEVATOR MECHANICAL ROOMS

Motor malfunctions, ignites leaked oil, 1997:3.33

Motor/pulley seized, ignites cable insulation, and room contents, 2009:4.22

Sprinkler protection requirements in NFPA 13, *Installation of Sprinkler Systems*, and ASME A17.1, *Safety Code for Elevators and Escalators*, **2011:**7.30

ELEVATORS

Alarm systems ensure safe recall, **1993:**3.28

ASME A17.1, *Safety Code for Elevators and Escalators* task groups addressed fire-related elevator safety issues, **2006:**2:42

Bulk storage (grain), catastrophic fire, Indiana, Oct. 1, 1996, 1997:5.52

Bulk storage (grain), fire, Alberta, Canada, 1996, 1997:4.20

Elevator-based evacuation plans exemplified by Las Vegas' Stratospher Tower, 2009:4.58

Elevator recall and shut down requirements increase safety, 1997:5.64

Fire spread through shafts, **1994:**5.104, **2008:**6.42, **2008:**6.43

Fires, standard operating procedures for use by firefighters during, 2001:4.28

Grain elevator fire and explosion, Kansas, June 8, 1998, 1999:5.54, 1999:6.92

Grain elevator fire and explosion, Kansas, Oct., 2011, 2012:5.73

Means of egress, use as, 1996:1.30

NFPA 101®, Life Safety Code®, 2009 edition, elevator egress regulations in, 2009:5.36

NFPA 101®, Life Safety Code®, elevator lobby egress requirements, 2011:5.34

NFPA 5000®, *Building Construction and Safety Code*®, 2012 edition, proposed changes to emergency use of elevators, **2011:**3.70

Safe use as vertical exits, overview, 1993:3.49

Sprinkler protection requirements in NFPA 13, *Installation of Sprinkler Systems*, and ASME A17.1, *Safety Code for Elevators and Escalators*, **2011:**7.30

Transformer overheats, ignites hospital fire, 1996:5.26

Workers trapped in stalled elevator in catastrophic fire, 1997:5.52

EMERGENCY COMMUNICATIONS. See also FIRE SERVICE COMMUNICATIONS

Colleges look beyond technology to create effective emergency communication systems, **2009:**5.52

Ham radio operators' role, 1996:2.46

Intelligibility of voice communications, ten key issues affecting, 2010:6.46

Mass notification, coordinating homeland security and code requirements for, **2004:**1.29, 1.40

Mass notification enhances life safety, **2006:**3.76

Mass notification requirements in National Fire Alarm $Code^{®}$, 2007:3.82

Mass notification system at Circuit of Americas Formula One racetrack complex, Travis, Texas, provides ability to communicate across complex, **2013**:4.42

Mass notification system at college uses existing infrastructure to provide flexibility, 2008:5.90

Mass notification system requirements proposed for *National Fire Alarm Code*® to aid homeland security, **2004:**6.30

Mass notification systems include voice, radio, computer networks and texting, 2009:4.50

National Fire Protection Research Foundation researches emergency communications strategies for buildings and building campuses, **2010**:5.53

NFPA 72[®], 2010, emergency communications systems requirements, including intelligibility, **2009:**3.50

NFPA 72[®], 2010, emergency communications systems requirements need well-versed installers, designers, and AHJs, **2009:**4.32

In NFPA 72®, 2010, combined voice/alarm and other communication systems, mean new challenges for inspectors, **2009**:3.54

Proposed bill would establish federal grants to municipalities to improve communications equipment, **2011:**7.11

Public address systems, required evaluation for emergency communications of, **2012**:4.40 EMERGENCY MANAGEMENT. *See also* BUSINESS CONTINUITY; DISASTER

RESPONSE; EMERGENCY RESPONSE SYSTEMS

Americans poorly informed on emergency preparedness issues, survey indicates, 2012:5.15

Basics of mitigation, preparation, response, and recovery, 1995:4.44

College campuses decrease risk with all-hazards approach to emergency preparedness, **2010**:5.50

Drill, Logan International Airport, Boston, Mass, 1991:2.54

Drill, plane crash simulation at Hancock Tower high-rise, Boston, 1993:6.35

Federal program trains first responders for terrorist attacks, 1998:6.31

Health care occupancies need pre-incident plans, 2004:1.22

Hospital's plan effective in actual emergency, 1997:3.88

Implementing NFPA 1600, *National Preparedness Standard*, explains development of compliant programs, **2008:**1.16

Indiana State Fair stage rigging collapse spurs improved emergency planning and management procedures, **2012**:4.68

Mass-casualty shootings (See TERRORISM)

National Electrical Code® article references NFPA 1600 requirements, 2008:1.49

NFPA 99, *Health Care Facilities*, 2012 edition, updates emergency management provisions, **2013:**1.52

NFPA 101®, *Life Safety Code*®, Technical Committee addresses emergency procedures for large assembly spaces, **2011:**4.58

NFPA 472, Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition, can be used to develop HAZMAT/WMD emergency responder training program, 2008:2.54

NFPA 1600, Disaster/Emergency Management and Business Continuity Program, available as iPhone app, **2009:**5.21

NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, adopted by Canadian Standards Association adopts as basis for its standard, **2008**:6.13

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, 2007 edition, available at no cost, **2007**:3.20

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, as national preparedness standard, **2005**:1.44

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, fall meeting review, 1999:5.97

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, implementation case study: Goodyear Global Business Continuity Program, **2008:**1.44

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, is important tool for response and recovery, **2002:**4.88

NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, proposed as National Preparedness Standard basis by 9/11 Commission, **2004:**5.58

NFPA Emergency Response Planning Workshop, 2002:5.14

NFPA post 9/11 efforts to improve emergency preparedness safety reviewed, **2011:**5.42

Nuclear power plant emergency plan activated for fire, 2004:1.16

Oklahoma City bombing, April 19, 1995, 1995:4.51

Planning for petrochemical plant emergency, 2002:6.28

Prefire planning, inspections aids in actual fire attack, 1998:1.21

Six-part process for emergency planning, 1993:1.22

Terrorist attacks, preparation for, 1996:1.54, 1996:2.35

Terrorist response training funded by Domestic Preparedness Act, 1998:1.38

EMERGENCY MEDICAL SERVICE

Cardio-pulmonary resuscitation (CPR) app alerts citizens with CPR training to respond to emergency, **2011**:2.18

Certification requirements, encouraging total staff participation when upgrading, **2002**:4.36 Fairfax County, Va., Fire and Rescue Department response to CIA shooting incident, **1994**:1.77 Fire service public service programs, **1995**:1.70

Firefighter injuries related to, **1996**:6.108, **1999**:6.52, 54, **2004**:6.65, **2005**:6.56, **2011**:7.64 NFPA 17, *Automotive Ambulances*, new standard establishes EMS vehicle requirements, **2011**:4.24

NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, annual meeting review, **2001:**2.80

NFPA 1720, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, annual meeting review, 2001:2.80

NFPA Technical Committee develops EMS System Guidelines, 2002:4.54

Patient ignites flash fire in ambulance, **1999:**6.20

Report indicates high number of U. S. fire service calls for medical help, 2005:3.16

User fees implemented to recover cost of services, 1997:2.66

EMERGENCY POWER

Emergency power source installation and operation requirements covered in codes, 2013:2.38

Emergency power source location impacts functioning under adverse conditions, 2013:3.46

Emergency power supply system requirements for emergency power systems, 2013:1.40

Generator use during Hurricane Sandy resulted in numerous carbon monoxide poisonings and deaths, **2013:**1.10

Hurricane Sandy highlights importance of emergency power in health care facilities, **2013:**1.48 EMERGENCY RESPONSE SYSTEMS. *See also* DISASTER RESPONSE

Analysis and enhancement of system, Vancouver, Wash., 1991:1.78

E911 fails in telephone exchange fire, 1995:5.109

How to upgrade existing systems, **1994:**2.62

NFPA and NIOSH form emergency responder safety alliance, 2006:1:11

NFPA post 9/11 efforts to improve emergency responders safety reviewed, 2011:5.42

Northridge, Calif. earthquake, Jan. 17, 1994, 1995:3.52

ENVIRONMENT

Burn demonstration measures environmental impact of sprinklered *vs.* non-sprinklered home fires, **2009**:6.15

Emergency response information required from fire service by Environmental Protection Agency, **1999**:4.34

Fire and the environment, 1991:1.34

Fire protection engineering for atria in green building designs, 2008:1.56

Fire protection/environmental sustainability interactions are topic of Fire Protection Research Foundation symposium, **2009:**6.28

Fire Protection Research Foundation addresses fire safety needs for sustainable building design, **2012**:4.32

Green buildings and fire safety, update on, **2012:**6.50

"Green" corporate headquarters protected with performance-based design, computer fire models, **2005**:2.40

Green issues addressed at NFPA Conference and Expo, 2010:3.76

Green practices and technologies present fire safety challenges, 2009:6.45

"Green roof" gardens, photovoltaic arrays, wind turbines and more, concern fire service and code community, **2009:**6.48

Hazardous materials incident response to mitigate environmental damage, 1991:1.112

NFPA 5000®, *Building Construction and Safety Code*®, 2012 edition, proposed changes address sustainable building features, **2011:**3.70

NFPA report on foam and environment, 1995:3.67

Residential sprinkler systems are good for environment, 2010:3.56

Residential sprinkler systems can be successfully integrated with local water system, 2009:6.40

Run-off controlled in automobile repair shop fire, 1997:5.23

Sprinkler systems are environmentally friendly, 2009:1.26

Tire fire pollutes environment, 1991:1.50

ESCAPE. See also EGRESS; EVACUATION; EXITS

Families plan, but don't practice, escape, NFPA survey shows, 2005:2.14

Fire Prevention Week 2007 theme: practice your escape plan, 2007:4.16, 5.44, 46

Truck fire, unsuccessful, **2004:**5.73

Vehicle fire, unsuccessful, **2004:**5.73

ETHANOL

Fire tests, **2008:**2.60

EUROPEAN COMMUNITY

Product testing standards, 1992:5.45

EVACUATION. See also FIRE DRILLS

Adult congregate living facility, successful, 1995:6.35

Aircraft, successful, 1992:6.77, 1993:6.88, 2005:6.34

Airport emergency evacuation, applying NFPA 101®, Life Safety Code® for, 2002:5.32

Apartment building, successful, 1996:1.22, 1997:5.22, 2001:2.22, 4.23, 2003:3.16, 5.16,

2005:4.18, 6.18, **2006**:6.22, **2007**:1.18, **2008**:3.28, 4.23, 5.28, 6.19, **2009**:2.25,

2010:4.27, **2011**:7.18, **2012**:4.22, **2013**:2.21, 6.18, 22

Apartment building, unsuccessful, 2006:6.20, 2013:1.18

Apartment building, unsuccessful, occupant(s) called 911 prior to leaving, 2000:2.22

Assisted living facility, successful, 2002:2.24, 2003:6.12

Auto dealership, area surrounding, due to propane fire, successful, 1993:3.36

Board and care facility, successful, 1994:6.33, 1996:3.36, 2010:6.25, 2012:2.18

Board and care facility, unsuccessful, 1993:5.66, 1994:5.104, 1995:5.64, 1997:5.52,

1999:5.54, **2001:**5.78, **2003:**4.17, **2004:**1.16, 5.71, **2010:**5.66

Bus, electrically charged, successful, 1992:4.26

Chemical manufacturing plant, area surrounding, 2005:6.45

Chemical manufacturing plant, area surrounding, successful, 1995:5.66

Chemical storage building, area surrounding, successful, 2000:6.91

Community center, successful, 1997:5.23

Delayed evacuation of schools evaluated in Minnesota pilot project, 2003:5.42

Department store elevator, successful, 1997:3.33

Disabilities, evacuation plans for people with, 2005:2.54

Dormitory, successful, 1991:4.25, 2000:6.16, 2002:6.21, 2003:6.81, 2005:6.18

Dwelling, successful, 2001:3.36, 2005:2.18, 3.26, 2010:6.68, 2013:4.23

Dwelling, unsuccessful, **2002:**2.22

Elderly housing, successful, **2005:**5.32

Elevator-based evacuation plans exemplified by Las Vegas' Stratosphere Tower, 2009:4.58

Firefighter injuries related to, 2001:6.54

Food plant fire, unsuccessful, 1992:1.29

Food store, successful, 1993:6.29

Fraternity house, successful, 2003:5.16

Fraternity house, unsuccessful, 1997:6.21

Hazardous waste incinerator, successful, 1995:6.38

High-rise building, successful, 2004:5.14

High-rise building evacuation plans for people with disabilities, 2002:4.58

High-rise building evacuation procedures, Fire Protection Research Foundation survey of occupant knowledge of, **2007:**5.34

High-rise building unconventional evacuation methods reviewed, 2003:6.46

High-rise office building complex (World Trade Center, N. Y.), **1994:**5.104, **1994:**6.90, **1995:**2.59

9/11 evacuees share lessons learned, 2002:5.54

NFPA plans follow-up to 1993 fire evacuation report, **2001**:6.40

High-rise speaker circuit survivability requirements, 2001:3.76

Hospital, successful, **1993:**2.20, **1994:**5.105, **1996:**5.26, **1997:**3.88, **1999:**2.26, **2002:**5.21, **2003:**6.16, **2010:**3.42, **2011:**1.60

Hospital, to areas of refuge, successful, 2001:5.26

Hospitals, caused by weather emergencies, 2013:1.52

Hotel, successful, 1993:6.81, 2007:1.15, 2009:5.26, 2012:4.24, 6.27

Housing for elderly, successful, 1991:3.25, 2012:5.25

Iron foundry, area surrounding, successful, 1997:6.50

Laundry facility, area surrounding, due to hazardous materials, successful, 1999:2.26

Limited-care facility, successful, 2003:4.17

Limited-care facility fire, unsuccessful, 1998:4.21

LP-Gas distribution facility, area surrounding, successful, 1997:4.20

Manufacturing plant, area surrounding, 2004:6.52, 2012:6.61

Manufacturing plant, area surrounding, successful, **1991**:4.30, **1993**:6.27, **2000**:6.86, **2002**:1.22

Manufacturing plant, successful, **1991:**2.33, **1999:**4.20, **2008:**2.28, **2011:**2.29, **2012:**1.19, **2013:**1.26

Mass evacuation addressed by NFPA Standards Council, 2013:1.56

Medical research laboratory, successful, **1991:**5.30

Meeting hall fire, firefighter evacuation, successful, 1998:1.21

Metropolitan Boston Transportation Authority Transportation Accessibility Manager Gary Talbot works on accessibility and evacuation issues for people with disabilities, **2010**:4.52

NFPA 101®, Life Safety Code®, and building a better evacuation diagram, 2013:6.32

Nursing home, combined with defend-in-place, 2004:3.22

Nursing home, successful, **1991**:5.30, **1992**:4.27, **1992**:6.29, **1996**:2.25, **1998**:5.17, **2003**:5.20, **2004**:4.19, 5.14, **2006**:4.28, **2013**:6.23

Nursing home, successful, combined with defend-in-place, area of refuge, 2011:7.20

Nursing home, unsuccessful, **2004:**5.70

Office building, successful, 1992:5.28, 2011:5.21

Pipeline explosion, 2011:7.59

Plastics manufacturing plant, area surrounding, due to toxic smoke, successful, 1994:6.93

Railroad collision and fire, area surrounding, 1998:6.91

Restaurant, successful, 1996:3.35, 1996:5.25, 1999:5.21, 1999:6.95, 2004:3.22, 2004:4.19

School, successful, **1992**:2.25, **1992**:4.27, **1992**:6.29, **1993**:3.33, **1994**:5.28, **1997**:2.23,

2003:5.20, **2008:**1.22, **2012:**5.28

School Emergency Evacuation Planning Checklist geared to teachers, administrators, staff, parents, and students, **2007:5**.17

Schools, delayed evacuation, evaluated in Minnesota pilot project, 2003:5.42

Storage facility, area surrounding, successful, 2000:6.14, 2002:1.18

Storage facility, successful, 2006:1.16

Store(s), successful, **1991:**1.29, **1997:**4.22, **1999:**6.94, **2002:**4.16, **2008:**1.23, 3.32, **2009:**4.20, **2011:**3.33

Tank farm, area surrounding, successful, 2008:4.25

Theater, successful, 1996:2.26, 1999:3.44, 2000:6.14

Warehouse, unsuccessful, 2004:5.72

Warehouse/retail showroom, successful, 1999:3.43

Washington Dulles International Airport AeroTrain smoke control systems aid safe passenger evacuation, **2010**:4.62

Wildland fire, 1994:2.85, 2004:6.55, 2013:6.54

Australian evacuation strategy reviewed, 2009:2.18

Feather River Hospital, Paradise, California, July, 2008, evacuation report, 2011:1.60

Stay and Defend or Leave Early (SDLE) model for how and when people evacuate a fire area, **2011:**6.42

Wildland/urban interface fire, **1994:**5.108, **2004:**5.72, 73, 6.55, **2007:**5.62, 6.80, **2011:**6.17

EWELL, P. LAMONT

Profile of, **1995:**3.30

EXITS. See also DOORS; EGRESS; WINDOWS

Blocked

By burning mattress, 2006:2.26

By burning mattress, factor in fatal fire, 1992:5.25, 2009:1.17

Catastrophic dwelling fire, factor in, 1991:4.66

Catastrophic food processing plant, factor in, 1992:4.70

By chair, factor in catastrophic fire, 1994:5.102

By fire, factor in catastrophic fire, **1994**:5.100, **1997**:5.50, **1998**:5.45, 5.50, **2004**:5.69, 6.16, **2007**:5.59, **2009**:5.80, **2011**:5.73, 76, **2013**:5.64

By fire, factor in fatal fire, **1997:**1.27, 4.20, **1998:**3.36, **2004:**5.18, **2006:**6.24, **2007:**4.25, 28, 6.19, **2008:**6.19, **2009:**2.24, **2010:**1.20, **2013:**1.24

By furniture, factor in catastrophic fire, 1992:4.67, 1993:5.62, 1995:5.59, 2009:5.80

By furniture, factor in fatal fire, 1998:2.18, 2006:6.24, 2007:2.20

By possessions, factor in fatal fire, **2013:**6.23

By refrigerator, factor in fatal fire, 1998:3.38

By security bars (See SECURITY PROVISIONS)

By smoke, factor in catastrophic fire, 2010:5.66, 2011:5.73

By water, crash damage, factor in catastrophic aircraft fire, 1993:5.68

Building site plan needs exit discharge from exit to public way, 1998:5.22

Directional sound used to indicate exits, **2005**:3.50

Elevators as safe vertical exits, overview, 1993:3.49

Emergency lighting, *Life Safety Code*® requirements, **2005:**6.28

Exit access, exterior exits, and exit discharge must be clear of obstructions, 1998:6.28

Exit lights covered, factor in fatal fire, 2007:6.17

Exit sign placement, 2010:3.52

Exit sign placement and lighting requirements, 2006:1.28

Exit stair signage and marking requirements, 2011:1.34

Inadequate egress routes, factor in fatal fire, 1998:5.16

Inadequate exit arrangements, factor in catastrophic fire, 1994:1.42, 1997:5.54, 2010:5.66

Lack of second exit, factor in catastrophic fire, 1993:5.66

Locked

Catastrophic manufacturing plant fire, factor in, **1992:**4.70

Catastrophic vacant dwelling fire, factor in, 1991:4.68

Conflict between security and fire safety, **1994:**3.110

Hamper escape in catastrophic dwelling fire, 1991:4.64

Hamper escape in fatal apartment fire, 1991:4.26

Hamper escape in fatal dwelling fire, 2008:3.26

Hamper fire fighting operations in shopping mall fire, 1991:1.29

Large loss of life club fire, factor in, 1991:4.67

Large loss of life manufacturing plant fire, factor in, 1994:1.48, 1994:3.110

NFPA "Great Escape" promotes home fire drills and escape plans, 1998:3.74, 4.32

Propped open, 1997:4.19

School exits require balancing fire safety and security needs, 1998:3.46

Secured, factor in catastrophic vacant club fire, 1991:4.68

Single exit from apartment, factor in catastrophic fire, 1998:5.49, 2007:5.58

EXPLOSION SUPPRESSION SYSTEMS

Disabled, not a factor in explosion, 1995:6.103

EXPLOSIONS. See also BLEVE; GAS EXPLOSIONS; SHIP EXPLOSIONS

Camping trailer, North Carolina, 2006, 2007:5.25

Catastrophic

Apartment building fire cause, Pennsylvania, June, 2001, **2002:**5.82

Fireworks truck, Florida, July, 2003, 2004:5.73

Fireworks warehouse, Texas, July, 2003, 2004:5.72

Manufacturing plant, Alabama, May 11, 1999, 2000:5.60

Manufacturing plant, Massachusetts, Feb. 25, 1999, 2000:5.60

Manufacturing plant fire cause, Indiana, Oct., 2001, 2002:5.82

Nursing home, Michigan, Nov. 10, 1999, 2000:5.59

Oil storage tank, Texas, April, 2003, 2004:5.71

Power plant, Aug. 14, 1999, 2000:5.60

Restaurant/apartment building, Minnesota, Dec. 11, 1998, 1999:5.55

Trailer fire cause, Texas, Jan., 2001, 2002:5.82

Dust explosion causes and prevention discussed, 2008:6.56

Dwelling, Ohio, 2002, 2003:3.18

Dwelling, South Carolina, Aug. 13, 1999, 2000:6.93

Electric generating plant, Massachusetts, Oct., 2003, 2003:6.80

Firefighter fatalities related to, 2000:4.58, 2008:4.86, 2012:4.82

Firefighter injuries related to, 1996:6.107

Manufacturing plant, Kansas, Sept., 2002, **2003:**5.18, **2003:**6.77

Manufacturing plant, Louisiana, July 5, 1999, 2000:6.83

Manufacturing plant, Mississippi, May, 2002, 2003:5.75, 2003:6.77

Paper mill, Florida, April 13, 1994, 1995:5.66, 1995:6.106

```
School laboratory, Minnesota, 2011, 2012:5.28
  Steel plant, Ohio, April 20, 1994, 1995:5.64
  Tank, underground, South Carolina, 2004, 2005:3.30
EXPLOSIONS AND FIRES. See also GAS FIRES AND EXPLOSIONS; LP-GAS FIRES AND
      EXPLOSIONS
  Acetylene generation and packaging plant, New Jersey, Jan., 2005, 2006:5.63
  Aerosol container explodes, ignites dwelling fire, 1992:6.28
  Aircraft in flight, Texas, Sept. 11, 1991, 1992:4.72
  Aluminum manufacturing plant, Indiana, 2003, 2004:5.20, 6.21
  Ammonium nitrate mixing plant, Minnesota, Nov. 17, 1993, 1994:5.105
  Automobile insulation plant, Kentucky, Feb., 2003, 2004:5.71, 2004:6.52
  Black powder manufacturing plant, Pennsylvania, May 15, 1991, 1992:4.71
  Blast furnace, Micigan, Jan., 2008, 2009:6:75
  Boat
     Barge fire, Illinois, July 3, 1997, 1998:5.55
     Barge fire, Louisiana, 1990, 1991:4.70
     California, Nov. 16, 1991, 1992:4.73
     Massachusetts, 1994, 1995:4.39
     Nebraska, 1990, 1991:4.31
     Ohio, May 9, 1993, 1994:5.106
  Building-under-construction, Missouri, Oct., 2005, 2006:6.69
  Camping trailer, Alabama, Dec. 6, 1997, 1998:5.56
  Chemical fertilizer plant, Iowa, Dec. 13, 1994, 1995:5.66
  Chemical laboratory, Florida, Dec., 2007, 2008:5.61
  Chemical packaging and storage facility, Arkansas, May 8, 1997, 1998:5.53
  Chemical plant
     Kentucky, March, 2011, 2012:6.61
     Louisiana, May 1, 1991, 1992:4.70, 1992:6.75
     Ohio, 1990, 1991:3.31
     Ohio, May 27, 1994, 1995:5.66
     Pennsylvania, Feb. 19, 1999, 2000:5.59
     South Carolina, June 17, 1991, 1992:4.70, 1992:6.80
     Texas, 1990, 1991:4.67
     Texas, March, 1991, 1992:6.75
     Texas, Dec. 2, 1999, 2000:6.83
     Texas, March, 2000, 2001:6.61
  Chemical refinery, Texas, Aug., 1995, 1996:6.64
  Chemical storage building, Pennsylvania, Jan. 2, 1999, 2000:6.91
  Chemical waste facility explosion and fire, Ohio, May, 2009, 2010:6.67
  Compressed natural gas cylinder ruptures, 1994:4.30
  Crude oil vapors, tank storage facility
     Louisiana, 1990, 1991:4.68
     Oklahoma, 1990, 1991:4.69
  Dormitory, Wyoming, 2005, 2006:6.23
  Dwelling, Massachusetts, 1996, 1997:6.20
  Dwelling, Michigan, 2000, 2001:4.24
```

Dwelling, Nebraska, 2007, 2008:6.23

Electric generating plant(s)

Arkansas, Aug., 1993, 1994:6.92

California, 1998, 1999:4.22

Illinois, Nov., 1994, **1995**:6.100

Illinois, Dec. 18, 1996, 1997:6.58

Illinois, Nov., 2007, 2008:6.44

Indiana, July, 1998, 1999:6.95

Kansas, Nov. 24, 1997, 1998:5.54

Kansas, Aug., 2000, 2001:6.64

Missouri, June, 1993, 1994:6.92

New Jersey, Dec. 25, 1992, 1993:2.44, 1993:5.67, 1993:6.82

S. Carolina, Dec., 1994, **1995:**6.100

Virginia, Nov., 2003, 2004:6.57

Explosives, coal mine, Kentucky, 1990, 1991:4.69

Explosives manufacturing plant, Nevada, Jan. 7, 1998, 1999:5.55

Fire station, Minnesota, 2004, 2005:1.14

Firefighter fatalities related to, 2004:4.54, 56

Fireworks display, New Hampshire, 1995, 1996:4.24

Fireworks in garage, Ohio, 1989, **1991:**1.31

Fireworks plant

Michigan, Dec. 11, 1998, 1999:5.54

Mississippi, 1990, 1991:4.30

New Hampshire, 1992, 1993:3.35

Wisconsin, May 16, 1991, 1992:4.71

Fireworks stored in munitions bunker, Hawaii, April, 2011, 2012:5.73

Fireworks truck, Florida, July, 2003, 2004:5.73

Fireworks truck, Kansas, Aug., 2005, **2006**:5.63

Fireworks warehouse, Texas, July, 2003, 2004:5.72

Food processing plant, North Carolina, June, 2009, 2010:5.67

Furniture store, Illinois, 2001, **2002:5**.22

Gasoline pipeline, Washington, June 10, 1999, 2000:6.96

Gasoline vapor ignited by gas furnace, dwelling, Michigan, 1991, 1992:6.28

Grain dust at mill and storage facility, Washington, 1991, 1992:4.28

Grain elevator, Kansas, June 8, 1998, **1999:**5.54, **1999:**6.92

Grain elevator, Kansas, Oct., 2011, 2012:5.73

Hazardous waste incinerator, Arkansas, 1994, 1995:6.38

Hospital, Florida, 2004, 2005:6.22

Hydrogen storage tower at soap plant, 1989, **1991:**5.30

Ice rink, Minnesota, 2005, 2006:1.22

Iron foundry, Illinois, May 1, 1996, **1997:**6.50

Iron foundry and castings plant, Massachusetts, Feb. 25, 1999, 2000:6.85

LP-Gas bulk storage facility, Texas, April 7, 1992, 1993:5.67

Magnesium smelting operation, New Jersey, 1992, 1993:3.34

Manufacturing plant, Minnesota, Dec., 2004, 2005:6.46

Manufacturing plant, N. Carolina, Oct. 20, 1994, 1995:6.103

```
Metal building components manufacturing plant, Texas, Jan. 31, 1997, 1998:6.86
Metal foundry, Indiana, June 22, 1995, 1996:5.97
Methanol production plant, Texas, Oct., 1994, 1995:6.102
Model rocket manufacturing plant, Arizona, Mar. 27, 1998, 1999:5.55
Motor vehicle assembly plant, Virginia, March, 2000, 2001:5.78, 2001:6.61
Munitions ship explosion, Halifax, Nova Scotia, Dec. 6, 1917, 1992:3.96
Natural gas well, Louisiana, Oct. 24, 1998, 1999:5.54
NFPA 921, Fire and Explosion Investigations, 2001 edition, changes in, 2001:4.58
Office building, Oklahoma City, April 19, 1995, 1995;4.51, 1996:1.50, 1996:5.94, 1996:6.69
Oil and natural gas drilling well, Louisiana, June 16, 1997, 1998:5.53, 6.91
Oil depot, Hertfordshire, England, Dec. 11, 2005, 2006:3.86
Oil refinery
  Australia, Sept. 25, 1998, fire investigation report, 1999:2.64
  Ohio, Oct. 12, 1996, 1997:6.49
  Pennsylvania, Oct. 16, 1996, 1996:5.96
  Texas, 2004, 2005:2.18
  Texas, March, 2005, 2006:5.62, 6.75
Oil separation storage tank, Louisiana, Mar. 4, 1998, 1999:5.55
Oil storage tank, Kentucky, July 2, 1993, 1994:5.104
Oil well, Ohio, Oct. 10, 1991, 1992:4.71
Paint plant, California, 1991, 1992:4.28
Paper and pulp products plant, Iowa, Feb., 1995, 1996:6.63
Paper mill, Minnesota, 2012, 2013:6.52
Paper products plant, Wisconsin, July, 2008, 2009:5.83
Pharmaceutical manufacturing plant, New Jersey, Apr. 21, 1995, 1996:5.94
Pharmaceutical manufacturing plant, North Carolina, Jan., 2003, 2004:5.71, 2004:6.52
Pipeline, Arkansas, May, 2012, 2013:5.65
Piper Alpha North Sea oil rig explosion and fire, July 6, 1988, 2010:4.88, 2013:5.80
Plastics manufacturing plant, Texas, June 23, 1999, 2000:6.84
```

Plywood manufacturing plant, Washington, Sept. 1, 1996, 1997:6.49

Power plant, Michigan, Feb. 1, 1999, 2000:6.95

Printing plant, Wisconsin, 2009, 2010:5.34

Propane cylinder BLEVE, 1991:6.23

Propane gas, ignited by pilot light, 1991:1.28

Propane gas leak ignited, fatal dwelling fire, 2012:5.26

Propane gas line leak ignited, fatal dwelling fire, 2010:6.26

Propane storage tank, North Dakota, 1993, 1994:1.30

Pyrotechnic storage and manufacturing facility, Tennessee, June 5, 1997, 1998:5.53

Recycling facility, New Jersey, 1998, 1999:1.19

Refinery

California, Jan. 21, 1997, 1998:6.84

Louisiana, March, 1991, **1992:**6.77

Louisiana, Aug., 1993, 1994:6.93

Texas, April, 1991, 1992:6.75

Restaurant

Minnesota, 2001, **2002:**5.22

```
New York, 1996, 1997:6.22
     Washington, 2005, 2006:3.30
  Rocket propellant test facility, California, 1994, 1995:4.40
  Rocket testing facility, California, July, 2007, 2008:5.61
  School, New London, Texas, March 18, 1937, 1993:5.94
  Ships, Florida, Aug., 1993, 1994:6.98
  Short circuit in underground electrical vault, 1991:4.69
  Soybean processing plant, Indiana, June, 1994, 1995:6.103
  Sports equipment manufacturing plant, Texas, Aug. 28, 1997, 1998:6.87
  Steam explosion, petroleum refinery, Louisiana, March 3, 1991, 1992:4.70
  Storage facility, Maryland, 2006, 2006:1.16
  Sugar refinery, Georgia, Feb. 7, 2008, 2008:6.57, 2009:5.83, 6.75
  Sugar refinery, Nebraska, July 20, 1996, 1997:6.49
   Tank farm/storage facility
     Georgia, April, 1995, 1996:6.66
     Indiana, 2011, 2012:1.21
     Kansas, 2007, 2008:4.25
     Oklahoma, Apr. 23, 1995, 1996:5.97
     Pennsylvania, Oct., 1995, 1996:6.62
     Texas, May, 2007, 2008:5.61
  Thermal generating plant, New Jersey, Dec. 25, 1992, 1993:2.44, 1993:5.67, 1993:6.82
   Toy manufacturing plant, California, Nov. 15, 1997, 1998:5.53
  Travel trailer, California, 2007, 2008:5.30
   Warehouse
     Kentucky, May, 2000, 2001:6.61
     Texas, July, 1998, 1999:6.94
     Washington, Sept., 1993, 1994:6.97
     Washington, 1995, 1996:4.23
  Warehouse fire, Iowa, Apr. 22, 1997, 1998:6.87
   Wood plastic products manufacturing plant, Arkansas, 2012, 2013:4.24
  World Trade Center, New York, Feb. 26, 1993, 1993;6.91, 1994;5.104, 1994;6.90, 1995;2.59
EXPLOSIVES. See also FIREWORKS; PYROTECHNICS
  Accidental detonation, catastrophic fire cause, 1991:4.69
  Black powder, ammunition, explode at store fire, 2005:6.48
  Bomb site, fire fighter injuries related to, 1998:6.54
  Detonation by terrorists, catastrophic fire cause, 1996:5.94
  Improperly stored, catastrophic fire cause, 1992:4.72
  Juveniles injured making napalm, 1997:4.19
  NFPA 495, Explosive Materials, annual meeting review, 2001:2.81
  Solidified explosives mixture at manufacturing plant detonates, spreads to stored explosives,
         1999:5.55
EXPOSURE, FIRE
  Firefighter fatalities related to, 1994:4.67, 68, 69
  Firefighter injuries related to, 1994:6.64
EXPOSURE TO FIRE PRODUCTS. See FIRE PRODUCTS
EXTERIOR FIRE EXPOSURE
```

```
NFPA 80A, Protection of Building from Exterior Fire Exposure, addresses building-to-building fire exposure issues, 2001:6.74
```

EXTINGUISHERS, PORTABLE

Carbon dioxide, explosion of, **1991:**4.30

Carbon dioxide, successful in hospital fire, 1996:5.26

Dry powder, used in metal dust fire, 2012:1.19

Electronically monitored extinguishers control extinguisher vandalism, 2005:1.56

Halon, successful in medical research laboratory fire, 1991:5.30

Health care occupancies, selecting extinguishing agents for, 2002:4.29

Multiclass, successful in solvent fire, 1993:5.37

NFPA 10, Portable Fire Extinguishers, 2007 edition changes, 2006:6.56

NFPA 10, Portable Fire Extinguishers, common questions answered, 1996:4.28

NFPA 10, *Portable Fire Extinguishers*, revised to address issues regarding cylinder recharging, **2004:**1.60

Spread fire from engine room in boat fire, 1991:6.26

Successful use of

Aircraft fire, **1999:**6.94

Apartment building fire, 2003:2.22, 2009:3.35, 2011:7.20

Assisted living facility, 2010:3.40

Board and care facility fire, **2009:**5.25

Department store fire, 1998:6.22

Electric power generating plant fire, 1998:5.54

Hospital fire, 1993:2.20, 1996:5.26, 2002:5.21, 2003:2.22, 3.14, 2004:4.18, 2006:1.20

Manufacturing plant fire, 2010:3.44, 2012:1.20

Nursing home fire, **1995**:5.33, **2003**:1.12, 5.20, **2004**:4.19, **2006**:4.28, **2012**:1.18

Power plant fire, **1999:**3.44

Restaurant fire, 2000:1.19, 2004:4.19

School fire, 2001:1.20, 2005:1.14

Store fire, **1995:**3.39, **2008:**3.32

Textile plant fire, **1993:**5.37

Trailer fire, 1999:3.46

Warehouse fire, 1991:5.25, 1995:3.39

Training and use of, **1997:**2.29

Unsuccessful use of

Adult congregate living facility fire, **1995**:6.35

Apartment building fire, 2001:5.26, 2004:1.15, 2006:1.18, 2.28, 2008:2.26, 5.57,

2009:2.25, **2010:**3.38

Automobile dealership fire, **2000:**5.23

Bowling alley fire, 2000:4.19

Building supply store fire, 1997:6.54

Dairy plant fire, **1992:**3.32

Department store fire, 1996:6.72, 2000:6.91

Dormitory fire, 1995:6.99, 2007:2.21

Dwelling fire, 2004:1.15, 2005:2.18, 20, 2008:6.21, 2009:3.39, 5.23, 6.23, 2013:1.23

Fireworks fire, **1993:**3.35

Food processing plant fire, 1995:6.104, 2003:2.25

Fraternity house fire, 1997:6.21

Funeral home fire, 1997:2.21

Garage fire, **2011:**4.20

Gasoline fire, **1991:**4.30

Historic building fire, 2009:3.42

Hosiery manufacturing plant fire, 1997:3.33

Hotel fire, 1997:6.19, 2002:1.20, 2002:2.26, 2012:4.24

Manufacturing plant fire, **1999**:4.20, 5.20, 6.90, 91, **2000**:3.38, **2000**:6.85, **2002**:6.22, 2.17, 5.20, 6.52, **2011**:2.29, 3.47, **2012**:3.40

Meat processing plant fire, 1995:6.106

Metal products plant fire, 1998:6.84

Mixed-use building, 2012:4.22

Museum fire, 1995:6.35

Observatory fire, **1997:**6.59

Paper mill fire, **2013:**6.52

Paper plant fire, **1997:**5.24

Plastics plant fire, 1997:1.28

Power plant fire, **2004:**5.20

Propane storage facility fire, 2000:6.14

Restaurant fire, 1996:3.35, 1997:6.22, 1998:3.36, 1999:5.21, 2009:3.43, 2011:5.14

Rooming house fire, 2001:6.21

School fire, 2004:5.20

Ship fire, 2000:6.94

Shopping mall fire, 2009:5.29

Store fire, **1996**:6.69, **1998**:6.89, **1999**:5.22, **2004**:2.16, **2005**:3.32, **2006**:1.20, **2007**:6.79

Theater fire, **1997:**3.29

Warehouse fire, 1993:6.85, 1993:6.86, 1996:6.68, 1998:6.87, 1999:3.43, 1999:6.92,

2001:6.22, **2006**:4.27, **2009**:6.81, **2011**:1.27

Wildland/urban interface fire, **2011**:6.19

Wood product manufacturing plant fire, **1997**:6.50

Water-mist extinguisher development leads to NFPA 10, *Portable Fire Extinguishers*, revision, **2005:**6.70

EXTINGUISHERS, PORTABLE, DRY CHEMICAL

Empty, missing extinguishers in warehouse fire, 1991:2.33

Limited success, warehouse fire, 1998:5.18

Successful use of

Board and care facility fire, 2009:5.25

Deep fat fryer fire, **1992:**5.25

Electric vault fire, 1995:5.35

Foundry fire, **1991:**1.31

Hospital fire, 1998:5.17

Laboratory fire, 1997:5.23

Magnesium smelting operation fire, 1993:3.34

Manufacturing plant fire, 2012:2.19

Power plant fire, **1996:**6.72

Restaurant fire, 1994:3.28

School fire, **1993:**4.28, **1995:**3.39

Store fire, **1992**:6.25, **2013**:3.32

Unsuccessful use of

Apartment building fire, 1999:5.19

Automotive parts manufacturing plant, 1998:6.85

Christmas tree fire, 1991:6.24, 1995:6.36

Detention center fire, 1995:5.33

Food processing plant fire, 1996:6.64

Hotel fire, **1995:**2.29

Insulation fire, **1991:**6.23

Knitting mill fire, **1998:**6.84

Manufacturing plant fire, 2007:6.76

Office building fire, reignites after use, 1997:6.53

Power plant fire, **2004:**5.20

Store fire. **1994:**6.35

Tar fire, **1991:**6.23

EXTINGUISHING SYSTEMS. See SUPPRESSION SYSTEMS

EXTRA COLUMNS

California adopts NFPA 5000TM and NFPA 1, **2003:**5.24

Canada mandates fire-safe cigarettes, 2004:3.40

Fatal supermarket fire in Paraguay, fire investigation, 2004:5.24

NFPA Treasurer's Report, 2003:4.18, 2004:4.20

U. S. Homeland Security Department adopts 5 NFPA standards for first responder equipment, **2004**:2.34

Zippo cigarette lighter "tricks" Web site shut down by NFPA, others, 2003:6.18

F

FAIRFAX COUNTY, VIRGINIA

Fire and Rescue Department response to CIA shooting incident, **1994:**1.77

FALSE ALARMS. See ALARMS, UNWANTED (FALSE/NUISANCE) FANS

Factor in fire spread, **1993**:6.27, 84, **1994**:5.97, **1999**:6.90, **2007**:3.26, **2013**:4.19

Fires caused by (See ELECTRICAL EQUIPMENT FIRES)

High-volume low-speed (HVLS) fans challenge sprinkler system designers and installers, **2013:**2.28

High-volume low-speed (HVLS) fans effect on sprinkler activation determined by fire tests, **2008:**3.88

High-volume low-speed (HVLS) fans effect on sprinkler activation studied by NFPA Fire Protection Research Foundation, **2009:**5.30

High-volume low-speed (HVLS) fans effect on storage facility sprinkler systems, 2011:2.64

Home fires involving fans, 2003-2007, **2010:**5.70

Home fires involving fans, 2006-2010, **2013:**2.80

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

Disaster management role, 1995:4.46

FEMA Building Performance Assessment Team World Trade Center collapse study, 2002:5.47

Home Fire Sprinkler Coalition receives FEMA grant for national 'Built For Life' sprinkler awareness program, **2004:**5.12

Major grant awarded to Fire Protection Research Foundation, 2007:6.15

Risk Watch® central to NFPA's affiliation with FEMA's Citizen Corps, 2003:2.68

Risk Watch® first affiliate program of FEMA's Citizen Corps initiative, 2003:1.33

FEENEY, ROBERT

Interview with, **2013:**1.12

FILM STUDIOS. See MOTION PICTURE STUDIOS

FIRE ANALYSIS AND RESEARCH REPORTS, **2009**:3.130, 4.70, **2010**:2.74, 3.110, 5.70, 6.86, **2011**:1.74, 4.73, 6.73, **2012**:1.74, 5.85, **2013**:2.77, 4.78, 5.72

FIRE AND THE ENVIRONMENT. See ENVIRONMENT

FIRE BARRIERS. See also WALLS, FIRE

Contained fire spread, 2007:1.20

Inadequate, factor in fatal fire, 1995:5.36

Lack of, factor in fatal fire, 1993:2.44

New York-Presbyterian Hospital conducts self-examination of fire walls/barriers to improve fire safety, **2007:**5.76

NFPA 101[®], *Life Safety Code*[®], requirements, **2012:**3.48

In structural joints, **1991:**2.98

FIRE BRIGADES, INDUSTRIAL

Alarm delayed while brigade fought fire, 1993:6.83

Chemical plant fire controlled by, 1996:3.39

Electrical generating plant fire monitored, fought by, 1999:6.95

Limit fire spread in chemical plant fires, 1996:6.64

Members die in catastrophic fire, 1996:5.94

NFPA 600 requirements, 1992:2.46

Oil refinery fire controlled by, 1999:5.54

Oil refinery fire fought by, 2005:2.18

Power plant fire controlled by, 1999:3.44

Transformer fire controlled by, 2010:6.68

FIRE CODE. See UNIFORM FIRE CODE™

FIRE COMMAND COLUMNS

Deploying resources effectively, **1992**:6.104

Fire critiques, effective, characteristics of, 1991:3.152, 1991:4.106

Fire critiques, standard review items, 1991:6.104

Fire critiques, steps in assembling, 1991:5.109

Fire critiques as evidence for lawsuits, 1992:1.18

Fire service management modeled on fireground management, 1991:2.144

Matching response capabilities to fire conditions, **1992:**4.30

Shrinking budgets, staffing realities, 1992:3.28

Standard operating procedures reduce legal risk, 1992:2.30

Urban violence complicates fire service operations, 1992:5.14

FIRE CRITIQUES

Characteristics of effective critiques, 1991:3.152, 1991:4.106

Lawsuits, use in, 1992:1.18

Standard review items, 1991:6.104

```
Steps in assembling, 1991:5.109
```

FIRE DEATHS, U. S. See also CATASTROPHIC FIRES; ELDERLY; FIRE LOSS;

FIREFIGHTER FATALITIES

Building security measures contribute to fire deaths, **1994:**3.110

Civilian deaths, 1994, **1995:**5.93

Civilian deaths, 1995, **1996:**5.52

Civilian deaths, 1996, **1997:**5.76

Civilian deaths, 1997, **1998:**5.72

Civilian deaths, 1998, **1999:**5.88

Civilian deaths, 1999, 2000:5.82

Disabilities, report on fatalities of persons with, 2009:4.23

Factors contributing to deaths, 1994:3.99

NFPA grants target states most vulnerable to fire deaths, 2005:2.10

Physical disability as factor in home fire deaths, 2009:6.85

Smoke and burns compared as fire death causes, 1995:1.38

Smoking materials as leading cause, 1980-88 overview, 1991:1.86

FIRE DOORS. See DOORS, FIRE

FIRE DRILLS

Families plan, but don't practice, escape, First Alert survey shows, **2011:**7.13

Families plan, but don't practice, escape, NFPA survey shows, 2005:2.14

Fire Prevention Week 2007 theme: practice your escape plan, 2007:4.16, 5.44, 46

Frequent drills basic to home fire safety, 2002:5.40

Great American Fire Drill support 2007 Fire Prevention Week theme, 2007:5.44

"Great Escape" campaign has inspired change over three years, 2000:5.42

"Great Escape" has made progress, but home fire safety misconceptions persist, 2000:5.112

"Great Escape" training, escape plan practice saves family from fire, 2000:6.16

NFPA 101®, Life Safety Code®, fire drill requirements, 2010:5.42

NFPA "Great Escape" promotes home fire drills and escape plans, 1998:3.74, 4.32

School, planned programs, 1991:2.24

School fire drills needed to keep schools fire safe, 1999:1.80

FIRE FIGHTING, INTERNATIONAL

Japan, 1991:5.51

Soviet Union, 1991:6.66

FIRE INJURIES. See also FIRE LOSS; FIREFIGHTER INJURIES

Civilian, 1996, **1997:**5.76

FIRE INSPECTIONS

Code compliance effectiveness measures to determine if inspection programs are working, **2009:**1.59

Done properly, fire department inspection programs save lives, 2003:3.74

Effectiveness evaluated by Austin, Texas, fire department, 2002:6.66

Inspectors now must be highly skilled professionals, 1997:1.84

NFPA Fire Inspector Certification program, 1991:3.57

NFPA Fire Inspector Certification program training helps Dow Corning with insurer, **2011**:2.58

NFPA introduces Fire Inspector I Certification Program, 1998:3.116

Required inspections determined by life safety evaluation, 1995:1.57

FIRE INVESTIGATIONS

Aircraft, American Airlines Flight 1420, Little Rock, Arkansas, June 1, 1999, 1999:5.40

Aircraft, São Paulo, Brazil, July 17, 2007, 2008:1.36

Apartment building fatal fires, New York, N. Y., Dec., 1998, 1999:3.84

Apply mutual aid to fire investigations, 1993:1.14

Arson, DuPage County, Illinois, fire investigation task force, 2001:1.65

Board and care facility fatal fires, 1994-1998, 1998:5.34

Bureau of Alcohol, Tobacco, and Firearms National Response Teams aid in catastrophic fire investigations, **1998:**3.92

Church, Barrington, Illinois, Oct. 28, 1998, 1999:3.102

Church, Lake Worth, Texas, Feb. 15, 1999, **1999:**4.76

Electronic information sources, new technologies aid investigators, 1997:3.80

Expert testimony by investigators affected by Supreme Court decisions on scientific evidence, **2000:**1.42

Group home, Wells, New York, Riverview Individual Residential Alternative, March 21, 2009, **2010:**1.58

Hazardous waste facility, Apex, North Carolina, Oct. 5, 2006, U.S. Chemical Safety and Hazard Investigation Board investigation, **2008**:6.68

High-rise, Parque Central, Caracas, fire report shows lack of sprinkler maintenance, testing, **2005**:2.46

Hotel, Monte Carlo Hotel Casino, Las Vegas, Nevada, Jan. 25, 2008, 2008:3.67

Hotel, Royal Jomtien, Thailand, July 11, 1997, 1998:2.34

InterFIRE VR software trains fire investigators, 2000:5.78

LP-Gas tank explosion, Albert City, Iowa, April 9, 1998, 1998:6.42

Manufacturing plant, Ford Motor Company, Dearborn, Michigan, Feb. 1, 1999, study indicates problems with large-loss fire investigations, **2004:**4.58

National Fire Incident Reporting System (NFIRS) and other national reporting systems, 1998:3.80

NFPA 921, Guide for Fire and Explosion Investigations, 2001 edition, changes in, 2001:4.58

NFPA 921, Guide for Fire and Explosion Investigations, 2008 edition overview, 2008:3.84

NFPA 921, Guide for Fire and Explosion Investigations, fall meeting review, 2000:5.93

NFPA 921, *Guide to Fire and Explosion Investigations*, as authoritative treatise for litigation, **1996:**2.40

NFPA 1033, Fire Investigator Professional Qualifications, and NFPA 921, Guide for Fire and Explosion Investigations, set standards, provide guidelines for investigators, 2005:3.64

Nightclub, Cocoanut Grove, Boston, Mass., Nov. 28, 1942, 2000:3.84

Nightclub, Gothenburg, Sweden, Oct. 28, 1998, 2000:3.117

Nightclub, Santika Pub, Bangkok, Thailand, Jan. 1, 2009, 2010:1.42

Nightclub, Warwick, Rhode Island, Feb., 2003, NIST investigation summary, 2005:3.44

Nursing home, Hartford, Connecticut, nursing home, 2005:5.14

Office building, United Airlines Operations Control Center fire, Elk Grove, Illinois, Aug. 11, 1999, **2001:**1.55

Oil refinery, Longford Esso refinery fire and explosion, Australia, Sept. 25, 1998, 1999:2.64

Oil refinery, Texas City, Texas, BP refinery fire and explosion, March 23, 2005, 2007;4.78

Ship, Ecstasy cruise ship, Miami, Florida, July 20, 1998, 1999:1.38

Supermarket, Paraguay, Aug. 1, 2004, **2004:**5.24, **2004:**6.42

```
U. S. Bureau of Alcohol, Tobacco, and Firearms (ATF), develops new fire research laboratory,
         2000:5.76
  Warehouse, Arizona, Aug., 2000, fire investigation report, 2001:6.70
   Warehouse/store, Sofa Super Store, South Carolina, June 18, 2007, 2011:1.18
  World Trade Center, New York, NFPA investigator recalls his work at, 2011:5.48
FIRE LOSS
  FM Global's Research Campus provides advanced technology labs for loss prevention research,
         2007:3.66
  Lack of sprinklers is often key to fire loss litigation, 2005:1.22
  Longford Esso refinery fire has disastrous effect on Australian economy, 1999:2.64
FIRE LOSS, U. S. See also LARGE-LOSS FIRES, U. S.
  1990 report, 1991:5.36
  1991 report, 1992:5.32
   1992 report, 1993:5.78
  1993 report, 1994:5.57
  1994 report, 1995:5.93
  1995 report, 1996:5.52
  1996 report, 1997:5.76
   1997 report, 1998:5.72
  1998 report, 1999:5.88
  1999 report, 2000:5.80
  2000 Report, 2001:5.81
  2002 report, 2003:5.58
  2003 report, 2004:6.66
  2004 report, 2005:5.44
  2005 report, 2006:5.46
  2006 report, 2007:5.64
  2007 report, 2008:5.46
  2008 report, 2009:5.72
  2009 report, 2010:5.56
  2010 report, 2011:5.80
  2011 report, 2012:5.76
  2012 report, 2013:5.66
  State by state report, 1999:3.106
  Total cost of fire (loss, prevention, protection)
     2003, 2006:2:74
     2005, 2008:3.18
     2008, 2011:4.73
     2009, 2012:2.11
     2010. 2013:3.16
FIRE MODELS
  Alternative designs evaluated using, 1995:2.68
  Backdraft incident, apartment building fire, March 28, 1994, N. Y., N. Y., 1995:6.85
  Computer fire model, overview, 1991:2.60
   "Green" corporate headquarters protected using computer models, 2005:2.40
FIRE PREVENTION
```

Firefighter injuries related to fire prevention duties, 2011:7.65

Firefighter Investment and Response Enhancement (FIRE) Act offers fire prevention program grants, 2001:3.48

National convention needed to address fire prevention, **2006:5**.52

President's Conference on Fire Prevention, 1947, 2002:6.96

FIRE PREVENTION WEEK

1991 theme: fire escape planning, **1991:**5.34

1992 theme: smoke detectors are lifesavers, 1992:5.68

1993 week is culmination of year's fire safety education efforts, **1993:**5.89

1995 theme: watch what you heat (home fire causes), 1995:5.77

1998 theme: "Great Escape" promotes home fire drills and escape plans, 1998:3.74, 4.32

1999 theme: business community should be included in "Great Escape" efforts, 1999:3.64

1999 theme: "Great Escape" training saves family from fire, 1999:5.36

2001 theme: Cover the Bases & Strike Out Fire, 2001:5.44

2002 theme: celebrating 80th anniversary of fire safety effort, 2002:5.84

2003 NFPA-Weekly Reader Fire Prevention Week initiative results from team work with outside funding partners, **2003:**3.40

2003 theme: home escape plans save lives, **2003:**5.13

2003 theme supported by NFPA-*Weekly Reader* initiative provides students with home escape planning tools, **2003:**5.40

2004 theme: test your smoke alarms, **2004**:4.14, 5.36, 52

2005 theme: candle safety, **2005:**5.68

2005 Week to include People with Disabilities Day, 2005:5:42

2006 theme: prevent cooking fires, **2006:5**.44, 66

2007 theme: practice your escape plan, **2007**:4.16, **2007**:5.46

2007 theme: practice your escape plan, supported by "Great American Fire Drill," 2007:5.44

2008 theme: prevent home fires, **2008**:5.15, 42

2009 theme: stay fire smart—don't get burned educational materials available, **2009:**5.19

2010 theme: smoke alarms, a sound you can live with, **2010:**4.20

2010 theme: smoke alarms, a sound you can live with, video available from NFPA, 2010:5.24

2010 week, International Association of Black Professional Fire Fighters launch program to cut African-American children fire fatalities in conjunction with, **2010**:5.24

2010 week, smoke alarm use and testing survey results released in conjunction with, **2010**:6.18

2011 theme: protect your family from fire, **2011:**5.38

2011 week focuses on immigrants, families, high-risk groups, **2011:5**.13

2012 week focuses on safety messaging and escape planning for immigrant groups, 2012:5.14

2012 week promoted by Domino's Pizza, LEGOLAND®, Home Depot, 2012:6.11

2012 week promoted by new Sparky the Fire Dog^{® puppet}, **2012:**3.12

2013 theme: prevent kitchen fires, **2013:**5.13

Classroom educational materials developed by NFPA and Scholastic, Inc., 2012:5.42

First Fire Prevention Week, 1925, safety message recalled, 2009:5.88

History of, **1995**:4.71, **2002**:5.112

Industrial Section teams compete in 2001 Fire Prevention Week contest, 2001:5.62

Partnership with others for wider dissemination of "Great Escape" information, 1999:3.134

Smokey Stover cartoon enlisted by NFPA for Fire Prevention Week 1953, 2009:1.80

"Sparky" speaks out; interview with fire prevention mascot, 1994:5.66

Web site provides information and documents to educators, public, **2003:**5.54 FIRE PRODUCTS

Firefighter fatalities related to, **1991:**4.53, 90, **1992:**4.46, 48, 50, 51, 54, **1993:**4.50, **1994:**4.57, 67, 68, 69, **1996:**4.71, 72, 75, 76, **1997:**4.59, **1998:**4.59, 60, 62, **1999:**4.69

Firefighter injuries related to, **1991:**6.49, 51, 52, 53, **1992:**6.62, 63, 64, 65, **2001:**6.53, 54 FIRE PROTECTION

Future of, 1991 overview, 1991:3.38

Future of, NFPA Board of Directors view, 1992:1.47

Stadium fires demonstrate unique protection problems, 1994:4.49

FIRE PROTECTION ENGINEERS

Codes and standards as critical component in fire safety engineer curriculum, 2011:5.28

International higher education programs developed, 1993:1.43

As Quarterly and NFPA Journal authors, 2007:Fall.138

Recruiting and retaining fire department FPEs, 1993:1.58

SFPE President Deborah Boice encourages diversity and more careers in field, 2011:2.13

FIRE PROTECTION HANDBOOK

17th edition, overview, **1991:**3.106

18th edition, overview, **1997:**1.66

FIRE PROTECTION PROGRAMS

Soviet Union, 1991:6.66

FIRE PROTECTION RESEARCH FOUNDATION. See NFPA FIRE PROTECTION RESEARCH FOUNDATION

FIRE PROTECTION SYSTEMS. See also specific systems

Chrysler Corp. Technology Center, 1995:3.129

Explosion destroyed, factor in fire spread, 1994:5.104

High-rise buildings, design of systems for, 1994:2.36

Integrated building system design, requirements, and goals, 2008:6.62

Las Vegas, Nevada, City Center, 2010:3.62

Las Vegas, Nevada, Stratosphere Mall and Tower, 2001:6.66

NFPA 3, Commissioning and Integrated Testing of Fire Protection and Life Safety Systems, colleges can demonstrate value of new code, **2011:**5.24

NFPA 3, Commissioning and Integrated Testing of Fire Protection and Life Safety Systems, is being developed to address testing and start-up problems, **2009**:3.62

Passive systems, value of, 1997:2.30

Supervision of system, importance of, 2006:4.34

Supervision of system, specific requirements of NFPA 101®, Life Safety Code®, 2006:6.32

Underground SubTropolis storage/manufacturing facility, Kansas City, Missouri, requires unique systems, **1998:**6.68

Users' manuals needed to document building systems, 1998:4.26

Washington, D. C.. airports equipped with state-of-art systems, 1998:4.80

FIRE PUMPS

Failure to operate automatically, 1992:2.25

Integrating fire pumps and fire alarm systems, 2005:5.38

NFPA 20, *Installation of Stationary Pumps for Fire Protection*, 1999 edition reflects changing technology, **2000**:3.109

NFPA 20, Installation of Stationary Pumps for Fire Protection, 2010, proposed changes, **2009:**3.85

NFPA 20, *Installation of Stationary Pumps for Fire Protection*, 2013 edition, changes debated, **2012:**6.56

NFPA 20, *Installation of Stationary Pumps for Fire Protection*, permits variable speed pumps, **2004:**5.26

NFPA 20, *Installation of Stationary Pumps for Fire Protection*, proposed changes, **1999:**2.80 Proper installation, maintenance, testing, for reliable emergency service, **2005:**5.62

FIRE SAFETY. See also BURNING ISSUES COLUMNS; FIRE SAFETY EDUCATION; LIFE SAFETY; OUTREACH COLUMNS

Americans underestimate fire risk, 1996:3.77, 2004:6.12

Centers for Disease Control statistics indicate workplace safety has improved, 2001:5.38

Checklists for home, workplace, child fire safety, 1997:1.104

College dormitory constructed for fire safety, 1999:1.60

"Contract with America"'s effect on fire safety, 1995:3.46

Convention center fire safety challenges addressed by NFPA codes and standards, 2007:2.54

Detectors distributed free by fire department saves residential occupants, 1998:3.38

Families plan, but don't practice, escape, First Alert survey shows, 2011:7.13

Families plan, but don't practice, escape, NFPA survey shows, 2005:2.14

Fire service public service programs, 1995:1.70

Fire-themed video game draws negative response from safety experts, 2013:2.12

Fireplaces, portable, NFPA tip sheet for, **2013:**2.13

Hamilton, Ontario, Emergency Services consulted high-risk populations to improve fire prevention efforts, **2010**:6.19

Health care facilities' fire safety prognosis for '90s, 1992:3.89

High-rise buildings, fire safe design for, 1993:6.4

Hoarding safety issues addressed by fire service/social agency teamwork, 2012:1.44

Holmes County, Mississippi, works with NFPA on smoke alarm distribution project, **2003:**6.42

Ignition factor awareness can promote home fire safety, 1999:1.42

Implications of home security systems; editorial, 1994:3.4

Industrial fire safety programs, establishment of, 1993:2.12

Juvenile firesetter safety tips offered by NFPA, 2013:3.14

Latin American fire safety, NFPA contribution to, 2005:2.50

Myth of panic as standard human behavior in fire addressed in research paper, 2009:4.15

Navajo Nation and NFPA Center for High-Risk Outreach cooperate for fire safety, 1997:2.74

NFPA general manager Percy Bugbee's fire safety efforts, 1995:6.77

NFPA Journal sets standard for fire safety discussions, 2007:Fall.96

NFPA report emphasizes need to maintain and/or replace home smoke alarms, 2005:1.12

North Charleston, South Carolina, receives Jensen Award for Smoke Alarm Assistance Program, **2007:**5.20

Outdoor electrical safety tips offered by NFPA, 2013:3.14

Outside U. S., citizens held responsible for fires, 1996:3.83

Partnership of owners, designers, and public officials necessary for fire safety, 1993:1.12

Performance-based fire safety design code development, 1994:6.16

Performance-based fire safety design codes coming to North America, 1994:3.70

Perkins, Frances, biography chronicles life of U.S. Secretary of Labor who championed safety initiatives for American workers, **2009**:3.30

Politics of fire safety regulations at local to federal levels, 1998:4.29

Safety principles for disabled persons, 1996:4.112

School Emergency Evacuation Planning Checklist geared to teachers, administrators, staff, parents, and students, **2007:5**.17

Sprinkler systems' importance for fire safety, 1993:1.53

Summer fire hazards, 1997:4.96

U. S. Consumer Products Safety Commission addresses fire safety issues, 1998:3.49

United States should hold citizens responsible, 1995:4.38

Winter safety tips offered by NFPA, 2013:1.10

Zippo cigarette lighter "tricks" Web site shut down by NFPA, others, 2003:6.18

FIRE SAFETY EDUCATION. See also FIRE PREVENTION WEEK; OUTREACH COLUMNS

Board and care facility staff, residents untrained, factor in catastrophic fire, 1993:5.66

Brockville, Ontario, uses *Risk Watch* to promote child safety, **2000:**1.82

`Clear Your Escape Routes' brochure created by NFPA Center for High-Risk Outreach, **2006:**2.15

College Fire Safety Video Contest winner Andy Nguyen promoted safety tips, 2012:1.13

College students are provided current fire safety information through innovative DVD and online program, **2009:**5.58

College students need safety training, 1997:5.34

Dan Doofus, new public education character, appears in public service announcements and other materials, **2008:**6.11

Dick Van Dyke's contribution to Learn Not to Burn, 1996:1.70

Effective fire safety messages for children, report on study of, 2011:1.54

"Fire and Blast" publication, 1952, looking back, 2004:1.80

Fire service public service programs, 1995:1.70

Firefighters work with youth through Big Brothers/Big Sisters program, 1998:2.28

Firewise® Communities marks tenth year of helping communities prepare for fire, 2011:6.28

Firewise® Communities outreach after California wildfires, 2004:2.70

Firewise® Communities preparedness elements incorporated into International Association of Fire Chiefs program, **2010:**3.30

Firewise® Communities reaches milestone with 500th community joining program, 2010:1.15

Firewise® Communities supports homeowners and fire departments in defending against wildfire, **2007**:6.44

Firewise® Communities take control of their fire safety, with substantial participation increase, **2008:**2.21

Firewise® Communities Workshops promote wildland/urban interface fire safety, 2002:4.82

Firewise® landscaping, **1994:**2.84

Firewise® Learning Center offers online community wildfire assessment course, 2009:6.15

Firewise® program community planning workshops, 2000:2.66

Firewise® workshops underway for forest professionals, 2007:3.18

Fireworks education program result of illegal fireworks fire, **1996:**4.22

First NFPA public service announcement campaign, 1950, 1995:6.74

"Great Escape" campaign has inspired change over three years, 2000:5.42

"Great Escape" has made progress, but home fire safety misconceptions persist, **2000:**5.112

"Great Escape" promotes home fire drills and escape plans, 1998:3.74, 4.32

"Great Escape" training saves family from fire, **2000:**6.16

Grilling safety message spread by burn survivor and ESPN anchor Hannah Storm, 2013:2.14

High-rise fire safety issues require education, 1999:3.84

Home heating fires addressed by NFPA at Boston press conference, 2008:2.19

Home heating safety campaigns launched by NFPA, 2008:1.14, 31

In-service programs for teachers, 1991:4.35

Juvenile firesetting, education program to control, 1999:1.54

KFN-TV teaches fire safety to kids, 1993:5.90

Language barriers challenge fire service outreach to immigrants, 2005:3.68

Learn Not to Burn® champions, 1994, 1994:3.67

Learn Not to Burn® champions, 1995, 1995:5.103

Learn Not to Burn® fire safety message for preschoolers revamped, 2013:3.44

Learn Not to Burn® for South Africa, 2006:1:12

Learn Not to Burn® Preschool Program updated, 2013:1.11

Learn Not to Burn® program expanded to cover first graders, 2013:2.13

Learn Not to Burn® programs, NFPA commitment to, 1993:4.4

Learn Not to Burn® used by Plano, Texas, Fire Department to educate community, 2001:3.102

Navajo Nation fire safety awareness campaign, 1996:5.71

NFPA Campus Fire Safety Forum program promotes college fire safety, **2002:**6.52

NFPA Center for High-Risk Outreach helps educate poorest South Africans on home fire dangers, **2006**:2:70

NFPA Champion Award Program provides age-appropriate fire safety education, 1997:3.45

NFPA Safe at Home project debuts in Mississippi, 2008:1.13

Other countries' programs compared to U. S., 1996:3.81

Preschool children's self-preservation capability, international study on, 2013:6.11

Preschool program saves lives in dwelling fire, 1992:2.28

Preschooler fire safety education, 1997:2.112, 3.45

Preschoolers learn fire safety in Portland, Oregon, Head Start program, 1994:1.67

Proactive safety leadership role for fire departments, 1991:6.93

Public education for wildfires, 1991:4.32

Public education is long-term answer to fire loss, 1993:6.14

Public educators gaining budgetary recognition, **2000**:2.40

Remembering When[™] conference, 2013, **2013:**5.15

Remembering WhenTM fire safety and fall prevention program for older adults, **1999:**2.40, **1999:**4.112

Remembering WhenTM grants provided for Mississippi, Alabama, and Native Americans, **2005:**2.10

Remembering WhenTM program evaluates success in reaching older adults, 2002:4.64

Residential fire safety relies on education, **2003**:4.30

Risk Watch® adapted for mothers and children in emergency shelters, 2006:4.68

Risk Watch® addresses eight preventable injuries most threatening to children, 1997:4.33

Risk Watch® can help schools prevent student injuries, 2000:1.34

Risk Watch® central to NFPA's affiliation with FEMA's Citizen Corps, 2003:2.68

Risk Watch® Champion Conference for continuing education to Champion Management Teams, **2006:**1.32

Risk Watch® curriculum, students demonstrate gains from, 2001:4.40

Risk Watch® curriculum goals, implementation, and evaluation, 1998:5.84

Risk Watch® demonstrates value of team work for fire safety, 1998:2.30

Risk Watch® effectiveness evaluated by tests of children's safety behaviors, 2002:3.82

Risk Watch® encourages seat belt use, 1999:1.32

Risk Watch® first affiliate program of FEMA's Citizen Corps initiative, 2003:1.33

Risk Watch® grants provided for Mississippi, Alabama, Navajo Nation schools, 2005:2.10

Risk Watch® is useful tool as fire service's mission expands, 1998:6.32

Risk Watch® Safe Communities pilot program, 2006:3.48

Risk Watch® used by Plano, Texas, Fire Department to educate community, 2001:3.102

Risk Watch®'s injury prevention curriculum teaches safe fun, 1997:5.58

Safe Cities, Learn Not to Burn program for 10 cities, 1995:3.75

Senior fire safety with Jonathan Winters, 1991:2.44

Smoke alarm safety promoted by NFPA community awareness kit, 2010:1.17

Spanish-language versions of Learn Not to Burn Curriculum for Hispanic/Latino populations, **1998:**4.30

Spanish translations of educational documents by NFPA Center for High-Risk Outreach, **2006:**3.20

Sparky[®] celebrates 60th anniversary, **2011:**2.40

Sparky[®] joins New York's Walk of Fame Icon Parade, **2013**:6.13

Sparky the Fire Dog[®] app now available, **2013:**5.14 Sparky the Fire Dog[®] emergency preparedness game available from *Risk Watch*[®] Web site, **2007:**3.18

Sparky the Fire Dog® puppet promotes 2012 Fire Prevention Week, 2012:3.12

Sparky the Fire Dog[®] website wins award, **2013:**6.12

As Sparky[®] turns 60, retrospective of his life, **2011:**5.62

Sparky® wins awards, 2012:4.14

Sparky's new public service announcements, 1996:5.40

Springfield, Massachusetts, receives Jensen Award to fund Multi-Language Public Education Fire Safety Initiative, **2013:**2.12, 4.36

Suffolk, Virginia, uses grant to support community fire and life safety programs, 2005:5.74

Surgical fire prevention addressed by U.S. Food and Drug Administration education program, **2012:**1.58

Teaching safety to disabled persons, **1996:**4.112

Texas Fire Marshal's fire safety campaign urges students to "have an exit strategy" in public spaces, **2007:**3.98

Toronto Blue Jays sponsor Fire Safety Day at ball game, 2011:5.11

Tuscaloosa, Alabama, receives Jensen award to fund smoke alarm installation and educational campaign, **2007:**4.72

Uh-Ohs interactive toys reinforce vital safety messages, 2008:3.11

University of Utah fire prevention program, 2005:1.52

Urban fire safety efforts reviewed in joint NFPA/urban fire departments effort, 2008:2.21

Voice of Sparky® Contest finalists, 2011:2.18

Wildfire safety youth program developed by NFPA, 2013:2.11

FIRE SAFETY UPDATE COLUMNS

Fire Prevention Week, 1991 theme: fire escape planning, 1991:5.34

In-service programs for teachers, **1991:**4.35

Juvenile Firesetter Program, Phoenix, Ariz., 1991:1.22

School fire drills, planned programs for, 1991:2.24

FIRE SERVICE ADMINISTRATION. See also FIRE CRITIQUES; FIREFIGHTER SAFETY; LEADERSHIP COLUMNS: MANAGEMENT MATTERS COLUMNS

Administrators' role in fire code development, 1996:1.27

Budget negatively impacted by internal departmental conflict, 1994:4.112

Burdens of command responsibilities, 1995:4.23

Chiefs' responsibility to network with external groups, 1994:5.17

Combination career/volunteer departments, 1991:3.36

Comprehensive fire protection systems, 1991:4.16

Computer software for, 1991:3.90

Defining the problems of fire services, **1993:**2.30

Denver, Colo. Fire Department is progressive, innovative, 1995:3.118

Deploying resources effectively, 1992:6.104

Discipline promotes effective performance, 1993:2.85

Educating municipal officials about resource needs, 1993:1.80

Encouraging participation in fire service organizations, 1993:3.136

Fire inspection requirements determined by life safety evaluation, 1995:1.57

Fire safety educators gaining budgetary recognition, 2000:2.40

Firefighter Investment and Response Enhancement (FIRE) Act offers fire prevention and wellness/fitness program grants, **2001:**3.48

Firefighter Investment and Response Enhancement (FIRE) Act to increase federal funding of local fire service, **2000**:5.36

Fireground management as model for, 1991:2.144

Funding alternatives for volunteer departments, 1993:5.120

Harvard program provides leadership skills, 1996:3.93

Labor relations eased by seeing both sides, **1994**:2.13

Laughter as workplace morale booster, 1991:2.116

Leaders should encourage cooperation, 1994:3.164

Leaders should lead by example, 1993:4.83

Leadership: what is it?, **1994:**1.96

Leadership requires political savvy, 1995:6.21

Leadership takes many forms, 1994:2.112

Leadership training, developing professional programs for, 1993:4.14

Liability for negligent fire fighting activities, 1997:2.38

Listening and responding to fire service members, **1994:**1.13

Management concerns, overview of, 1991:3.17

Management reviews, 1992:3.124

Marketing fire service to gain public support, **1992:**1.90

Marketing fire service via improved public relations, 1992:1.67

Member evaluation of fire department, 1995:4.28

Membership input to volunteer fire department decisions, 1994:1.20

Mission statement core of operating plan, 1994:4.15

New service areas can generate revenue, develop partnerships, serve customers, 1996:4.38

NFPA survey, wildfire managers top concerns, **1992:**5.96

NFPA survey of U. S. fire departments, **1993:**4.59

Officer training is key to fire service success, 1993:3.26

Orange County, Fla., Fire and Rescue Service operates as a consolidated force, 1993:2.63

Orlando Fire Department, Fla., offers innovative service to tourist center, 1993:2.59

Participatory management enhances volunteer morale, 1992:1.96

Peer mediation, San Francisco Fire Department, 1991:3.62

Politics of fire safety regulations at local to federal levels, 1998:4.29

Pride as factor in volunteer department morale, 1994:3.18

Public information officer can improve media coverage, 1994:6.25

Public information officer's role in media relations, 1999:5.44

Regionalization and other answers to department downsizing, 1993:3.30

Shrinking budgets, staffing realities, 1992:3.28

Specialization of support services, Fort Worth, Tex., 1991:2.78

Splinter groups, effect of, 1991:2.19

Staffing for Adequate Fire and Emergency Response Firefighters Act (SAFER) to help fire departments add firefighters, **2004:**1.46

Staffing levels and response times addressed by proposed NFPA standards, 2000:6.51

Tokyo, Japan's, low fire rate testifies to well-trained fire service, 2002:3.72

Truck company duties need emphasis in training, planning, 1995:5.19

U. S. Fire Administration looking for fire departments missing from 2002 National Fire Department Census, **2003:**1.28

U. S. fire department profile, 2011, 2013;4.79

User fees implemented to recover cost of services, 1997:2.66

Volunteer fire departments, contracting with, Austin, Tex., 1991:2.104

Volunteer fire officers, 1991:2.114

Volunteer training accomplished with flexibility, technology, **1994:**5.18

FIRE SERVICE APPARATUS AND EQUIPMENT. See also FIRE PUMPS; PERSONAL PROTECTIVE EQUIPMENT

Aging wildfire-fighting air fleet may lead to decrease in missions in 2003, **2003**:4.32

Animal oxygen masks donated to fire departments, **2011**:2.21

Catastrophic crash/fire

California, July, 2002, **2003:**5.75

South Dakota, July, 2012, 2013:5.63

Development of NFPA standards for, 1992:2.41

Facepiece deficiencies unveiled by study, 2012:1.11

Fireboats respond to docking facility fire, 2007:4.21

Fireboats respond to pier fire, **2007**:6.78

Firefighter fatalities related to, **1991:**4.53, 55, **1992:**4.43, 48, 51, 54, **1993:**4.46, 53, 68, 69,

1994:4.57, 61, 63, 66, 69, **1995:**4.90, **1996:**4.71, 72, 74, 75, **1997:**4.51, 55, 57, 58,

1998:4.62, **1999:**4.59, 61, 67, 68, 69, **2000:**4.57, 60, 61, **2001:**4.77, 78, 79, **2002:**4.77,

2004:4.53, **2005:**4.57, 4.58, **2006:**4.62, 63, **2007:**4.62, 68, 69, 70, 5.62, **2008:**4.79, 91,

2009: 4.63, 64, 65, 66, 67, **2010**: 4.76, **2011**: 4.67, 69, 6.19, **2012**: 4.77, 81, **2013**: 4.65, 71

Firefighter injuries related to, **1991:**6.49, 50, 51, 52, **1992:**6.58, 63, 64, **1993:**6.58, 63, 64,

1994:6.65, **1995**:6.65, 68, 69, **1996**:6.108, 110, **1997**:6.73, **1998**:6.54, 55, **1999**:6.52,

54, 55, **2000**:6.46, 47, 48, 49, **2003**:1:65, 6.71, 72, **2004**:6.65, **2005**:6:57, **2006**:6.83, 84,

85, **2007**:6.85, 90, **2008**:6.48, 52, 53, 54, **2009**:6.67, 68, 70, **2010**:6.72, **2011**:7.63, 64, 66, 67, **2012**:6.71, **2013**:6.62, 63, 64

NFPA 17, *Automotive Ambulances*, new standard establishes EMS vehicle requirements, **2011:**4.24

Personal responsibility plays important role in safe use, 1999:2.38

Personnel accountability system essential for locating firefighters at incident scene, 2005:3.36

Robot use pioneered in Tokyo, 1992:2.67

Robots used for rescue, other operations, improved by innovations, 2004:2.40

St. Louis, Mo., purchases all new apparatus, 1991:1.98

World Trade Center attack demonstrates need to refine first responder protective equipment, **2001**:6.46

FIRE SERVICE COMMUNICATIONS

Effective communication important to successful command, 2006:3.42

Engine companies lacked radio communications, 1991:6.74

Fire service calls in U.S., 2003 report, 2005:3.16

Hampered by power shutoff, 1991:1.27

Lack of 911 service factor in building-under-renovation fire, 1991:4.31

NFPA 72®, 2010, includes new requirements to enhance firefighter communications, **2011:**7.36

NFPA 1221, Installation, Maintenance, and Use of Emergency Services Communications Systems, 2010 changes, **2009**:3.89

Overwhelmed by incoming calls, 1991:6.74

Radio communications hampered by static, garbled transmission, 1991:6.73

FIRE SERVICE FACILITIES

Fire station fire, California, 1998, 1999:4.21

Fire station fire, Minnesota, 2004, 2005:1.14

Renovation of, St. Louis, Mo., 1991:1.94

FIRE SERVICE FOCUS COLUMNS

Federal fire service grants, **2006:**2:89

Personal protective equipment, 2006:4.86

FIRE SERVICE OPERATIONS. See also FIRE SERVICE OPERATIONS HAMPERED; FIRE SERVICE RESCUE AND EXTRICATION; MUTUAL AID RESPONSE; STRUCTURAL FIREFIGHTING COLUMNS; STRUCTURAL OPS COLUMNS

At asbestos abatement site fires, 1992:3.55

Command safety: a wake-up call, 1991:1.74

Electrical inspections threatened by budget cutbacks, 1996:6.80

Fire fighting challenges of San Francisco, Calif., fire department, 1994:3.119

Fire services find opportunities for change post 9/11, 2002:5.48

Fire station response and support specialization, Fort Worth, Texas, 1991:2.78

Firefighter crew size linked to fireground performance in National Institute of Standards Study, **2010**:4.13

Firefighter fatalities related to (See FIREFIGHTER FATALITIES)

Firefighter injuries related to (See FIREFIGHTER INJURIES)

Fireground behavior after fire is out, 1995:6.26

First responder respiratory exposure studied by Fire Protection Research Foundation,

2008:2.32

Good fire service requires team effort, 1993:4.96

Hazardous materials incidents require new training, management skills, 1995:2.90

Identifying and mitigating fireground risks to avert firefighter fatalities, 1998:4.70

Implementation of current research is expected to spark technological and intellectual rebirth of fire service, **2009**:2.54

Initial attack capability, evaluation of, 1996:5.29

Initial response (See FIRST RESPONSE COLUMNS)

Liability for fire ground decisions, 1993:4.40

Liability for negligent fire fighting activities, 1997:2.38

Matching response capabilities to fire conditions, 1992:4.30

National Fire Fighter Near-Miss Reporting System available online, 2013:1.10

NFPA 1500, Fire Department Occupational Safety and Health Program, valuable tool in fire fighter safety, **1997:**4.74

NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, annual meeting review, **2001:**2.80

NFPA 1720, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, annual meeting review, 2001:2.80

9/11 Pentagon response report brings change to Arlington County, Virginia, fire services, **2002:**6.36

Occupy Wall St. sites raised fire safety concerns, 2012:1.9

Positive pressure ventilation evaluated by NIST at retired high school, 2008:5.78

Public service programs offered by fire services, 1995:1.70

Residential sprinklers offer major water savings compared to firefighting operations, 2011:2.54

Response times and staffing levels addressed by proposed NFPA standards, 2000:6.51

Speed bumps' effect on response times, 1997:1.78

Tactics for wind-driven conditions at high-rise building fires subject of Fire Protection Research Foundation study, **2008:**6.24

Thermal imaging camera locates seat of fire, turbine fire, **2004:**5.20

Urban problems confront fire service, 1993:2.14

Urban violence complicates, 1992:5.14

Wildland/urban interface fires, organizational and tactical challenges of, 2011:6.64

World Trade Center attack demonstrates need to refine first responder preparedness, **2001**:6.46 FIRE SERVICE OPERATIONS HAMPERED

Access limited

Blocked doors, 1993:5.62, 2002:1.19, 2006:3.34, 2007:1.15, 2009:5.80, 2013:4.22

Burned stairs, 102

Burning, charged electrical wire, **1993:**5.36

Cargo shift in aircraft fire, 1992:6.79

Ceilings, barred/covered windows, 1992:3.31

Ceilings, barriers cause by multiple, 2010:6.66

Chicken-wire partitions in attic, 1991:3.26

Collapsed occupant blocked stairs, 2006:6.18

To concealed spaces, 1996:1.24

Concrete slab, fire in area under, 1999:6.96

Confined space, **1993:**2.33, **1994:**6.91, **1995:**6.98

Difficult-to-open doors, 1992:6.26

Downed power lines, 2000:3.36, 2009:6.24

Fence, **1993:**2.21

Fire lane chains, **1995:**4.37

Flammable, combustible liquids stored on building exterior, 2012:4.20

Flooding, 1992:4.72, 1998:6.88

Flue fire blocked by dormer, 2004:1.14

By heat, **1997**:6.49, 50, 57, **1999**:6.17, **2006**:4.27

Hoarding behavior, **2012**:4.20, 5.71, **2013**:3.22

Jammed doors, vehicle, 2004:5.73

Key box keys no longer worked, 2000:1.19

Location/size of other buildings, collapsed wall, 1991:6.37

Locked doors, **1991:**1.29, 4.68, **1992:**4.70, **1993:**4.28, 5.62, **1994:**2.27, 6.93, **2004:**6.56, **2012:**6.64

Locked gates, 1998:6.90, 2000:6.86, 2004:6.56

Nailed-shut door, **1995:**3.37

Narrow street, **2000:**4.19

Offshore fire, 1994:6.98

Onlooker vehicle congestion, 2012:5.73

Onlookers blocked roads, 1997:4.20

Overhead obstructions, 1998:6.90

Parked vehicles, 1993:3.33, 1993:6.84, 2004:6.52

Power lines, **2011:**5.16

Railroad tracks, lake on three sides of building, 2000:6.88

Railroad trestle, 2004:6.54

Relocated driveway, 1997:5.24

River next to building, 2000:6.88

Road of poor quality, **1991:**3.27

To roof, ceiling voids, 1992:5.30

Scaffolding surrounding building, 1999:6.96

Security devices, 1991:4.25, 1991:4.26, 1997:5.51 (See also SECURITY PROVISIONS)

Security gates, chains, **1993**:6.79, **1997**:6.56

To site, 1991:6.73, 1992:1.26, 2003:2.20

Stairway fire, **1997:**5.21, **2007:**6.79

Stored furniture, 1992:4.67

Stored goods, 1992:6.79, 1993:2.19, 1994:6.96, 2012:6.66

Stored paper products, soaked with water, expanded/split apart, 2009:6.81

Street layout, **1991:**6.74

Traffic blocked highway, 2010:5.68

To two sides of building, 1995:6.107

Waterfront location, **1993:**6.81, **2006:**6.72

To wildland fire site, **1994**:6.99, **1995**:6.111, **2000**:6.94, **2001**:6.64, **2011**:6.16, 17, 18

Window to fire escape blocked by couch, **2010**:6.21

Workspace clutter, 2006:4.27

Aerial ladder lacking, 1995:6.106

Apparatus, fire fighters at earlier fire, 1993:3.34

Attic fire, 2009:6.79

Bystanders interfered, 1992:4.70, 1993:2.19

Ceiling collapse, **1994**:6.89, **1996**:3.35, **1998**:1.21, **2003**:6.81, **2007**:6.80

Chemicals prevented use of water, 1994:6.95

Civil disturbance threatened fire fighter safety, 1993:5.67, 1993:6.81

Communications hampered

Lack of 911 service, **1991:**4.31

Overwhelmed by incoming calls, 1991:6.74

Power shutoff, 1991:1.27

Radio communications limited, 1991:6.74

Radio static, garbled transmissions, 1991:6.73

Size of fire area, 1997:6.58

System disabled, **1994:**6.90

Deteriorating conditions force defensive attack, **1998**:2.19, 20, **2009**:6.76, 77, **2010**:5.66, 67, 6.63, 68, **2011**:5.76, 7.18

Electrical arc energizes metal siding, **2001:**5.26

Electrical equipment, charged, 2004:6.56

Electrical power lines, live, 2010:6.68

Electrical power loss, 1991:5.64, 1992:4.71, 1992:5.56, 1992:6.74, 78, 1994:5.104, 1994:6.90

Electrical transformers, high-voltage lines nearby, 1996:6.72

Emergency lighting failed, 1992:6.78

Emergency shutdown procedure caused delay, 1994:6.92

Energized electrical equipment concern, 1994:6.91

Explosion, 2002:5.22

Explosions of equipment, fuel, 1997:6.50, 2009:6.82

Explosions of gas cylinders, 1994:6.36

Explosions of materials, 1995:6.104

Fire operations control center damaged, **1994:**5.104

Fire protection systems damaged, 1994:5.104

Fire spread, rapid, 1997:6.58, 2008:6.42

Fire spreading behind fire fighters, 1994:6.36

Flashback fires on cargo containers, 1992:6.79

Flashover forces exterior attack, 1998:4.22

Floor, unstable, **2004:**6.17

Floor collapse, **1993**:2.33, **1996**:5.96, **1997**:3.30, **2003**:6.81, **2009**:5.80

Foam suppression supplies exhausted, 1992:1.60

Fog, fuel leak on runway, 1991:3.69

Hazardous materials, by presence of, **1991**:6.75, **1992**:3.33, **1995**:5.35, **1995**:6.38, **2000**:3.38, **2010**:6.65

Heat and smoke conditions hampered entry, **1994:**2.27

Heat forced exterior attack only, 1993:2.20

Heat forced frequent firefighter rehabilitation, 2000:4.20

Hose lines too short, **1997:**1.27, 5.23, **2007:**1.18

Hydrants

```
At distance, 1991:3.27, 1993:6.88, 1995:6.99, 107, 2006:6.71, 2008:6.42, 2010:1:24, 5.32,
         2011:5.16
  Failed, 1995:4.37
  Frozen or inoperative, 1995:6.100, 1996:6.72, 2006:1.22, 2009:5.82, 6.80, 2011:6.18
  Insufficient water pressure at, 2005:6.46
  Malfunction, 1998:6.92
  Supply limited to one, 2000:6.90
  Water supply limited, 2005:5.24
  Without water at construction site, 2005:6.19
  Without water supply at vacant building site, 2008:6.42
Information on exposure not available, 1994:3.30
Large number of fires, 1996:3.36
Large number of occupants hamper rescue, 1994:5.95
Large size of building, 1994:6.97
Large size of fire, 1995:6.104, 107, 2008:6.44
Large size of fire created command problems, 1999:6.96
Local response capability limited, 1994:3.30, 1996:3.36
LP-Gas tanks had to be protected, 1993:6.84
Machinery, hazards posed by operating, 1992:5.30
Multiple exposures affected control efforts, 1994:3.27
Noise limited communications, 1996:6.72
Nursing home patients in restraints slow rescue, 1991:4.67
Oil and water on floor, 1996:6.72
Outdated fire plans, 1992:6.26
Power lines downed, 2008:6.44
Propane tank vented, 1996:6.73
Propane tanks exploding, 2008:6.44
Propane trucks at fire site, 1994:6.96
Radio communications poor due to topography, 2003:6.79
Rattlesnakes loose on movie set, 2005:6.49
Remote location, 1992:1.23, 1993:3.36, 4.26, 5.67, 1994:6.90, 99, 1995:6.111, 1996:4.21,
       6.64, 2004:6.56
Rescue operation delayed fire suppression, 2001:6.62, 2005:6.45
Rescue operation took precedence, 1994:6.91
Resources limited due to other fires, 2000:6.94
Resources limited for simultaneous rescue and firefighting operations, 2007:5.60
Resources taxed by fire size, 2007:6.76
Response delayed, 1994:4.31, 1995:3.37, 38
Response delayed by passing train, 2000:3.36, 2000:6.90
Roof, fire broke through, 1997:5.21, 2007:1.20
Roof collapse, 1993:6.29, 83, 1994:6.95, 96, 1995:6.37, 100, 103, 106, 107, 108, 1996:6.70,
       1997: 6.19, 1.21, 1998: 5.18, 6.89, 2000: 3.38, 2001: 5.22, 6.64, 2002: 1.19, 2005: 4.22,
       2007:5.31, 2007:6.76, 2007:6.80, 2008:5.58, 2009:2.22, 5.80, 6.24, 76, 2010:4.27,
```

Multiple occupancy fire, **2005:**1.18 Roof layers, fire between, difficult to reach, **1997:**6.21

5.29, **2012**:6.64, **2013**:1.26, 2.18, 4.18

```
Roof thickness delayed venting, 1995:6.106
Rugged terrain, 1992:6.76, 1997:5.54, 6.59, 1998:6.92
Rural location, 1991:4.65, 67, 1992:4.67
Safety of area had to be determined, 1995:4.40
Slippery footing caused by melted butter in dairy fire, 2005:6.46
Smoke density, 1992:6.76, 1994:6.94, 96, 1995:6.107, 1996:6.63, 65, 1997:6.49, 50,
       2012:3.28
Staffing limited, 1992:4.25, 1992:6.78
Standpipe capped, hose lines removed, 2007:1.15
Standpipe connection problems, pipe obstruction, 2008:5.27
Standpipe connections lacking, 1994:6.92
Steep terrain, 1993:6.88, 1994:6.99
Storage configuration, 1998:6.85, 91
Structural collapse, 1992:4.71, 6.75, 1994:5.95, 6.94, 1995:3.40, 6.103, 104, 107, 1997:5.23,
       6.56, 5.18, 1998:6.84, 2001:4.24, 2004:6.16, 17, 52, 2005:1.18, 2008:6.17, 2009:3.44,
       2010:6.68, 2013:6.56
Structural collapse threatened, 1994:5.30, 1995:3.37, 1995:4.39, 1995:5.35, 36, 2012:1.20
Structural fire fighting equipment lacking, 1994:4.31
Suppression resources in use at other fires, 1994:6.99
Swampy, combustible terrain, 1993:3.36
Transformer circuits checked for power shutoff, 1998:1.22
Unstable conditions limit interior attack, 2001:6.63
Utilities, connected in abandoned buildings, 2011:6.18
Ventilation hampered by lack of windows, 2004:2.17
Ventilation openings lacking, 1998:6.91
Visibility limited, 2005:6.49, 2012:6.64
Wall collapse, 1992:6.78, 1996:6.70
Water pressure inadequate, 1991:5.64, 1991:6.74, 1992:4.71, 1992:5.56, 1992:6.74,
       2000:1.21, 2009:6.82, 2012:3.40
Water-repellent burning material, 1998:6.85
Water storage problems, 1991:6.73
Water supply
  Connection covered by shed, 1996:5.94
  Connections damaged, 1996:5.94
  Explosion, disrupted by, 1991:6.74, 1992:6.75, 2011:7.59
  Hydrants (See subentry: Hydrants)
  Inadequate, 1991:1.27, 54, 3.27, 4.26, 6.74, 75, 1992:2.26, 4.25, 26, 5.30, 6.79, 1993:6.29,
         1994:4.30, 4.31, 5.29, 6.36, 6.90, 92, 97, 1995:3.37, 4.37, 6.106, 107, 1996:6.64, 65,
         70, 1997:5.24, 6.50, 56, 57, 58, 1998:6.86, 2000:6.88, 2001:5.75, 2004:6.16, 52, 56,
         2006:6.69, 2007:1.18, 2009:3.44, 4.20, 2013:6.19, 53
  Limited, 2002:1.19, 6.20, 2003:3.18, 2004:6.16, 6.56, 2009:6.23, 82, 2010:6.68
  Out of service, 1996:6.73
  Piping damaged, 1994:5.104, 1996:5.24
  Remote, 1992:6.26, 1997:1.28, 6.59, 2000:4.16, 2001:6.18, 2003:2.20, 2004:4.17,
         2005:6.45
```

Water main break, 2005:2.18, 2008:6.44

Water plant shut down, 2001:6.61

Water storage problems, 1991:6.73

Weather (See also DROUGHT; WIND)

Fog, **1991:**3.69

High temperature, **1991**:6.78, **1992**:4.25, **1993**:6.89, **1995**:5.67, **1995**:6.111, **1996**:4.21, **1996**:6.73, **1997**:3.30, 4.21, **1999**:5.20, **1999**:6.97, **2000**:6.94, **2001**:6.63, **2009**:6.79, 80, **2012**:6.64

Low temperature, **1991:**1.27, **1992:**1.26, 60, **1992:**6.26, **1995:**6.68, **1996:**6.62, **1996:**6.72, **2009:**6.84

Rain, 1992:4.72, 1999:5.40, 1999:6.97

Thunderstorm, wind and lightning of, **2007:**4.21

Winter, **1991**:6.73, **1993**:6.81, **1995**:6.100, 106, **1997**:5.54, 6.50, 57, 59, **2000**:6.91, **2002**:2.25, **2010**:1:24, **2011**:5.74

Window lexan layer hard to penetrate, 1994:6.89

FIRE SERVICE RESCUE AND EXTRICATION

After 9/11 attack, National Urban Search and Rescue teams were dispatched to World Trade Center and Pentagon for survivor search, **2002:**1.62

Alfred P. Murrah Federal Building, Oklahoma City, Oklahoma, April 19, 1995, **1996:**1.50, 59, **1996:**5.94, **1996:**6.69

Alternative rescue options to use when shortest, easiest, best option not available, 2007:3.42

Amtrak trains rescuers to respond to railroad disasters, 2000:3.78

Apartment building fire, 2006:3.36, 2011:7.14

Electric generating station fire, 1994:6.91

Firefighter fatalities related to, **1991:**4.51, 53, 58, **2001:**4.77, **2002:**4.78, 80

Firefighter injuries related to, **1991**:6.50, **1996**:6.107, 108, **1998**:6.56, **2000**:6.48, **2006**:6.82, 84, **2011**:7.62

Fraternity house fire, **2007:**6.17

Grain elevator explosion and fire, Kansas, June 8, 1998, 1999:5.54

High-rise building study correlates firefighter crew size and rescue times, 2013:3.9

Large number of occupants hampers rescue, 1994:5.95

Los Angeles County Fire Department search and rescue program meets diverse demands, **1995**:6.55

Nursing home patients in restraints slow rescue, **1991:**4.67

Office building complex fire, 1994:6.90

Robots used for rescue improved by innovations, **2004:**2.40

To set rescue priorities, incident commander must consider many factors, 2000:4.24

Technical rescue, evolution and value of, **2000**:2.74

Training and planning improves chances of locating lost, trapped firefighters, 2011:4.32

World Trade Center effort guided by NFPA emergency rescue standards, 2001:6.41

FIRE SUPPRESSION. See FIRE SERVICE OPERATIONS; SUPPRESSION SYSTEMS FIRE TESTS

Adequacy and validity of existing tests, 1994:2.14

Ethanol fuels, fire tests of, 2008:2.60

European Community product testing standards will affect U. S. building materials, 1992:5.45

High-volume, low-speed (HV/LS) fans tested to determine effect on sprinkler activation,

2008:3.88

Interior finish test methods must keep up with growing number of products, **2001:**2.53 Sprinkler system research initiatives explore full-scale fire test alternatives, **2013:**1.28

FIRE WALLS. See WALLS, FIRE

FIRE WATCHES

Apartment building fire, 2008:5.26

Failure to provide, factor in building-under-renovation fire, 2010:6.64

Failure to provide, factor in store fire, 2004:3.18

Manufacturing plant fire, 2010:3.44

Meeting hall fire, 1998:1.21

Transformer fire, **1998:**1.22

FIREFIGHTER FATALITIES

Apartment building fire, N. Y., N. Y., March 28, 1994, 1995:6.85

Apartment building fire, N. Y., N. Y., Dec. 18, 1998, 1999:3.84

BLEVE, LP-Gas tank, Iowa, April 9, 1998, fire investigation report, 1998:6.42

Chemical packaging and storage facility, Arkansas, May 8, 1997, 1998:5.53

False alarm-related, U. S., 1984-1993, 1995:1.48

Firefighter fatalities are personal loss to fellow fire service members, **1999:**4.38

Furniture refinishing plant fire, Dec. 20, 1991, 1992:3.73

Heart attacks, resulting from, 1993:2.73

High-rise building fires, 1992:5.56

High-rise club/hotel fire, Indianapolis, Ind., Feb. 5, 1992, 1992:6.31

High-rise office building fire, Philadelphia, Pa, Feb. 23, 1991, 1991:5.64

Identifying and mitigating fireground risks to avert firefighter fatalities, 1998:4.70

National Fire Fighter Near-Miss Reporting System available online, 2013:1.10

NIOSH firefighter fatality investigation summarized, 2004:5.13, 6.13

Office building fire, Denver, Colo., Sept. 28, 1992, 1993:2.33

Ten year analysis, 1984-1994, **1994:**4.62

Training, 1996-2005 U. S. fatalities related to, **2006:**4.40

U. S., 1977-2007 fatalities, changes over 30-year period, **2007:**4.48

U. S., 1990 report, 1991:4.46

U. S., 1991 report, 1992:4.40

U. S., 1992 report, 1993:4.44

U. S., 1993 report, 1994:4.55

U. S., 1994 report, 1995:4.83

U. S., 1995 report, **1996:**4.63

U. S., 1996-2005 fatalities related to training, 2006:4.40

U. S., 1996 report, **1997:**4.46

U. S., 1997 report, 1998:4.50

U. S., 1998 report, 1999:4.54

U. S., 1999 report, 2000:4.46

U. S., 2000 report, 2001:4.66

U. S., 2001 report, **2002**:4.68

U. S., 2002 report, 2003:4.56

U. S., 2003 report, 2004:4.44

U. S., 2004 report, 2005:4.48

U. S., 2005 report, 2006:4.50

```
U. S., 2006 report, 2007:4.58
   U.S., 2007 report, 2008:4.74
  U.S., 2008 report, 2009:4.60
  U.S., 2008 report preview, 2009:3.23
  U.S., 2009 report, 2010:4.74
  U.S., 2009 report preview, 2010:3.26
  U.S., 2010 report, 2011:4.62
  U.S., 2010 report preview, 2011:3.30
  U.S., 2011 report, 2012:4.74
  U.S., 2012 report, 2013:4.64
  U.S. Justice Department death, disability, and educational benefits for public safety officers and
         survivors, 2008:4.82
   Wildland fire fighting rules to prevent fire fighter fatalities, 1994:3.33
  World Trade Center attack demonstrates need to refine first responder preparedness and
         protective equipment, 2001:6.46
FIREFIGHTER HEALTH AND FITNESS. See FIREFIGHTER SAFETY
FIREFIGHTER INJURIES
   1990 report, 1991:6.42
  1991 report, 1992:6.56
  1992 report, 1993:6.56
  1993 report, 1994:6.57
  1994 report, 1995:6.63
  1995 report, 1996:6.103
  1996 report, 1997:6.66
  1997 report, 1998:6.48
  1998 report, 1999:6.46
   1999 report, 2000:6.40
  2000 report, 2001:6.49
  2001 report, 2003:1.62
  2002 report, 2003:6.64
  2003 report, 2004:6.58
  2004 report, 2005:6.50
  2005 report, 2006:6.76
  2006 report, 2007:6.84
  2007 report, 2008:6.46
  2008 report, 2009:6:66
  2009 report, 2010:6.70
  2010 report, 2011:7.60
  2011 report, 2012:6.68
  2012 report, 2013:6.60
```

National Fire Fighter Near-Miss Reporting System available online, **2013:**1.10

Questions on decreasing injuries answered, 1999:6.24

U.S. Justice Department death, disability, and educational benefits for public safety officers and survivors, **2008**:4.82

FIREFIGHTER SAFETY

Analyze risk before risking lives, 1995:1.21

Boston, Mass., fire service begins firefighter health initiative, **2008**:6.13

Cancer rates higher in firefighters, study finds, 2013:6.10

Command safety guidelines, 1991:1.74

Exercise-caused stress and injuries prevalent in fire service, **2012:**2.10

Fire fighting demands aerobic fitness, 1993:2.68

Firefighter safety advances also affect overall fire problem, 2012:5.32

First responder respiratory exposure studied by Fire Protection Research Foundation, **2008:**2.32

Hantavirus poses health threat to wilderness fire fighters, 1994:2.31

NFPA 1500, Fire Department Occupational Safety and Health Program, keeps personnel safe, 1997:4.74

NFPA 1500, Fire Department Occupational Safety and Health Program, two-in/two-out rule exception, **2006:**6.30

NFPA 1584, Rehabilitation of Members Operating at Incident Scene Operations and Training Exercises, provides blueprint for managing rehabilitation, **2005**:2.32

NFPA 1971, *Protective Ensemble for Structural Fire Fighting*, 1997 edition, consolidates testing, performance requirements for structural fire fighting ensemble, **1997:**6.62

NFPA task forces consider fitness of firefighters who are amputees and who use prosthetics, like firefighter Frank Fraitzl, **2010**:4.58

Personal responsibility plays important role in firefighter health and safety, 1999:2.38

Photovoltaic system shocks firefighter, 2009:6.54

Physical fitness evaluation, fire fighter fatality related to, 2008:4.89

Reconciling safety and customer service needs, 1992:4.86

Research on firefighter health and safety research reflected in NFPA standards, 2010:1.28

Urban problems confront fire service, 1993:2.14

Video contest turns firefighters into health and safety spokespersons, 2012:3.14

Wildland fire fighting personnel qualifications, NFPA standard, 1994:1.33

Wildland fire fighting rules to prevent fire fighter fatalities, 1994:3.33

Working in pairs as a fundamental safety concept, 1993:2.33

FIREFIGHTER TRAINING

Certified Fire Protection Specialist credential highlights your skills, **2004**:2.26

College student firefighters still key to Prince George County Fire and Rescue, 2003:5.64

Electric vehicle incidents, preparing emergency responders for, **2011:**1.42, 2.20

Emergency responder professional qualifications addressed by NFPA workshop, 2011:4.11

Firefighter fatalities related to, 1999:4.56, 2000:4.58, 59, 2001:4.78, 2002:4.78, 2004:4.54,

2006:4.61, 62, **2007:**4.68, **2008:**4.86, **2010:**4.77, **2011:**4.64, **2012:**4.75, 78, **2013:**4.65, 72

1996-2005 U. S. deaths, report on, **2006:**4.40

Firefighter injuries related to, **1998**:6.55, **1999**:6.56, **2004**:6.65, **2005**:6.56, **2006**:6.85, **2007**:6.90, **2008**:6.52, **2009**:6:72, **2010**:6.75, **2011**:7.66, **2012**:6.72, **2013**:6.62

Firefighter Investment and Response Enhancement (FIRE) Act offers federal grants, **2001:**3.48 Hazardous materials incidents use new training regimens, **1995:**2.90

Hazardous materials training programs' effectiveness questioned, 1995:4.27

NFPA 472, Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition, can be used to develop HAZMAT/WMD emergency responder training program, 2008:2.54

```
NFPA 1403, Live Fire Training Evolutions, covers different types of training fires, 2003:3.62
  NFPA 1584, Rehabilitation of Members Operating at Incident Scene Operations and Training
         Exercises, provides blueprint for rehabilitation at training, 2005:2.32
  NFPA Center of High-Risk Outreach trains Johannesburg fire service, 2005:1.10
  NFPA electric vehicle training for emergency responders to be adapted for Canada, 2013:3.16
  NFPA electric vehicle training will prepare emergency responders for incidents, 2010:6.36
  NFPA increases online training with certificate programs, 2002:6.27
  NFPA introduces training seminars at 1997 Fall Meeting, 1998:2.64
  NFPA offers new initiatives for training on codes and standards, 2000:5.92
  NFPA online learning center provides cost-effective certificate courses, 2003:6.17
  NFPA webinars (Internet seminars) start in September, 2008, 2008:5.20
  Ontario, Canada, will offer firefighters accreditation for training using NFPA qualification
         standards, 2013:6.13
  Rescue of lost trapped firefighters, training to improve chances of, 2011:4.32
  State fire training methods, 1995:1.61
  Stress, fear, of wildland fires counteracted by training, 1995:4.41
  System operation training for fire fighters; review of literature, 1994:3.59
  Truck company duties need emphasis, 1995:5.19
FIREPLACES. See also ASHES
  Construction fault results in ignition of floor joists, 1993:6.81
  Creosote buildup ignited, chimney collapsed, 2001:6.64
  Diesel fuel ignites fire, 1992:2.29
  Embers ignite couch, 1996:5.91
  Embers ignite stored wood, 2004:5.69
  Fire ignites leaked LP-Gas from stove, 1999:1.18
  Fire ignites living room contents, 2003:6.14
  Fireplaces rank highest among heating fires, 2006:6.16
  Gasoline used to restart fire, fatal dwelling fire cause, 2012:1.15
  Gel fuel, NFPA issues urgent warning on, 2011:5.12
  Heat, flames escape from flue, firebox, ignite structural framing, 2002:6.20
  Lighter fluid used to rekindle fire, 1996:1.23
  Paper/trash burning in fireplace spills onto floor, ignites combustibles, 2009:6.24
  Portable, NFPA tip sheet for, 2013:2.13
FIRES
  Earthquakes as cause of (See EARTHQUAKES AND SUBSEQUENT FIRES)
  Explosions and (See EXPLOSIONS AND FIRES)
  Myths of fire, 1994:6.67
  Total cost of fire (loss, prevention, protection) in U.S.
     2003, 2006:2:74
     2005, 2008:3.18
     2008, 2011:4.73
     2009, 2012:2.11
     2010, 2013:3.16
FIRESTOPPING. See also THROUGH-PENETRATION PROTECTION SYSTEMS
  Clarification of industry's terminology, 1996:2.79
  Lack of, factor in fire spread, 1992:4.25, 1995:4.37, 1996:6.65, 1998:1.21, 2010:4.27
```

```
FIREWATCH COLUMNS, 1991:1.27, 2.29, 3.25, 4.25, 5.25, 6.23, 1992:1.21, 2.25, 3.31, 4.25,
       5.25, 6.25, 1993:1.25, 2.19, 3.33, 4.25, 5.35, 6.27, 1994:1.29, 2.27, 3.27, 4.29, 5.27, 6.33,
       1995:1.31, 2.29, 3.37, 4.37, 5.33, 6.35, 1996:1.21, 2.23, 3.35, 4.21, 5.23, 6.21, 1997:1.25,
       2.21, 3.29, 4.19, 5.21, 6.19, 1998:1.21, 2.16, 3.36, 4.19, 5.15, 6.21, 1999:1.17, 2.23, 3.43,
       4.19, 5.19, 6.17, 2000;1.19, 2.21, 3.32, 4.16, 5.20, 6.14, 2001;1.20, 2.20, 3.26, 4.20, 5.22,
       6.18, 2002:1.18, 2.22, 3.30, 4.16, 5.18, 6.18, 2003:1.12, 2.20, 3.14, 4.14, 5.14, 6.12,
       2004:1.14, 2.16, 3.18, 4.16, 5.14, 6.16, 2005:1.14, 2.18, 3.24, 4.16, 5.24, 6.16, 2006:1.16,
       2.24, 3.30, 4.24, 5.28, 6.18, 2007:1.15, 2.17, 3.23, 4.21, 5.25, 6.17, 2008:1.19, 2.23, 3.21,
       4.19, 5.23, 6.17, 2009:1.17, 2.21, 3.33, 4.17, 5.23, 6.20, 2010:1.20, 2.22, 3.33, 4.23, 5.29,
       6.20, 2011:1.20, 2.22, 3.33, 4.14, 5.14, 6.16, 7.14, 2012:1.14, 2.14, 3.28, 4.20, 5.22, 6.18,
       2013:1.18, 2.18, 3.22, 4.18, 5.20, 6.18
FIREWORKS. See also PYROTECHNICS
   1997 report on deaths and injuries; 1980-1996 data compared, 1999:3.116
   Apartment building fire cause, 1997:4.20
  Apartment building fire ignited by airborne fireworks on roof, 2001:4.24
  Assisted living facility fire cause, 2011:4.22
  Boston Fourth of July display emphasizes safety, 2000:3.98
  College building fire, possibly ignited by fireworks used inside, 2007:6.17
  Consumer
     Alliance to Stop Consumer Fireworks urges public to avoid use of fireworks, 2006:5.24
     Child killed in fatal incident, Missouri, 2004, 2005:4.20
     NFPA and other health and safety advocates call for ban on consumer fireworks, 2004:4.14
     NFPA and other health and safety advocates denounce use of consumer fireworks, launch
             public service announcements, 2008:4.16
     Olympic hopeful Jonathan Jackson tells own story Alliance to Stop Consumer Fireworks
             advocate, 2010:4.56
     Profile of Stacy Miller, blinded by fireworks, illustrates dangers, 2004:5.38
     Store fire, ignited by unnamed source, 2012:3.40
     Support for NFPA fireworks ban grows, 2005:4.14
  Customer lit item in retail fireworks store, catastrophic fire cause, 1997:5.52
  Dwelling fire, ignited by children playing with firecrackers, 2009:5.23
  Dwelling fire, ignited by children playing with fireworks, 2012:5.22
  Dwelling fire, ignited by discarded fireworks, 2000:5.58
  Dwelling fire, ignited by fireworks used inside, 2007:5.26, 2008:5.24
  Dwelling fire, ignited by home manufacture of fireworks, 2007:3.30
  Dwelling fire caused by legal fireworks, 2003:4.14
  Firefighter fatalities related to, 2003:4.62
  Firefighter injuries related to, 1994:6.64, 1999:6.55, 2011:7.65
  Fireworks-related injuries, 2000:3.102
  Historical overview of America's long and injurious fascination with fireworks, 2009:4.80
  Illegal
     Apartment building fire cause, 1997:3.30
```

Dwelling fire cause, **1992:**4.26, **1996:**4.21, 22, **2004:**4.16

Fire leads to fire safety program, **1996:**4.22 Garage explosion-fire cause, **1991:**1.31

Dwelling fire cause, manufacture and storage of fireworks, 2001:1.21

Manufacturing plant fire cause, 1995:3.40

School fire cause, 1992:4.27

Manufacturing plant explosion/fire, **1991**:4.30, **1992**:4.71, **1993**:3.35, **1999**:5.54

Manufacturing plant fire, 2000:5.59

NFPA 1126, Use of Pyrotechnics Before a Proximate Audience, fall meeting review, 2000:5.93

NFPA develops standard to protect retail consumer fireworks facilities, 2001:3.94

Overview of fire losses, casualties caused by fireworks, **1992**:4.56, **1993**:4.55, **1994**:4.78,

1995:4.61, **1996:**4.79, **1997:**4.78

Public display

Aerial shell fails to explode, kills child, 1996:4.24

Explosion in box truck as igniters installed, 2010:5.68

Fatal explosion, fire, 1996:4.24

Mortars and stored fireworks ignite fire/explosion, 1998:5.55

Rocket explodes prematurely, ignites display barge, 1998:4.22

Pyrotechnic device used in theater ignites net, 1996:2.26

School fire ignited by fireworks placed in recycling bin, 2007:3.23

Sparkler, apartment building fire cause, 1997:2.21

Statistics on incidents, 2009:4.70, 2010:5.73

Statistics on incidents, 2005-2009, 2011:4.74

Statistics on incidents, 2007-2011, 2013:4.78

Statistics on incidents and safety information, 1998:4.96

Storage facility in munitions bunker, catastrophic explosion in, 2012:5.73

Storage trailer fire, Arkansas, July 4, 1999, 2000:5.60

Store fire, ignited by unnamed source, 2012:3.40

Text of NFPA's July 4, 1914, pamphlet against fireworks use, 1995:4.81

Truck, catastrophic fire and explosion, 2004:5.73, 2006:5.63

U. S. amusement parks and resorts use NFPA standards for fireworks safety, 2002:3.78

Warehouse. catastrophic explosion/fire, Texas, July, 2003, 2004:5.72

Wildland/urban interface fire cause, 1997:6.59

FIRST RESPONSE COLUMNS

Budgeting for initial response crews, **1991:**1.17

Community fire protection systems, 1991:4.16

Consumer fireworks, spreading the word on dangers of, 2001:3.6

Continuing the NFPA's lifesaving work after Sept. 11, 2001, 2001:6.6

Cover the Bases and Strike Out Fire is 2001 Fire Prevention Week campaign, 2001:5.6

Dedication is bond in fire service, 1993:5.128

Defining problems of fire services, 1993:2.30

Educating municipal officials about resource needs, 1993:1.80

Effective leaders encourage cooperation, 1994:3.164

Fable offers lessons for fire service, 1991:5.32

Farewell message from President George Miller, 2002:3.6

Fire service management concerns, 1991:3.17

Fire service management reviews, **1992:**3.124

Fire service organizations need to present a united front, 1993:6.128

Fire service splinter groups, **1991:**2.19

Good fire service requires team effort, 1993:4.96

Improving fire protection despite budget limits, 1992:6.14

Internal departmental conflict negatively impacts budgets, 1994:4.112

Leadership: what is it?, **1994:**1.96

Leadership takes many forms, 1994:2.112

Marketing fire service to gain public support, 1992:1.90

NFPA is leader in international standards development, 2002:1.6

NFPA members vote on minimum staffing issue, NFPA 1500, 1992:4.96

NFPA regional managers promote public safety and code adoption, 2002:2.6

NFPA's commitment to international members, **2001**:4.6

Positive image wins budget support, 1992:2.96

Preplanning can help withstand budget cut pressures, 1994:5.128

Proactive safety leadership role required of fire departments, 1991:6.93

Regionalization and other answers to department downsizing, 1993:3.30

Safe Place program for young people, **1994:**6.128

What firefighters do every day counts, 2001:1.6

Wildland/urban interface safety, 2001:2.6

FIRST RESPONSE (EDITORIAL) COLUMNS. See EDITORIALS

FIRST WORD COLUMNS

2004 reviewed: questions and answers with NFPA President Jim Shannon, 2005:1.6

2005 reviewed: questions and answers with NFPA President Jim Shannon, 2006:1.6

2006 reviewed: questions and answers with NFPA President Jim Shannon, 2007:1.6

2007 reviewed: questions and answers with NFPA President Jim Shannon, 2008:1.6

2009 reviewed, **2010:**1.4

After Cocoanut Grove fire, NFPA led fire safety reform efforts, 2007:6.6

Bollon, Vincent, NFPA board member's volunteer service honored, 2010:5.6

Call to join NFPA's campaign to mandate sprinklers in new homes, 2009:3.6

Coalition for Fire-Safe Cigarettes campaign has made substantial progress in first three years, **2009:**2.6

Coalition for Fire-Safe Cigarettes' effort to pass state legislation makes astounding progress, **2007:**5.6

Code enforcers' participation in standards development is important to NFPA safey mission, **2012:**1.4

College campus fire safety, **2008:**5.6

Congressman Joe Moakley's long battle for fire-safe cigarettes, 2002:6.6

Deaths of 9 firefighters in Charleston, S.C., fire showed bravery of firefighters and danger of job, **2007**:4.6

For electric vehicles, NFPA must lead way to ensure safety, 2011:2.6

Fire Prevention Week spreads word on fire safety, 2006:5.6

Fire service leaders remind public of fire safety problems and are committed to solutions, **2012:**3.6

Fire service needs assessment shows federal aid's value to fire departments, 2011:4.4

Fire service preparedness efforts falling short, 2006:6.6

Fire tragedies of Winter, 2003, present challenges to NFPA, 2003:3.6

Firewise® Communities/USA Program makes wildfire prevention a life safety priority,

2003:2.6

Forty years after *America Burning* report, NFPA continues work to prevent fire deaths, injuries, and property loss, **2013**:3.6

High-rise buildings and life safety, 2006:2.6

Holmes County, Mississippi, smoke alarm distribution project models taking personal responsibility for fire safety, **2003:**6.6

Home heating fire prevention especially important in troubled economy, 2008:6.6

Homeland security threats require federal support for first responders, 2003:4.6

Human face of NFPA technical safety efforts in stories of Cocoanut Grove survivor Ann Gallagher and burn survivor Pricella Lee Bridges, **2012**:6.6

International Code Council (ICC) should stand firm on residential sprinkler requirement, **2009:**6.4

Kleen Energy explosion shows importance of public safety agency collaboration with code development organizations, 7.4

Looking back on 2003: Q&A with James Shannon, 2004:1.6

McDaniels, Warren, NFPA Board of Directors chair, remembered, 2008:3.6

National Electrical Code® is national standard, 2004:3.6

NFPA, ASTM, and ASHRAE filed lawsuit against Public.Resource.Org to protect copyrights and trademarks, 5.6

NFPA 70®, National Electrical Code®, evolution of, 2010:3.6

NFPA advocacy for fire safety education reflected in Fire Prevention Week, 2004:5.6

NFPA and International Code Council (ICC) can lead way to adoption of new home residential sprinkler requirement, **2008**:4.6

NFPA "bottom up" problem solving philosophy leads to a safer world, 2008:2.6

In NFPA code and standards development, strong process melds with enthusiastic commitment of participants, **2009**:4.6

NFPA commitment to equal access and evacuation for people with disabilities, 2005:3.6

NFPA continues push for nationwide fire-safe cigarette requirement, 2005:6.6

NFPA continues to support consumer fireworks ban, 2006:4.6

NFPA education and advocacy campaigns mean exciting opportunities for international cooperation, **2010**:6.6

NFPA goals and new initiatives for 2011, **2011:**1.6

NFPA is best equipped to serve California with NFPA 5000TM and NFPA 1, **2003:**5.6

NFPA led way in providing free online Internet access to copyrighted codes and standards, **2013**:1.4

NFPA members/supporters encouraged to join Coalition for Fire-Safe Cigarettes, 2006:3.6

NFPA must be an international organization to fulfill its mission, 2002:5.6

NFPA must continue to serve fire safety needs of all, including people with disabilities, **2010:**4.6

NFPA must help raise garment factory safety standards worldwide, 2013:4.6

NFPA needs to do more to advance our safety mission, 2007:2.6

NFPA needs to publicize code development, adoption, enforcement system that makes U.S. buildings safest in world, **2012:**4.4

NFPA standards meet seriousness of threat to homeland security, 2004:4.6

NFPA takes action to address growing wildfire problem, 2012:5.6

NFPA working nationally and internationally to prevent club fires, 2.6

NFPA working with fire departments to attack fire problem aggressively, 2007:3.6

NFPA working with other organizations to address U.S. and global wildfire problem, 2011:6.6

NFPA's longterm progress in reducing fire deaths and injuries, 2010:2.6

NFPA's open standards adoption process enhances life safety, 2005:2.6

NFPA's reputation for integrity attracts international interest in its codes, 2004:6.6

Nursing homes need comprehensive fire protection, 2004:2.6

Open, balanced regulatory development is essential to maintaining economic growth without sacrificing safety, **2012:**2.4

Planning for future issues in fire and life safety, **2009:**1.6

Post 9/11 research and action programs need federal funding, 2002:4.6

Revenues from copyrights protects NFPA's independence, 3.6

Saving firefighters' lives through health/wellness efforts and training, 2005:4.6

Ten years after 9/11, much still needs to be done to get emergency services to necessary level, **2011:**5.4

Tobacco companies should embrace fire-safe cigarettes, 2005:5.6

U. S. Appeals Court decision on copyright law for codes and standards obstacle to NFPA, **2003:**1.6

U.S. Congress urged to continue Fire Grants program and increase funding, 2009:5.6

While wildfire problem is treated as fluke, it is actually a problem that will grow steadily worse, **2013:**6.4

FISH HATCHERY COMPLEX FIRE, LEAVENWORTH, WASH.

Wildland fire, 1994, **1995:**2.48

FLAME DETECTORS. See DETECTORS, FLAME

FLAMMABLE, COMBUSTIBLE LIQUIDS. See also ALTERNATIVE FUELS; KEROSENE

Fueling accident at Denver International Airport leads to aircraft fueling policy changes, **2002:**5.66

Intermediate bulk storage containers, test data for, 1999:3.122

NFPA 30, *Flammable and Combustible Liquids Code*, palletized 55-gal drum storage requirements, **2000:**1.66

NFPA 30, *Flammable and Combustible Liquids Code*, promotes safe dispensing and use of liquids outside of storage, **2011:**3.56

NFPA 30, *Flammable and Combustible Liquids* requirements for service station design, **1998:**4.76

NFPA 101, Life Safety Code, addresses life safety for high-hazard storage uses, 2000:4.30

Storage cabinets promote housekeeping and provide minimal separation, 2011:2.37

Storage lockers for hazardous materials with characteristics of, 1994:5.71

Storage on building exterior hampers fire service operations, 2012:4.20

FLAMMABLE, COMBUSTIBLE LIQUIDS FIRES. See also ACCELERANTS; GASOLINE;

HEATING-AND-COOKING EQUIPMENT FIRES; KEROSENE; LP-GAS FIRES; OIL; PROPANE; VAPORS, FLAMMABLE

Acetone ignited by child playing with lighter, 2013:4.23

Acetone ignited by kerosene, 2005:6.22

Aircraft fuel ignited by backfire, 2006:6.75, 2007:6.83

Aircraft fuel ignited by electric arc, 1994:5.106

Aircraft fuel ignited by engine, 1998:4.22

Aircraft fuel ignites after crash, 1995:6.110, 2005:5.60

Airport fuel ignited by unknown source, 1991:6.73

Alcohol, possible misused in kerosene heater, fatal fire cause, 1998:2.16

Alcohol ignited in truck/train collision, 1991:4.70

Aviation fuel ignites incendiary fire, 2002:3.34

Butadine ignites, causes explosion and fire, 2000:6.84

Charcoal lighter ignites catastrophic fire, 1996:5.97

Charcoal lighter used to ignite chair, 1991:5.28

Class 1A liquid atomized, ignited by gas-fueled equipment, 2000:4.16

Class 1B liquid involved in chemical processing area fire, **2000:**6.91

Class II liquid fuel ignited in locomotive fire, 1998:6.91

Cleaning solvent ignites power plant fire, 2000:5.60

Diesel fuel fuels railroad car fire, 1996:5.101

Diesel fuel ignited by hot manifold, 1991:2.30

Duplicating fluid spills, ignited by match, 1994:2.30

Fabric protector lit with open flame, 2010:6.69

Floor stripper vapors ignited, 1994:5.105

Furniture refinishing liquids ignite combustibles in catastrophic fire, 1992:4.71

Furniture refinishing liquids ignite trash, 1995:6.38

Glue, spilled, ignited by arc from extension cord, 1998:4.20

Glue overheats, ignites, 1993:4.27

Heat transfer fluid (HTF) ignited by gas heater, 1991:6.76

Hydraulic fluids ignited in electrical room, 1999:6.97

Ink, in drums, ignited, **1995**:6.107

Lacquer overheats, ignites catastrophic fire, 1991:2.31

Lacquer thinner came in contact with electrical outlet, arc ignites vapors, 2000:6.92

Lacquer thinner vapors ignite, explode, 2000:5.20

Lacquer thinner vapors ignited by pilot light, 1994:5.104

Lantern fuel ignited by space heater, 1994:3.28

Molotov cocktails used to ignite incendiary fire, 30

Nail salon products stored in bedroom, possible fire cause, 2001:3.34

Naptha, possible fire factor, **2000:**5.60

Naptha feed overheats, releases, ignited by furnace, 1996:6.64

Naptha leak ignited by heat source, 2000:5.59, 2000:6.83

Naptha spill ignites refinery fire, 2005:2.18

Oils, glue, dye saturated floor, increased fire spread, 1994:6.98

Paint thinner used to ignite school fire, 1991:3.27

Pentane ignited by electrical arc from forklift controls, 1991:6.26

Petroleum distillate liquid spill, ignited in methamphetamine manufacture, 2013:5.20

Resin and catalyst leaked onto fiberglass matting to create heat reaction, 1993:5.37

Resin overheats, ignites, boils over, to spread manufacturing plant fire, 2003:3.18

Resin-processing pit, spontaneous ignition starts in, 2005:1.20

Rubbing alcohol used to ignite catastrophic fire, 1992:4.67

Solvent in epoxy resin heated beyond flashpoint, 1993:5.37

Stored liquids fuel automobile dealership fire, 2000:5.23

Stored liquids ignited by burning fragments from explosion, 1995:5.66

Stored liquids ignited by flash fire, 1993:6.27

Tetrachlorethane reacts with oxygen in purification vessel, 2000:5.60

Unknown liquid

Catastrophic fire ignited by, 1991:4.64, 65, 1992:4.69, 1995:5.53, 58, 2006:5.62

Dipping tank liquid ignited by equipment failure, **2010**:4.32

Fatal fire ignited by, **1993:**2.33, **2009:**1.21

Fire ignited by, **1995:**5.34

Hot materials ignite liquids, **2011:**7.58

Incendiary fire ignited by, 1999;4.21, 2000;4.16, 2000;4.19, 2000;6.14, 2002;2.22,

2002:4.20, **2006:**1.22, 6.24, 68, **2007:**1.17, 20, **2008:**6.23, **2011:**7.59, **2012:**6.64

Large-loss fire ignited by, 1995:6.99

Plastic ignited by, 1994:6.93

Refinery fire ignited by, **2006:**5.62, 6.75

Vapors released through foam system, ignite tank fire, 1996:6.66

Urethane-soaked rags, spontaneous ignition starts in, 2013:3.31

Wood stain soaked paper towels ignite spontaneously, 1998:4.21

FLAMMABLE PRODUCTS

Effectiveness of current product labeling systems, **1994:**1.71

FLASHOVERS

Apartment building fire, Illinois, March 20, 1995, 1995:5.53

Apartment building fire, Iowa, Dec. 22, 1999, 2000:5.57

Apartment building fire, Ohio, 1996, 1997:4.20

Apartment building fire, Ohio, 2008, 2009:1.22

Apartment building fire, Pennsylvania, 2011, 2012:6.19

Boat fire, Florida, April, 2004, 2005:6.48

Church fire, 1989, **1991:**1.30

Church fire, California, 2005, 2006:1.22

Club/hotel fire, Indiana, 1992, 1992:6.31

College laboratory fire, Texas, 1996, 1997:5.23

Dormitory fire, Maine, 2000, 2001:3.30

Dwelling fire, Arkansas, 2012, 2013:4.22

Dwelling fire, California, Dec., 2006, **2007**:6.80

Dwelling fire, Illinois, 1997, 1998:1.23

Dwelling fire, Kansas, 2008, 2009:5.26

Dwelling fire, Kentucky, 2008, 2009:4.18

Dwelling fire, Massachusetts, 1993, 1994:6.34

Dwelling fire, Michigan, 2010, 2011:5.18

Dwelling fire, North Carolina, 2009, 2010:5.34

Dwelling fire, Ohio, 2008, 2009:1.20

Dwelling fire, Pennsylvania, 1997, 1998:3.38

Dwelling fire, South Carolina, Nov. 7, 1992, 1993:5.64

Dwelling fire, Texas, 2010, **2011:**2.25

Dwelling fire, Virginia, Jan. 20, 1996, 1997:5.50

Dwelling fire, West Virginia, 2008, 2009:1.23

Garage fire, California, 2001, 2002:6.21

Group home fire, Illinois, 1994, **1995**:6.37

Hotel fire, Colorado, Jan. 27, 1997, 1998:5.49

Hotel fire, Nevada, Oct., 2006, 2007:5.57

```
Manufactured home fire, Idaho, Sept. 27, 1997, 1998:5.46
  Manufactured home fire, Iowa, 2008, 2009:4.18
  Manufacturing plant fire, Kansas, 2010, 2011:5.20
  Manufacturing plant fire, Massachusetts, June 6, 1997, 1998:6.86
  Nursing home fire, Tennessee, Sept., 2003, 2004:5.70
  Restaurant fire, California, 1998:4.22
  Rooming house fire, Ohio, Feb. 18, 1991, 1992:4.67
  School fire, Maryland, Oct. 24, 1993, 1994:5.105
  Shopping mall fire, Arkansas, 1996, 21
  Store fire, California, July 2, 1999, 2000:6.91
  Store fire, Georgia, June, 2004, 2005:6.48
  Vacant building fire, Alabama, 2002, 2003:5.18
FLEMING, JOSEPH M.
  Profile of, 1998:1.37
FLEMING, RUSSELL P.
  Profile of, 1991:2.14
FLOORS
  Collapse
     Fire fighter rescue hindered by, 1993:2.33
     Fire fighters trapped by, 1992:3.73
     Fire fighting hindered by, 1997:3.30, 2003:6.81, 2009:5.80
     Fire involving, 2010:3.34, 2010:4.26
     Firefighter fatalities related to, 2008:4.84, 2010:4.80
     Firefighter injury related to, 2000:6.46, 2008:4.19, 2011:7.62
  Fire involving, 1991:1.27, 2006:5.28
  Fire spread through, 1994:5.96, 1994:6.90, 2001:6.62, 2009:5.24, 2009:5.26
  Fire started under, 1997:6.50
  Heater wiring ignites wood, 2010:4.23
  NFPA 288, Fire Tests of Floor Fire Door Assemblies Installed in Fire Resistance Rated Floor
         Systems, annual meeting review, 2001:2.81
  Power strip ignites flooring, 2011:7.19
  Saturated with flammable liquids, increased fire spread, 1994:6.98
  Unstable, hinders fire fighting operations, 2004:6.17
FLORIDA
  Adult congregate living facility fire, 1994, 1995:6.35
  Aircraft crash fire, Aug. 7, 1997, 1998:6.91
  Aircraft fire, Dec., 1998, 1999:6.94
  Apartment building fire, 1990, 1991:3.25
  Apartment building fire, 1992, 1993:1.27
  Apartment building fire, 1993, 1994:5.27, 1994:6.33
  Apartment building fire, 1996, 1997:3.29
  Apartment building fire, 2000, 2001:3.34
  Apartment building fire, 2001, 2002:1.20
  Apartment building fire, 2002, 2003:4.14
  Apartment building fire, 2011, 2012:3.36, 5.27, 6.27
  Assisted living facility, 2002, 2003:6.12
```

Assisted living facility fire, 2009, 2010:3.40

Boat fire, April 19, 1996, 1997:6.60

Boat fire, May, 2002, 2003:6.81

Boat fire, April, 2004, **2005:**6.48

Boat fire, 2009, **2010:**6.20

Boat fire, Dec., 2011, 2012:6.66

Building-under-construction fire, 1998, 1999:4.21

Building-under-construction fire, May, 2000, 2001:6.63

Catastrophic fires

Aircraft, Jan. 17, 1991, 1992:4.72

Aircraft, May 11, 1996, 1997:5.54

Aircraft, March, 2000, 2001:5.79

Aircraft, July, 2007, **2008:**5.62

Aircraft, July, 2008, 2009:5.84

Aircraft, Sept., 2009, 2010:5.69

Board and care facility, Dec. 1, 1994, 1995:5.64

Dwelling, Jan. 13, 1990, 1991:4.64

Dwelling, Feb. 25, 1990, 1991:4.66

Dwelling, Oct. 15, 1990, 1991:4.64

Dwelling, March 13, 1993, 1994:5.98

Dwelling, Mar. 13, 1998, 1999:5.52

Dwelling, June, 2001, 2002:5.82

Dwelling, Feb., 2004, 2005:5.57

Dwelling, Sept., 2004, 2005:5.58

Dwelling, Nov., 2010, 2011:5.76

Garage, Aug. 18, 1998, 1999:5.56

Hotel, April 6, 1990, 1991:4.64

Laboratory, Dec., 2007, 2008:5.61

Manufactured home, April, 2006, **2007:**5.57

Manufactured home, March, 2007, 2008:5.59

Manufactured home, Nov., 2009, 2010:5.65

Manufacturing plant explosion, April 13, 1994, 1995; 5.66, 1995; 6.106

Motor vehicle, Nov. 9, 1996, 1997:5.55

Motor vehicle, March, 2000, 2001:5.79

Motor vehicle, Dec., 2000, 2001:5.80

Motor vehicle, Nov., 2002, 2003:5.75

Motor vehicle, Dec., 2003, 2004:5.73

Office building, Dec., 2007, 2008:5.61

Train/truck/automobile, March 17, 1993, 1994:5.106

Truck, July, 2003, 2004:5.73

Truck/recreational vehicle, Feb., 2004, 2005:5.60

Vehicles, Jan., 2012, 2013:5.62

Church fire, 2001, 2002:3.34

Club fire, 1993, **1994:**5.30

Club fire, Jan., 2005, 2006:6.73

Detention facility fire, 1992, 1993:3.33

Disney World fire protection systems, 1996:3.119

Disney World fire safety and life safety overseen by Reedy Creek Improvement District's authority having jurisdiction, **2010:**6.58

Dwelling fire, 1992, **1993:**2.21, **1993:**5.35

Dwelling fire, May 4, 1997, 1998:6.90

Dwelling fire, Oct. 22, 1997, 1998:6.90

Dwelling fire, 2000, 2001:3.36

Dwelling fire, Feb., 2000, 2001:6.64

Dwelling fire, 2004, **2005**:3.26

Dwelling fire, Oct., 2005, 2006:6.71

Dwelling fire, 2009, **2010:**5.29

Dwelling fire, 2012, **2013**:4.23

Electric generating plant fire, July, 1992, 1993:6.82

Electric generating plant fire, Aug., 1995, 1996:6.72

Electric generating plant fire, June 30, 1997, 1998:6.91

Fatal fires

Apartment building, 1990, **1991:**6.24

Apartment building, 1995, **1996:**1.23

Apartment building, 1998, **1999:**1.17

Board and care facility, December 1, 1994, fire investigation report, 1998:5.37

Dwelling, 1993, **1994:**4.32

Dwelling, 2000, 2001:4.22, 2001:6.21

Dwelling, 2004, **2004:**3.20

Dwelling, 2008, 2009:4.19

Dwelling, 2009, **2010**:2.25

Dwelling, 2010, **2011:**3.33

Hospital, 2004, **2005**:6.22

Hotel, 1997, **1998**:6.23

Manufactured home, 1990, 1991:4.26, 1991:5.28

Manufactured home, 1997, 1998:4.20

Manufactured home, 2001, 2002:2.24

Manufactured home, 2003, 2004:5.18, 2004:6.17

Manufactured home, 2006, 2007:4.26

Manufactured home, 2008, 2009:6.22

Nursing home, 2005, **2006**:3.32

Storage facility, 1990, **1991:**3.29

Hospital fire, 2000, 2001:5.26

Hospital fire, 2010, 2011:2.30

Hotel fire, 1993, **1994:**2.29

Hotel fire, 1994, **1995:**2.29

Hotel fire, 2011, **2012:**6.27

Kennedy Space Center and Cape Canaveral Air Force Station present unique fire protection and prevention challenges, **2004:**3.54

Manufacturing plant fire, 1992, 1993:5.37

Manufacturing plant fire, Nov., 1993, 1994:6.94

Manufacturing plant fire, Sept. 5, 1996, **1997:**1.28, 6.50

Manufacturing plant fire, Feb., 1998, 1999:6.91

Manufacturing plant fire, May, 1998, 1999:6.90

Manufacturing plant fire, 2000, 2001:3.36

Manufacturing plant fire, July, 2007, 2008:6.42

Manufacturing plant fire, Feb., 2008, 2009:6.76

Manufacturing plant fire, 2012, 2013:1.26

Marina fire, Aug. 30, 1999, **2000:**6.91

Nursing home fire, 2002, **2003:**5.20

Office building fire, June, 2005, 2006:6.74

Parking garage fire, 2003, 2004:5.14

Resort spa fire, Dec., 2008, **2009:**6.79

Restaurant fire, 1994, 1995:2.31

Restaurant fire, 1996, 1997:3.29

Restaurant fire, 2001, 2002:3.32

Restaurant fire, 2002, **2003:**6.12

School fire, 1993, 1994:1.29

Ship fire, Aug., 1993, 1994:6.98

Ship fire, July 20, 1998, 1999:1.38, 1999:6.94

Shopping mall fire, Sept. 6, 1996, **1997**:6.53

Shopping mall fire, 1998, 1999:4.22

Storage facility fire, Oct., 2009, 2010:6.68

Store fire, Oct. 25, 1997, 1998:6.89

Store fire, 1993, **1994:**4.30, **1994:**5.30

Store fire, Jan., 1993, 1994:6.91

Store fire, Oct. 26, 1996, 1997:6.54

Store fire, 2000, **2001:**1.22

Store fire, 2002, 2003:1.14

Store fire, 2007, **2008**:6.23

Store fire, 2009, **2010:**2.27

Substance abuse treatment center fire, 2012, 2013:1.21

Theater fire, 1995, **1996:**2.26

Tornadoes strike five counties, Feb. 22, 1998, emergency response, 1998:3.60

Warehouse fire, Jan., 1995, **1996**:6.68

Warehouse fire, March, 2006, 2007:6.77

Wildland fire, 1992, **1993:**3.36

Wildland fires, May to July, 1998, 1999:6.97

FOAM EXTINGUISHING AGENTS AND SYSTEMS

Aircraft fires extinguished with, 1995:6.110

Aircraft hangars, foam use in, 2000:4.79

Aqueous film-forming, on fuel tank fire, 1991:6.73

Electric generating plant fire controlled by, **1999:**4.22

Electrical substation plant extinguished with, 1995:6.100

Electronic equipment repair plant fire extinguished with, 1995:6.108

Fixed pipe compressed-air foam (CAF) systems; innovative design described, 1999:4.46

High-expansion foam rendered ineffective by sprinkler system operation, 2003:2.25

Large warehouses, fire protection systems for, 2011:4.42

Locomotive fire, use on, 1998:6.91

Manufacturing plant fire, unsuccessful use in, 2008:6.42

NFPA report on foam and environment, 1995:3.67

Nuclear power plant fire extinguished with, 2004:1.16

Oil fire extinguished with, 1994:6.94

Polyurethane foam manufacturing plant fire, use on, 1998:6.21

Ship fire extinguished with, 1994:6.98

FOAM INSULATION. See INSULATION

FOAM RUBBER OR POLYURETHANE

Catastrophic rooming house fire, ignited in, 1992:4.67

Decorative spray foam ignited by welding torch, 2009:5.29

Foam padding ignited by halogen lamp, 2011:7.23

Manufacturing plant fire, **1998:**3.41

Manufacturing plant fire, ignited in, 1995:6.107

Manufacturing plant fire, self-ignited in, **1998:**6.21

Seat cushions, back ignited by accelerant, 1995:6.104

Stored foam mattress ignited by hot light bulb, 2011:5.76

Stored foam products ignited by light fixtures, 1998:1.25

Stored foam products ignited by radiant ceiling heater, 2009:5.28

Stored polyurethane "buns" ignited by hot exhaust manifold, 1991:5.30

FOREST FIRES. See WILDLAND FIRES

FORKLIFT FIRES

Aerosol containers hit by forklift, **1996:**4.23

Brake overheats, ignites combustibles, LP-Gas tank, 1996:6.63

Electric malfunction ignites warehouse fire, 1992:6.75

Electrical arc from controls ignited pentane, 1991:6.26

Exhaust manifold of unmanned forklift ignited stored polyurethane, 1991:5.30

Hot engine block ignited propane leaking from engine, 1991:2.33

Jammed paper leads to overheating, 1994:6.95

Motor vehicle collides with LPG-powered cleaner, 1997:6.57

Motor vehicle hits overhead lights, sparks ignite stock, 1993:6.85

Motor vehicle ruptures natural gas piping, 1994:1.30, 1996:6.65

Propane fuel leak causes explosion, **2006:**1.16

Propane fuels, spreads fire, 2007:3.23

Propellant vapors ignited when truck started, **1999:**1.19

Sodium light fixture hit by forklift, 1999:6.90

Space heater hit by forklift, natural gas feed line dislodged, 2001:2.24

Spark ignites solvent vapors, 1992:4.28

FORSMAN, DOUGLAS P.

Profile of. **1995**:4.30

FORT WORTH, TEXAS.

Support services provided by fire stations, 1991:2.78

FOY, EDDIE

First person account of Iroquois Theatre fire, 1995:4.75

FRAITZL, FRANK

NFPA task force considers fitness of firefighters who, like Fraitzl, are amputees or use prosthetics., **2010:**4.58

FRANCE

Eurotunnel (Channel tunnel) fire, November 18, 1996, analysis, 1997:2.58

Eurotunnel (Channel tunnel) fire led to revamped safety procedures and training, 2002:2.74

Fire protection for Eurotunnel (Channel tunnel), 1996:1.85

FRATERNITY HOUSE FIRES. See COLLEGE BUILDING FIRES

FRIES, WILLIAM

Interview with, **2013:**3.18

FRUSH, KAREN S.

Profile of, **2000:**3.61

FUEL CELLS

Development of codes and standards for fire safety, 2001:1.58

Hydrogen fuel cells and their applications, 2005:3.58

National Electrical Code®, 2011 edition, provisions address renewable energy technology, **2010:**3.72

FUNERAL HOME FIRES

Michigan, 1995, 1996:6.24

New Jersey, 1996, 1997:2.21

Statistics on U.S. fires, 2007-2011, 2013:5.74

FURNISHINGS

1991 Life Safety Code regulations, 1991:4.20

Block doors in catastrophic fire, 1993:5.62, 1994:5.96, 1995:5.59, 2009:5.80

Blocks windows in catastrophic fire, 1992:4.69

Chair ignited by smoking materials in catastrophic fire, 1994:5.102

Factors affecting fire hazards of, 1992:4.33

Fuel club/hotel fire, 1992:6.31

Hot object ignites wood table in catastrophic fire, 1994:5.97

Ignited in catastrophic fire, 1994:5.100, 2004:5.69

Railroad passenger cars, factor in catastrophic fire, 1997:6.59

Stored furnishings block access/egress in catastrophic fire, 1992:4.67

FURNITURE, UPHOLSTERED

Chair

Candle, ignited by, **2001:**2.20

Child playing with charcoal lighter, ignited by, 1998:4.19

Child playing with lighter, ignited by, **1995**:3.38, **1997**:5.50

Cigar, ignited by, **2006:**3.38, **2008:**2.27

Cigarette, ignited by, **1992**:4.67, **1996**:5.91, **1998**:1.23, **1999**:6.18; **2001**:2.20, **2002**:6.18, **2008**:4.20, 6.18, **2010**:3.36, 5.34, **2011**:4.17, 5.16

Fan, tipped over, ignited by, 2006:4.27

Faulty extension cord, ignited by, 2000:5.58

Furnace heat, ignited by, 1995:5.62

Heating pad, ignited by, 2009:5.26

Incendiary fire, ignited by, 1991:5.28, 1995:6.98

Kerosene heater, ignited by, 2000:5.58

Smoking materials, ignited by, **2011:**2.23

```
Spreading fire, ignited by, 2004:6.17
  Torch ignites fabric, 2005:6.16
  Unknown source, ignited by, 1997:5.21, 2001:3.28, 2001:4.23
Cigarette, ignited by, 2012:3.35, 5.71
Consumer Products Safety Commission and Congress consider federal upholstery standards,
       2004:2.30
European Commission furniture fire study, results, 1996:4.84
Extension cord, overloaded, ignited by, 2012:3.32
Fire spread to, 2009:6.24
Fire started in, 2005:6.21
Flammability of furniture's significant role in home fires brings new research, testing, and
       regulations from NFPA, others, 2013:5.46
In-rack storage, fire protection criteria for, 2013:2.42
Recliner, ignited by undetermined source, 1994:5.100
Risk has been lowered by design changes but is still a concern, 2001:2.57
Showroom furniture ignited by molten slag from welding operation, 2000:6.91
Sofa
  Accidentally ignited, 1992:4.69
  Appliance cord, ignited by, 2012:2.17
  Ashes, ignited by, 1993:5.64
  Candle, ignited by, 1996:6.22, 1997:5.49, 1998:5.17, 2004:5.16, 2005:5.27, 2007:4.27,
          2010:2.24
  Charcoal grill embers, ignited by, 2008:3.21
  Child playing with fire, ignited by, 2000:5.22
  Child playing with lighter, ignited by, 1991:4.65, 66, 1991:6.24, 1993:5.64, 1994:5.102,
          1995:4.38, 1995:6.36, 1998:5:16, 1999:5.53, 2002:2.22, 2002:4.19, 2007:3.34
  Child playing with matches, ignited by, 1991:4.64, 66, 1995:3.37, 1998:5.16
  Cigarette, ignited by, 1991:3.26, 1991:4.65, 66, 1994:1.31, 1994:5.102, 1995:5.60.
          1996:4.24, 1996:5.24, 91, 97, 1997:5.50, 1998:4.21, 5.46, 49, 1999:1.18, 1999:3.48,
          1999:4.19, 2000:5.23, 56, 2007:1.20, 2.20, 2008:2.24, 3.30, 6.17, 20, 2010:1.26,
          2.22, 5.33, 2011:2.24, 28, 3.33, 7.15, 2012:3.36, 5.27, 6.20, 2013:2.21
  Cigarette lighter, ignited by, 2008:3.28
  Cord short circuit, ignited by, 1997:3.29
  Extension cord, damaged, ignited by, 2007:5.58, 2012:3.31
  Extension cord short circuit, ignited by, 2004:5.18, 2007:5.58
  Fire spread, ignited by, 1994:5.98, 2004:5.70, 2008:2.24, 25, 2010:1.24, 2012:3.36
  Fire started in, 2004:2.19, 2008:1.21
  Fireplace embers, ignited by, 1996:5.91
  Fireworks, ignited by, 1997:4.20, 1998:4.19, 2007:5.26
  Furnace, ignited by, 2005:2.22, 2006:5.32
  Heater, ignited by, 2006:6.21, 2009:3.42, 2010:3.33
  Intentionally ignited, 2002:2.24, 3.32, 6.21, 2004:5.69, 2007:3.32, 2008:3.24
  Kerosene lamp spill, ignited by, 2013:1.24
  Lamp cord short circuit, ignited by, 1993:6.28, 1999:2.23, 2003:1.15, 2011:5.75
  Near point of origin in catastrophic fire, 1998:5.50
```

Open flame, ignited by, **1996:**3.39

Power strip, overheated, ignites sofa, 2004:5.68

Smoking materials, ignited by, **1991:**4.68, **1995:**5.56, **1997:**5.52, 53, 6.21, **2000:**6.16,

2002:2.25, **2002**:3.30, **2006**:1.18, **2008**:5.57, **2010**:1.22, **2011**:4.14, **2013**:6.18, 22

Space heater, ignited by, **1995:**5.58, **1997:**2.22, **2004:**1.15

Suspicious fire, ignited by, 1993:5.66

Unknown cause, ignited by, **1994:**5.96, **1995:**5.54, 56, **1996:**5.93, **1998:**5.50, **1999:**1.17, **2000:**5.56, **2009:**2.22, **2011:**2.28, **2012:**1.14

Sofa bed, ignited by smoking materials, **2001**:3.36, **2001**:5.78, **2006**:1.18

Sprinklers address furniture fire hazard, 2008:1.27

G

GABRIELE, ROCCO J.

Profile of, **1995:**2.22

GARAGE, AUTOMOBILE REPAIR, FIRES. See AUTOMOBILE REPAIR SHOP FIRES GARAGE, PARKING, FIRES

Condominium, New Jersey, Sept., 2005, **2006**:6.72

Florida, 2003, **2004:**5.14

High-rise office building complex, New York, Feb. 26, 1993, 1994:5.104, 1994:6.90

Highway department heavy equipment garage, New York, July, 1995, 1996:6.68

Illinois, 2010, **2011:**3.48

Municipal bus garage, New Jersey, 2011, 2012:2.22

Municipal department garage, California, 2009, 2010:3.43

Wisconsin, 2010, 2011:4.20

GARAGE, RESIDENTIAL, FIRES

Arizona, 2012, 2013:5.26

California, 1992, 1993:6.29

California, 2001, 2002:6.21

California, 2003, 2004:5.18

California, 2008, 2009:1.18

California, 2010, 2011:2.27

California, 2011, **2012:**4.23, 5.24

Catastrophic

California, July 22, 1991, 1991:4.67

Wisconsin, April 22, 1991, 1992:4.68

Colorado, 2010, 2011:1.23

Fire statistics, U.S., 2009:5.21

Florida, 2009, **2010:**5.29

Illinois, 2011, **2012:**1.15

Indiana, 2012, **2013:**3.26

Iowa, 2009, **2010:**4.26

Maryland, March, 2004, 2005:6.45

Massachusetts, 1996, 1997:6.20

Minnesota, 2012, 2013:6.18

Missouri, 2003, **2004:**5.17

New York, 2004, 2005:3.26

New York, 2008, 2009:6.24

Ohio, 1989, **1991:**1.31 Ohio, 2010, **2011:**4.14

Texas, 2001, 2002:2.24

GAS. See also NATIONAL FUEL GAS CODE; NATURAL GAS; PROPANE

Ammonia line bursts, poses toxic threat to fire fighters, 1993:6.85

Carbon monoxide is top hazard, 1995:5.23

Hazardous incident responders need multigas detectors, 1995:6.25

Methanol vapors ignited in laboratory fire, **2001:**1.20

Natural gas, handling incidents involving vehicles fueled by, 1994:4.84

Natural gas odorant filtered out by soil, 1995:5.62

NFPA 99, *Health Care Facilities*, and NFPA 99C, *Gas and Vacuum Systems*, outline gas use requirements, **2001:**3.43

School explosion, 1937, led to gas odorization requirements, 2010:5.80

GAS EQUIPMENT FIRES. See also HEATING-AND-COOKING EQUIPMENT FIRES

Clothes dryer, commercial, fire in, **2009:**2.26, 6.26, **2010:**4.31

Clothes dryer, commercial, heat ignites greasy residue on towels, 2012:6.27

Clothes dryer, mop heads ignite in, 1998:5.17

Clothes dryer fire begins in lint trap, 2012:2.18

Clothes dryer overheats, ignites bed linens inside, 2007:5.32

Clothes dryer overheats, ignites napkins inside, 1998:5.18

Gas burners of food dryers, debris dislodged, ignites dust and food products, 2007:6.22

GAS EXPLOSIONS

Coke gas with hydrogen, 1995:5.64

Leak from pipeline seeps into basement, ignites catastrophic explosion, 1999:5.55

London Consolidated School, New London, Texas, March 38, 1937, 2010:5.80

Propane, **1991**:3.27, **1997**:3.33, **1999**:3.43, **2012**:5.70

GAS FIRES. See also HEATING-AND-COOKING EQUIPMENT FIRES; HYDROGEN FIRES; LP-GAS FIRES; NATURAL GAS FIRES; PROPANE

Butane, leaking from stove fuel cylinder, ignites fire, **1994:5**.30

CNG vehicle fueling station fire, Wisconsin, 1999, 2000:2.23

Compressed natural gas, ignited by static discharge, 1994:4.29

Compressed natural gas cylinder ruptures, causing explosion and fire, 1994:4.30

Fire-generated combustible gases cause flashover, fire spread, 1992:6.31

Flame from LP-Gas fire causes natural gas regulator to fail, leaking gas ignites, 1998:3.36

Flammable gas ignited by short circuit electrical arc, 2006:6.75

Gas compressor fire, 1998:6.85

Gas-fueled dry cleaning equipment ignites Class 1A liquid, 2000:4.16

Hydrocarbon/hydrogen mixture, ignited by unknown source, 1993:6.82

Isobutyl propane, ignited by electrical arc, **1992:**6.28

Methanol vapors flash when ignited in chemistry experiment, 2005:1.14

Oxygen fuels hospital fire, **1994:**5.104

Pentane, ignited by hot plate, **1992:**3.33

GAS FIRES AND EXPLOSIONS. See also HYDROGEN FIRES AND EXPLOSIONS; LP-GAS FIRES AND EXPLOSIONS; NATURAL GAS FIRES AND EXPLOSIONS; PROPANE

Acetylene, ignited by spreading fire, **1994:**6.36

Ammonia leak ignited in cheese processing cooler, 2000:6.85

Buildup of gas in boiler ignited by undetermined source, 2000:6.95 Catastrophic fire cause, 2002:5.82 Ethyl alcohol vapors, ignited by torch, 1993:5.67 Flammable gas ignited by molten metal, 2001:5.78, 2001:6.61 Gas feed line separates from generator motor, ignites vapors, 2001:6.64 Gas release from reactor results in chemical plant explosion/fire, 2001:6.61 Gasoline vapor leak into storm drain collects in crawl space, 2000:3.32 Hexane, vapors from leak ignited by automobile, 1995:6.103 Hydrogen leak ignited by friction spark, 2012:5.74 Methane buildup ignited by friction or sparks in mine explosion, 2011:5.77 Methane buildup ignites mine fire, 1993:5.66 Methane ignited by lightning strike, leads to mine explosion, 2007:5.60 Methane leak ignited by acetylene torch in mine fire, 2007:5.60 Methane vapors, ignited by torch, 1993:5.67, 1993:6.82 Methane vapors ignited by torch in mine fire, 2004:5.72 Methyl t-butyl ether ignites laboratory fire, 1993:6.27 Nitrous oxide leak ignited by unreported source, 2008:5.61 **GAS LINES** Hydrogen Contributed fuel to fire, 1994:6.91 Pipe connection failed, 1991:5.30 Ruptured, ignited by friction, 1994:6.36 Natural gas Contributed fuel to fire, 1994:6.91 Distribution main over-pressured causes flare-ups, explosions, 1993:5.68 Failed due to heat from fire, 1991:4.25 High pressure line leaks, causes explosion, fire, 1994:5.108 Pipeline gas ignites, ignites oil tank, 2012:5.75 Pipeline leaks into subfloor space, ignited by water heater, 2002:6.18 Pipeline struck by mooring device, produces fireball, 2007:5.62 Pipeline to kiln fails, gas ignited by pilot flame, 1997:6.52 Propane Failed, fuel catastrophic fire, **1992:**4.70 Failed, fueled fatal fire, 2010:6.26 Fractured, ignited by greater, 1991:3.27 Ruptured, fuels fire, 1993:6.86 Ruptured, gasoline ignited by spark, 1993:6.29 Ruptured, ignites fireball, 2011:7.59 Ruptured, release ignited by undetermined source, 2011:5.79 Ruptured by collapsing structural members, 1995:6.103 Ruptured main, ignites fireball, 2003:2.20 Ruptured pipeline ignites fireball, 2001:5.79 Service line leaks, causes explosion, fire, 1995:5.62 Work crew struck pipeline, leak into basement ignites catastrophic explosion, 1999:5.55 GAS STATION FIRES. See SERVICE STATION FIRES GASOLINE. See also AUTOMOBILE FIRES: TRUCK FIRES

Candle, ignited by, **1991:**4.26, **2010:**6.21

Collision ignites gasoline in truck/motor home fire, 2005:5.60

Fuel ignited in catastrophic vehicle fire, **2008:**5.62

Fuel in scooter in kitchen intensified fire, 2006:5.61

Fuel leaking from vehicle tank ignited by heat from drop light, 1997:6.23

Fuel spills from motorcycle tanks in bedroom, heater ignites vapors, 2011:2.26

Fuel tank ignites in vehicle fire, 2010:5.68

Fuel tank rupture ignites in vehicle fire, **1998:**5.55, **2005:**5.60

Gasoline residue on clothing ignites, **1994:**5.97

Gasoline-soaked charcoal used to ignite water heater, ignites leaking gas, 1999:3.48

Gasoline-soaked clothing used to ignite incendiary fire, 1993:5.36

Generator spark ignites fumes, 1994:5.106

Ignited in living area, catastrophic fire cause, 2005:5.57

Incendiary fire, used to ignite, **1994:**5.100, **1995:**5.60, 66, **1996:**1.21, **1996:**5.91, 92, 97,

1998: 5.50, **2002**: 5.22, **2006**: 5.60, **2007**: 2.22, **2007**: 3.34, **2008**: 1.21, 5.59, 61,

2008:5.62, 63, **2010:**6.69, **2011:**1.21, **2012:**1.20, 5.69

Kerosene heater fuel, used as, **1992:**2.28, **1999:**5.56, **2008:**1.19, **2009:**5.80

Leak into storm drain collects in crawl space, causes explosion, 2000:3.32

Leaking from dislodged fuel pump reaches exposed wires, ignites, 2002:4.18

Leaking fuel from punctured tanks ignites in vehicle fires, 1998:5.55

Leaking fuel ignited in vehicle collision, **2006:**5.63

Leaking fuel ignites motor home fire, **2004:**5.73

Leaking fuel ignites vehicle fire, **2004:**5.73, **2007:**5.62

Light fixture, ignited by, 1991:2.30

Lighter or cigarette, gasoline used as cleaner ignited by, 2003:1.15

Marina fire fueled by, 2002:1.21

Molotov cocktails used to ignite incendiary fire, 30

Portable electric droplight falls to floor, ignites gasoline puddle, 2001:5.78

Portable generators, safe use of, **2000**:2.96, **2006**:6.16

Ruptured lines spill gasoline onto electrical equipment, arc ignites fuel, 2007:4.21

Ruptured pipeline fire, Washington, June 10, 1999, 2000:6.96

Spark, ignited by, **1991:**4.30

Spark, ignited by; improper handling as factor, **1991:**2.31

Spill, catastrophic fire cause, 2002:5.82

Spill in service station accident ignites, **2005:**5.32

Spilled gasoline ignited by catalytic converter or spark in vehicle fire, 1998:5.55

Spilled gasoline vapors ignited by pressure washer motor, 2011:4.18

Spilled gasoline vapors ignited by space heater, 1997:1.26

Spilled gasoline vapors ignited by water heater, 2004:5.17

Storage tank, vapors ignited by cutting operation, 2010:5.68

Storage tank pipes, ignited in truck accident, 1991:2.32

Stored gasoline and gasoline poured into vents, other areas, ignited by unknown source, **2008:**5.24

Stored gasoline and gasoline-powered yard equipment, factors in catastrophic fire, 1997:5.50

Tank truck fire, California, April, 2007, 2008:6.45

Vapors

Automobile fuel tank vapors ignited by pilot light, 1991:4.67

In bilge ignite boat explosion, fire, 1995:4.39

Boat explosion, fire ignited by, 1998:3.42

In carburetor ignite, 1998:6.89

From container in car, ignited by cigarette lighter, 2005:2.28

From container in van, ignited in catastrophic fire, 2008:5.63

Cutting torch, ignited by, 1995:6.38

Electric heater, ignited by, 2011:1.23, 2.26

Embers from fireplace fire, ignited by, 2012:1.15

Fuel line leak vapors cause boat fire, 1991:4.31

Gas furnace, ignited by, 1992:6.28

Of gasoline used for cleaning contributed to fire spread, 1997:5.23

From heated gasoline ignited by stove burner, 1997:4.19

Kerosene heater, ignited by, 2009:3.40

In motor home ignited catastrophic fire, 1993:5.68

Natural gas heater, ignited by, 1997:2.23

From open container ignited by water heater pilot-light, 2002:6.21

Spark from engine, under repair, ignited by, 2005:3.26

Spilled gasoline vapors ignited by pilot light, 1992:5.26, 1993:2.21

Spilled gasoline vapors ignited by pressure washer motor, 2011:4.18

Storage tank vapors ignited by cutting operation, 2010:5.68

Tank storage facility ignited by, 1991:3.29

Vacuum cleaner spark, ignited by, 1992:5.28

Wall heater, ignited by, in incendiary fire, 2001:6.21

Water heater, ignited by, gasoline in bathtub, 2005:4.18

Victims in incendiary fire ignited by, 1991:4.68

Well head ignited by spark, 1993:6.29

Wood stove, used to kindle; ignited fire, **1991**:4.68, **2007**:2.18

GENERAL SLOCUM EXCURSION STEAMER FIRE, N. Y., N. Y.

Large-loss-of-life fire, 1904, **1995:**4.80

GEORGIA. See also ATLANTA, GA.

Aircraft/truck fire, May, 1991, 1992:6.77

Apartment building fire, 2011, 2012:4.22

Apartment complex fire, 1995, 1996:1.22

Board and care facility fire, 2009, 2010:5.31

Catastrophic fires

Aircraft, Jan. 12, 1995, **1996:**5.100

Aircraft, Aug. 21, 1995, 1996:5.99

Aircraft, July, 2006, 2007:5.62

Board and care facility, March 11, 1990, 1991:4.67

Dwelling, Jan. 26, 1993, **1994:**5.97

Dwelling, Feb. 3, 1993, **1994:**5.96

Dwelling, June 27, 1993, 1994:5.98

Dwelling, Feb. 4, 1995, **1996:**5.92

Dwelling, Jan. 23, 1996, 1997:5.50

Dwelling, June, 2001, 2002:5.82

Hotel, June, 2007, 2008:5.59

Manufactured home, April 11, 1994, 1995:5.56

Manufactured home, March, 2000, 2001:5.75

Manufactured home, Jan., 2002, 2003:5.75

Manufacturing plant, March, 2001, 2002:5.82

Manufacturing plant, Feb., 2008, 2009:5.83

Office building, Jan. 12, 1995, 1996:5.100

Power plant, Aug. 14, 1999, 2000:5.60

Railroad rolling stock, Aug. 9, 1990, 1991:4.72

Truck/automobile fire, Apr. 3, 1996, 1997:5.54

Vacant club, Dec. 12,1 990, 1991:4.68

Church fire, 2001, 2002:1.19

College building fire, Aug. 15, 1995, 1996:6.73

Dwelling fire, 1999, 2000:3.36

Electric generating plant fire, June, 1993, 1994:6.92

Fatal fires

Apartment building, 2006, **2007:**3.34

Dwelling, 1991, 1992:2.29

Dwelling, 1993, 1994:1.32

Dwelling, 1996, 1997:2.22

Dwelling, 1998, 1999:1.18, 1999:3.48

Dwelling, 2002, 2003:6.14

Dwelling, 2006, 2007:6.20

Dwelling, 2007, 2008:6.21

Dwelling, 2012, **2013:**5.26

Hospital fire, 2009, 2010:3.42

Manufactured home, Dec. 14, 1996, 1997:5.49

Manufacturing plant fire, 1994, 1995:2.32

Manufacturing plant fire, March, 1994, **1995**:6.106

Manufacturing plant fire, Jan., 1995, 1996:6.62

Manufacturing plant fire, 1996, 1997:3.33

Manufacturing plant fire, Aug. 23, 1996, 1997:6.50

Manufacturing plant fire, Aug. 24, 1996, 1997:6.52

Manufacturing plant fire, Dec. 24, 1996, **1997:**6.52

Manufacturing plant fire, May, 2003, 2004:6.52

Manufacturing plant fire, May, 2004, 2005:6.45

Manufacturing plant fire, 2008, 2009:4.17

Manufacturing plant fire, Feb. 7, 2008, 2008:6.57, 2009:6:75

Manufacturing plant fire, May, 2008, 2009:6.77

Manufacturing plant fire, Nov., 2008, 2009:6.75

Manufacturing plant fire, 2010, **2011:**2.29

Manufacturing plant fire, March, 2012, 2013:6.51

Office building fire, Jan. 12, 1997, **1997:**3.52

Office building fire, 2000, 2001:3.26

Office building fire, 2003, 2004:1.14

Railroad equipment fire, May, 2003, 2004:6.54

Storage and recycling facility fire, March, 1993, 1994:6.97

Storage facility fire, March, 1993, 1994:6.97

Storage facility fire, April, 1993, 1994:6.97

Storage facility fire, Sept., 1995, **1996:**6.68

Storage facility fire, 1999, 2000:6.14

Store fire, Jan, 1994, 1995:6.100

Store fire, Apr. 16, 1996, 1997:6.54, 1998:1.50

Store fire, Oct. 26, 1997, 1998:6.89

Store fire, June, 2004, 2005:6.48

Store fire, 2005, **2006**:6.24

Tank farm fire, April, 1995, 1996:6.66

Theater fire, 1999, 2000:6.14

Warehouse fire, Jan. 26, 1990, 1991:6.76

Warehouse fire, May, 1992, 1993:6.86

Warehouse fire, March 10, 1999, 2000:6.90

Wildland fire, April, 2007, 2008:6.43

GERMANY

Düsseldorf, fatal airport terminal fire, Apr. 11, 1996, 1996:4.43

High-speed train crash, June 3, 1998, 1999:6.40

GLASS, MOLTEN

Combustible deposits ignited by, 1991:6.25

Oil deposits ignited by, 1993:6.27

GLATFELTER, ARTHUR J.

Profile of, **1997:**6.35

GLAZING

New developments offer alternatives to wired glass, also raise code questions, **1998:**6.76 GLENDALE. CALIF.

Wildland fire, June 27, 1990, 1991:1.59

GLOBAL ISSUES COLUMNS

High-rise buildings require active fire protection, **1996**:6.34

NFPA alliances bring codes/standards to Spanish- and Portuguese-speaking world, 1996:5.36

NFPA codes and standards can protect high-rises, 1996:2.36

NFPA role in international aviation fire safety, 1996:3.50

NFPA works with Asian countries to encourage recognition of codes, standards, 1997:1.38

Spanish language codes and standards, 1996:4.34

Spanish-speaking countries using National Electrical Code, 1996:1.34

GODFREDSON, JEFFREY

Profile of, 1999:6.39

GONDOLA CAR FIRES

California, 1993, 1994:3.28

GONZALES, RICHARD L.

Profile of. 1993:6.21

GOSS, KAY

Profile of, **1996:**3.53

GOVERNMENT. See INSIDE THE BELTWAY COLUMNS; UNITED STATES GOVERNMENT

GRAIN DUST

Grain elevator explosion and fire, Kansas, June 8, 1998, **1999:**5.54, **1999:**6.92

Grain elevator explosion and fire, Kansas, Oct., 2011, 2012:5.73

Mill and storage facility explosion, Washington, 1991, caused by, 1992:4.28

GRANDSTAND FIRES

Ohio, 2000, 2001:5.22

GRANT, ERNEST

Profile of, **1996:**5.39

GRASS FIRES

California, 1998, **1999:**4.21

California, 2000, **2001:**3.28

Idaho, 1996, 1997:4.21

Kansas, Feb. 21, 1996, 1997:6.59

Nebraska, April, 2011, 2012:5.75

New Mexico, March, 2002, 2003:5.75, 6.80

New Mexico, 2012, 2013:3.32

North Carolina, 2002, 2003:1.15

Texas, 1991, 1992:2.28

Texas, March, 2006, 2007:6.80

United States statistics, 2004-2008, 2011:6.73

Warehouse fire, Oklahoma, 1990, caused by, 1991:4.26

GREASE FIRES

Broiler heat ignites grease in exhaust system, **2006**:2.30

Cook room fire spreads through ventilation system, 1998:6.85

Grease-covered structural components ignited, **1995**:6.102

Grease-covered toaster oven power terminals cause short circuit, 1998:3.38

Grease-laden combustibles ignited by fan short-circuit, 1995:6.106

Grease-laden rafters fuel food processing plant fire, 1996:6.64

Grill ignites grease in exhaust system, **2012:**3.39

Ignites in pan, fire spreads to wood cabinets, 1997:5.22

Ignites on grill in restaurant fire, 1995:2.31

Ignites on portable broiler in restaurant fire, 1997:4.22

Ignites on stove in school fire, **1992:**6.29

Pot, unattended, overheats, ignites grease, 1995:5.62, 1997:1.25, 2009:2.22, 2009:4.19,

2010:6.22, **2011**:1.22, **2012**:1.16, 18, 4.22, 26, 28

Smoke box grease deposits ignited, fire spreads to deep fat fryer, 2012:3.38

Stove heat ignites grease in exhaust system, 1997:6.22

GREAT BRITAIN. See UNITED KINGDOM

GREECE

Mount Athos monastic community balances fire protection with preserving historic sites, **2000**:6.72

Wildland/urban interface fire, 2010, 2011:6.21

GREENE, OLIN L.

Profile of, **1992:**3.26

GREENHOUSE FIRES

Massachusetts, 1991, **1992**:4.25

```
GRILL, RAYMOND A.
```

Profile of. **1999:**5.38

GRINDING OPERATIONS

Flammable vapors ignited, pipeline fire, **2010**:2.28

Hot metal debris ignites drywall, 2013:5.28

Sparks cause fire, **1991:**6.75

Sparks ignite insulation, garage fire, **2010:**3.43

Sparks ignite solvent vapors, printing plant fire, **2010:**5.34

GROSS, CAROL

Profile of. **1995:**3.31

GROUP HOMES

Homeless Veterans Assistance Act requires that veterans' housing comply with NFPA 101®, provides grants, **2004:**1.28

Risk Watch® program adapted for mothers and children in emergency shelters, **2006:**4.68 GROUP HOME FIRES. *See also* ADULT CONGREGATE LIVING FACILITY FIRES;

BOARD AND CARE FACILITY FIRES

Building-under-renovation, Rhode Island, 2003, 2004:3.24

Catastrophic

Homeless shelter, Texas, Jan., 2009, 2010:5.66

Texas, March 24, 1991, 1992:4.70

Halfway house, Washington, 1991, 1993:1.25

Homeless shelter, New Hampshire, 2003, 2004:3.20

Illinois, 1994, **1995**:6.37

Massachusetts, 2008, 2009:3.39

New Hampshire, 1990, **1992:**1.26

New York, March 21, 2009, Riverview Individual Residential Alternative group home, Wells, investigation, **2010:**1.58

GUNSHOTS

Fire chiefs endorse active shooters position paper, 2013:6.11

Firefighter fatalities related to, 1994:4.63, 2005:4.56, 2009:4.66, 2013:4.72

Firefighter injuries related to, **1994**:6.64, **2000**:6.47, **2009**:6:72

Mass-casualty shootings (See TERRORISM)

GYMNASIUM FIRES

University, Arizona, 1993, 1994:5.30

Η

HAGERSVILLE, ONT.

Tire fire, 1990, **1991:**1.50

HAIRSTON, HAROLD

Profile of, **1999:**2.45

HAITI

NFPA joins Haiti Toolkit effort to include safety standards in earthquake rebuilding effort, **2010**:2.17

HALIFAX, NOVA SCOTIA

Munitions ship explosion, Dec. 6, 1917, **1992:**3.96

HALONS

Alternative protection methods to replace halons, 1994:6.40, 1997:4.62

Clean agent alternatives, 2002:2.68

Extinguish aircraft fire, 1992:6.76, 1995:6.110

Extinguishing system fails in subway token booth fire, 1996:6.24

Halon phaseout speeded up to Jan. 1, 1994, 1993:2.38

International efforts at halon emission regulation, 1999:4.90

Manually activated system not a factor in fire, **1992:**6.79

Museums and other applications, 1992:5.66

Second International Conference, 1990, 1991:1.65

Time line on control of, 1974-91, **1991:**1.67

Use continues despite available alternatives, 1995:6.46

HANDICAPPED PERSONS. See DISABILITIES, PERSONS WITH

HAPPY LAND SOCIAL CLUB FIRE

Catastrophic, New York, March 25, 1990, 1991:4.61

Looking Back column, 2003:3.144, 2013:1.72

HART, JONATHAN

NFPA summer intern recounts experience at NFPA, 2010:5.25

HARTFORD, CONNECTICUT

Circus fire, July 6, 1944, **2012:**4.88

Hartford Hospital fire, Dec. 8, 1961, 2009:1.46

HARVEYS LAKE, PENNSYLVANIA

Board and care facility fire, May 14, 1997, analysis, 1997:5.68

HATHAWAY, LEONARD R.

Profile of, **1996:**6.38

HAWAII

Apartment building fire, 1993, 1994:2.28

Apartment building fire, 2008, 2009:6.22

Catastrophic fires

Dwelling, Oct. 15, 1997, 1998:5.45

Munitions bunker, April, 2011, 2012:5.73

Observatory, Jan. 16, 1996, 1997:5.52, 6.59

Department store/office building fire, July, 1993, 1994:6.91

Dwelling fire, March, 2010, 2011:7.59

Electric power plant fire, Jan., 2004, 2005:6.49

Electric power plant fire, Aug., 2012, 2013:6.56

Fatal store fire, 1993, **1994:**3.30

Office building, April, 2000, 2001:6.63

Office building, 2012, 2013:4.24

School fire, June, 2006, 2007:6.83

Warehouse fire, 1989, 1991:1.31

HAWKINS, JASPER STILLWELL

Profile of. **1995:**2.23

HAZ-MAT ISSUES COLUMNS

Balancing safety and international economic development, 1994:4.19

Carbon monoxide is top hazard, **1995:**5.23

Chemical properties of hazardous substances critical to decision-making, 1991:6.94

Community hazards analysis to precede response team formation, **1991:**5.18

Competency is key to responders' performance, 1993:3.40

Decontamination not taken seriously by fire fighters, 1993:5.32

Decontamination programs, development of, 1993:6.16

Differentiating emergencies from incidental releases, 1994:2.18

Emergency planning is six-part process, 1993:1.22

Environmental damage mitigation in incident response, 1991:1.112

EPA/National Response Teams report critiques federal agencies, 1995:1.19

Federal haz-mat response needs simplification, standardization, 1995:3.27

Federal legislation may affect responders, 1994:6.20

Hazardous Materials Transportation Uniform Safety Act of 1990 (USA 90), discussion,

1991:3.117

Isman, Warren, legacy to hazardous materials instruction, 1992:2.22

Lifesaving principles, 1992:3.136

Limitations of haz-mat equipment, 1993:2.104

Multigas detectors are required equipment, 1995:6.25

Networking most effective at local conferences, 1994:1.16

NFPA 472, 473, comments sought on, 1991:2.110

Technology, public opinion, and prevention must be considered by response teams, 1994:3.17

Train responders to have a safe attitude, 1992:6.89

Training programs' effectiveness questioned, 1995:4.27

HAZARDOUS MATERIALS. See also HAZ-MAT ISSUES COLUMNS

Ammonia line bursts, poses toxic threat to fire fighters, 1993:6.85

Asbestos (See ASBESTOS)

Asbestos from ducts collected by haz-mat team after fire, 1997:6.22

Bus fire requires containment of oil/fuel runoff, 2004:4.16

Chemical countermeasures for fuel spills that threaten water supply, 1999:2.74

Chemical plant fire, factor in, 1992:6.75, 80

Chemical processing plant fire, factor in, 2001:6.23

Chlorinated pool chemicals, managing fire risks of, 2000:3.95

Classification and containment of hazardous materials, 1996:2.30

Cleveland Clinic fire, Cleveland, Ohio, 1929, led to hazardous materials storage standards, **2012:**1.80

College laboratory fire, factor in, 2005:4.22

Concrete forms plant fire, factor in, 2005:6.22

Copper sulfate runoff diked, pumped, 1994:6.36

Cost-effectiveness of regional hazardous materials response teams, 1994:1.63

Decontamination rooms, basic requirements for, 2000:2.59

Federal regulations cover intrastate shipments of agricultural chemicals, 1998:5.25

Fire service applies new training and management skills to incidents, 1995:2.90

Firefighters injured by exposure to, 2004:2.17, 2009:6.67

Food plant fire, factor in, 1992:6.80

General warehouse fire, factor in, 1998:6.88

Hampered fire fighting, **1991:**6.75, **2010:**6.65

Hampered fire fighting, chemical laboratory fire, 1992:3.33

Hazardous waste facility explosion and fire, Environmental Quality Co., Apex, N. Carolina, Oct. 5, 2006; U.S. Chemical Safety and Hazard Investigation Board investigation, **2008:**6.68

Hazardous waste incinerator fire, Arkansas, 1994, 1995:6.38

Heat transfer fluid (HTF) (thermal VP-1) in fire required precautions, 1991:6.76

High-hazard contents, life safety requirements for, **2000**:4.30

Iron foundry fire, factor in, 1997:6.50

Isocyanate smoke requires area evacuation, 1994:6.93

Laundry facility fire, factor in, 1999:2.26

Munition ship explosion, Halifax, Nova Scotia, Dec. 6, 1917, 1992:3.96

NFPA 400, Hazardous Materials Code, will aid safe storage of hazardous materials, 2009:3.80

NFPA 472, Competence of Responders to Hazardous Materials Emergencies, specifies training levels, **2001:**4.31

NFPA 472, Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition, can be used to develop HAZMAT/WMD emergency responder training program, 2008:2.54

NFPA 5000, *Building Code*TM, and NFPA 1, *Uniform Fire Code*TM, identify levels of materials, offer safety requirements, **2002:**6.23

NFPA and OSHA work to reconcile NFPA 704, *Identification of the Hazards of Materials for Emergency Response*, labeling guidelines and OSHA's new labeling provisions, **2013:**3.70

"Operation Respond" addresses hazardous materials at railroad fires, 2000:3.52

Placards can mislead responders, 1993:2.74

Plastics plant fire, factor in, 1997:1.28

Polychlorinated biphenols at generating plant fire, 1994:6.92

Pool and spa chemicals present hazard in warehouse stores, 1998:1.50, 1998:4.44

Railroad collisions and fires, factor in, 1998:6.91

Regulatory reform poses dangers, 1997:3.41

Reporting requirements of DOT, EPA, and NFPA give material's life cycle history, 2006:6.58

Response capabilities, assessment of, 1992:1.36

Sodium exposure at metals processing plant fire, 1994:6.63

Software links first responders to databases, 1997:3.66

Sprinklers caused paint vats to overflow, 1992:4.28

Storage lockers for materials with flammable, combustible liquid characteristics, 1994:5.71

U. S. Chemical Safety and Hazard Investigation Board provides reports on chemical incidents worldwide, **2002**:6.17

HEADS UP COLUMNS

Accidental sprinkler discharge can usually be explained, 2000:6.18

Advertisers should present sprinkler activation and operation correctly, 2007:3.40

Alarms for sprinkler systems; conflicts between NFPA 13, NFPA 25, and NFPA 72 requirements, **2000:**5.26

Antifreeze alternatives to replace prohibited traditional solutions, 2012:6.30

Backflow prevention device tests, 2012:1.30

Chicago joins other cities, states in requiring sprinkler retrofit of high-rise buildings, 2005:2.30

Cloud ceilings, sprinkler location for, 2012:4.34

Community requirements drive high cost of residential sprinklers, 2002:6.24

Congress considers sprinkler system tax incentive, 2004:1.20

Control mode specific application (CMSA) sprinklers bring substantial change to storage sprinkler system requirements, **2009:**4.26

Diagnosing sprinkler system problems beyond normal wear, 2008:5.34

Drop-out and open grid ceilings used to conceal sprinklers, 2006:6.28

Dry sprinkler sample-testing requirements, 2001:2.26

Ducts with combustible contents, sprinkler protection of, 2011:3.52

Earthquake protection important for sprinkler systems, 2013:3.36

Elevators and elevator machine rooms sprinkler protection concerns addressed, 2011:7.30

Environmental friendliness of sprinkler systems, 2009:1.26

Fire Protection Research Foundation researches cost-effective protection for solid shelf rack storage, **2003:**4.24

Fire Protection Research Foundation reviewing single-point *vs.* density/area curve design systems, **2007:**1.24

High-volume low-speed fans challenge sprinkler system designers and installers, 2013:2.28

For historical retrofits, sprinkler technology has improved, 2003:1.20

How the sprinkler standard was assigned the number 13, 2010:4.36

Hydraulic calculations for sprinkler systems, case for global use of, 2009:5.32

Informed consensus's value in NFPA codes and standards development process, 2010:6.30

Inspection/maintenance record retention and referral by inspection professionals, **2006**:2.32

Integrated sprinkler/plumbing systems require qualified installers, appropriate supervision, **1999:**5.24

International differences in decision to use/omit sprinklers, 2008:2.34

International Residential Code to require fire sprinklers in single-family homes, 2008:6.26

Lack of sprinklers is often key to fire loss litigation, 2005:1.22

Manufacturers working to improve CPVC installation education, 2008:3.36

MASTERFORMAT® changes proposed, 2003:3.26

Movies misrepresent how sprinkler systems work, 2002:5.26

NFIRS Version 5.0 promises better data on sprinkler system reliability, **2003:**2.30

NFPA 13, *Installation of Sprinkler Systems*, 1999 edition, consolidates sprinkler criteria from storage standards, **1999:**6.22

NFPA 13, *Installation of Sprinkler Systems*, 2002 edition, allows computerized water delivery predictions in dry-pipe systems, **2002**:4.24

NFPA 13, *Installation of Sprinkler Systems*, 2002 edition, proposed revisions end standard sprinkler designation, **2002:**2.30

NFPA 13, *Installation of Sprinkler Systems*, 2007 edition, limits lateral brace spacing in order to meet seismic load requirements, **2008**:4.28

NFPA 13, *Installation of Sprinkler Systems*, 2013 edition, clarifies when and how to run service piping under buildings, **2013:**6.26

NFPA 13, *Installation of Sprinkler Systems*, 2013 edition, requires removed sprinklers not be reinstalled, **2013:**5.30

NFPA 13, Installation of Sprinkler Systems, addresses pitching of sprinkler pipe, 2006:3.40

NFPA 13, *Installation of Sprinkler Systems*, and NFPA 24, *Private Fire Service Mains and Their Appurtenances*, requirements are coordinated, **2002:**1.26

NFPA 13, *Installation of Sprinkler Systems*, annex material provides guidance on hose connections to sprinkler systems, **2007:5**.36

- NFPA 13, *Installation of Sprinkler Systems*, committee considers exterior sprinkler protection options, **2001**:4.26
- NFPA 13, *Installation of Sprinkler Systems*, does not require sprinklers in all building spaces, **2001:**3.38
- NFPA 13, *Installation of Sprinkler Systems*, earthquake protection coordinated with ASCE/SEI 7, **2006:**5.36
- NFPA 13, *Installation of Sprinkler Systems*, earthquake protection provisions endorsed in International Building Code amendment cycle, **2007**:4.32
- NFPA 13, *Installation of Sprinkler Systems*, incorporates new products as appropriate, **2006**;4.30
- NFPA 13, Installation of Sprinkler Systems, maximum time limit for audible alarms, 2011:2.34
- NFPA 13, *Installation of Sprinkler Systems*, new edition to use SI or non-SI metric units, **2000:**2.24
- NFPA 13, Installation of Sprinkler Systems, small room rule clarified, 2011:4.30
- NFPA 13R, Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height, 20 years experience with code from 1989 through 2010 edition, **2010:**1.30
- NFPA 20, *Installation of Stationary Pumps for Fire Protection*, permits variable speed pumps, **2004:**5.26
- NFPA 25, *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*, color-coded tagging scheme for system inspections proposed change for 2011 edition, **2010**:2.32
- NFPA 25, *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*, focuses on changes in sprinkler inspection and maintenance, **2002**:3.40
- NFPA 25, *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*, inspections should focus on system or component functionality, **2013:**1.30
- NFPA 25, *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*, third-party administration programs for enforcement, **2012:**2.30
- NFPA 25, *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*, wet-pipe sprinkler system minimum-temperature requirements, **2011:**1.30
- Notching or boring holes in beams and joists for suppression system installation, rules for, **2010**:3.48

Nursing homes need sprinkler protection, **2005**:6.24

'Obstruction inspection' and 'obstruction investigation' distinguished, 2010:5.38

Omega sprinkler recall by U. S. Consumer Products Commission sets high performance standard, demands full reliability, **1999:**3.50

Performance-based design applied to high-rise building sprinkler reliability case study, **1999:**4.24

Prison fire problem, sprinklers as solution to, **2012**:3.44

Proposed sprinkler identification system will improve protection, 1999:2.28

Recalling three important years in sprinkler development, 2009:6.30

Reconsidering use of interconnected risers, 2009:2.30

Residential sprinklers shown to exceed expectations in community survey, 2000:4.22

Signage requirements key to proper identification of sprinkler system capabilities, 2007:2.26

Solid shelves in racks vs. shelf storage, 2006:1.24

Sprinkler activation, common misconceptions on, 1999:1.20

Sprinkler caps and straps addressed by NFPA 13 TIA, 2004:3.28

Sprinkler identification system aided by International Fire Sprinkler Association, 2001:1.24

Sprinkler manufacturers review quality assurance and standards, 2001:5.28

Sprinkler protection for sloped attic spaces, 2005:5.34

Sprinkler protection for swimming pool chemicals, **2004:**4.22

Sprinkler re-installation after system remodeling, regulations limiting, 2011:5.30

Sprinkler recall has brought changes to sprinkler industry, **2003:**6.20

Sprinkler system reliability can, and should, be improved, **2009:**3.48

Sprinkler systems for cultural resource properties addressed by NFPA codes and standards, **2007**:6.26

Sprinkler systems in college buildings save lives, not just property, 2005:4.26

Sprinkler systems often misrepresented in video games, movies, television, 2004:2.22

Star Sprinkler recall programs show recall risks, 2000:1.22

Storage facility sprinkler system must be properly designed to accommodate change in storage hazard, **2012**:5.34

30 years of international sprinkle product standards, 2004:6.24

Trapeze hangers to support sprinkler system piping, 2001:6.24

Ultra-fast fire should be considered in fire models and performance-based design, 2003:5.26

Ultrasonic transducers applied to pipe exterior can identify internal conditions without system shutdown, **2013**:4.28

Upholstered furniture hazard addressed by sprinklers, 2008:1.27

Velocity limit estimation for water-based suppression systems requires different methods for different applications, **2000**:3.43

Wet pipe systems need antifreeze protection year-round, 2005:3.34

HEALTH CARE

Home health care increase fire, electrical, explosion risks, 1998:1.64

NFPA board chair Tom Jaeger interviewed on changing face of health care, 2010:5.17

HEALTH CARE OCCUPANCIES. See also specific occupancies

Code requirements unique to health care facilities can impede compliance, 2000:2.27

Construction/renovation of facilities requires flexibility, Northwestern Memorial Hospital, Chicago, **2000**:2.48

Decontamination rooms, basic requirements for, 2000:2.59

Extinguishing agents for medical facilities, selection of, **2002:**4.29

Fire alarm requirements, **2000:**2.35

Fire alarm system design should integrate reliability, reduce costs, 2012:1.36

Fire alarm system must include smoke door controls, 2005:6.30

Fire protection of rooftop helipads exemplified at Chandler Medical Center, Lexington, Kentucky, **2000**:4.42

Fire safety prognosis for '90s, **1992:**3.89

Fires in facilities, history of, **2002:**4.112

National Electrical Code, 2014, updates electrical infrastructure requirements for health care practices, **2013:**5.42

National Electrical Code, 2014, updates receptacle requirements for hospitals, 2013:6.36

New York-Presbyterian Hospital conducts self-examination of fire walls/barriers to improve fire safety, **2007:**5.76

- NFPA 99, *Health Care Facilities*, 1999 edition, reflects new technology and health care delivery systems, **2000:**2.55
- NFPA 99, Health Care Facilities, 2010 changes, 2009:3.86
- NFPA 99, *Health Care Facilities*, 2010 edition will address high-tech procedures and decentralized provider system, **2009:**1.40
- NFPA 99, *Health Care Facilities*, 2012, updates emergency management provisions, **2013:**1.52
- NFPA 99, Health Care Facilities, 2012 changes, 2011:1.52
- NFPA 99, *Health Care Facilities*, addresses issues related to emergency power for hospitals, **2013**:1.48
- NFPA 99, *Health Care Facilities*, and NFPA 99C, *Gas and Vacuum Systems*, outline gas and vacuum system use requirements, **2001:**3.43
- NFPA 99, Health Care Facilities, common questions answered, 1996:6.28
- NFPA 99, *Health Care Facilities*, designation of operating rooms as wet locations debated, **2010**:1.56
- NFPA 99, Health Care Facilities, hyperbaric chamber requirements, 2000:2.27
- NFPA 99, *Health Care Facilities*, needs to be reinvented to reflect modern health care delivery system, **2007:5**.70
- NFPA 101®, Life Safety Code®, 2006, design requirements, 2006:1.42
- NFPA 101®, Life Safety Code®, 2012, changes, 2011:1.48, 2012:1.34
- NFPA 101®, Life Safety Code®, 2012, tips on compliance with, 2012:1.62
- NFPA 101®, *Life Safety Code*®, 2012, updates placement and use of items in corridors, **2013:**1.34
- NFPA 101®, *Life Safety Code*®, emergency planning requirements for health care occupancies, **2002:**4.30
- NFPA 101®, *Life Safety Code*® adoption required by Joint Commission on Accreditation of Healthcare Organizations for accreditation, **2006:**1.47
- NFPA 101®, *Life Safety Code*® adoption required to receive Medicare/Medicaid reimbursement, promotes facility safety, **2002**:4.32
- NFPA 101®, Life Safety Code® TIA allows hand sanitizer stations in public areas, 2004:3.36
- NFPA 418, Heliports, addresses hospital heliport safety issues, 2012:1.54
- NFPA 5000, *Building Code*TM, sprinkler system requirements for renovated facilities, **2002:**4.22
- NFPA Conference and Expo 2012, health care-related offerings at, 2012:3.80
- Occupancy classification differentiated from residential board-and-care facilities, **1999:**4.32

Pre-incident plans needed by health care occupancies, 2004:1.22

- St. John's Regional Medical Center, Joplin, Missouri, destroyed in 2011 tornado, builds new facility better able to withstand tornadoes, **2013**:1.44
- Security initiatives help facilities cope with crime and violence, 2002:4.44
- Security management requires code compliance, 2006:1.58
- Smoking bans have reduced fires but not ended them completely, **2010**:1.63
- Surgical fire prevention addressed by U.S. Food and Drug Administration education program, **2012:**1.58
- HEALTH CARE OCCUPANCY FIRES. See also GROUP HOME FIRES; HOSPITAL FIRES; NURSING HOME FIRES
 - Clinic fires, California, 1995, **1996**:1.24

Dental office, Texas, 2009, 2010:2.26

Nebraska, 2008, 2009:6.26

New York, July 21, 1990, **1991:**6.78

Sprinklers prevent tragedy in two fires, 1993:5.49

Substance abuse treatment center, Florida, 2012, 2013:1.21

HEARING-IMPAIRED PERSONS

Deaf and hard of hearing emergency preparedness expert Neil McDevitt, 2010:4.54

Fatal fire victim may not have heard smoke alarm, 1993:2.22, 2008:5.29

NFPA 72®, 2010 edition, requirements for alarms audible by hearing impaired, 2010:1.36

HEART ATTACKS. See CARDIAC EVENTS

HEAT, CONDUCTIVE

Warehouse fire spread by, **1991:**1.31

HEAT DETECTORS. See DETECTORS, HEAT

HEATING-AND-COOKING EQUIPMENT. See also HVAC SYSTEMS; OVENS,

INDUSTRIAL; WOOD STOVES

Charcoal and gas grill fire statistics and safety concerns, 2007:4.18

Commercial products for cooking fire mitigation have failed to go mainstream but test standards research may help, **2013**:4.58

Cooking equipment fires, 2003-2006, **2010:**3.110

Cooking equipment fires, 2004-2008, **2011:**1.75

Cooking equipment fires, 2005-2009, **2012:**1.74

Cooking fire prevention technologies and marketplace barriers to entry reviewed by Fire Protection Research Foundation, **2012:**1.28

Cooking fire prevention tips, **2005:**3.42

Cooking fires prompt research on effective mitigation techniques, 2012:6.13

Cooking fires remain serious life safety threat, NFPA study show, 2005:2.10

Fire pots, NFPA issues urgent warning on gel fuel for, 2011:5.12

Fire Prevention Week 2006 theme: Prevent Cooking Fires, 2006:5.44

Fire Prevention Week 2013 theme: Prevent Kitchen Fires, **2013:5**.13

Gas grill fire statistics, **2003:**4.13

Gas grill fires decrease since code change requiring overfill protection devices, 2006:3.19

Grilling safety message spread by burn survivor and ESPN anchor Hannah Storm, 2013:2.14

Heating equipment, risks of, 1996:6.128

High home heating costs, increased use of space or portable heaters, pose safety threat, **2005**:6.64

Home heating fire patterns and trends, summary, **2005**:6.69

Home heating fires, **2010:**2.74, 6.86

Home heating fires, 2003-2009, **2012:**1.74

Home heating fires, 2006-2010, **2013:**4.79

Home heating fires, deaths, and injuries, mostly caused by space or portable heaters, 2005:1.11

Home heating fires addressed by NFPA at Boston press conference, 2008:2.19

Home heating safety campaigns launched by NFPA, 2008:1.14, 31

NFPA 31, Installation of Oil-Burning Equipment, fall meeting review, 2000:5.91

NFPA 85, Boiler and Combustion System Hazards, fall meeting review, 2000:5.91

NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, 2001 edition, reflects industry advances, **2002:**1.60

NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, common questions answered, **1997:**1.33

NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, mandated by Life Safety Code® Section 9.2.3, **2009:**6.33

NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, revision moves toward unified test standard, **2004:**3.74

NFPA 101, Life Safety Code®, cooking equipment protection requirements, 2009:6.33

NFPA heating safety campaign kits for fire department community outreach, 2009:1.32

NFPA partners with American Society of Heating, Refrigeration, and Air-Conditioning Engineers on heating system safety brochure, **2007:**1.32

HEATING-AND-COOKING EQUIPMENT FIRES. See also FIREPLACES

Baseboard heater ignites drying clothes, 1999:2.23

Boiler flue pipe rusted, heat and combustion products escape through, 2008:1.22

Boiler radiant heat ignites dropped trash, 2005:2.22

Boiler radiant heat ignites flooring, structural members, 2009:6.79

Broiler burners ignite grease, 1997:4.22

Broiler heat ignites grease in exhaust system, **2006**:2.30

Butane leaks from portable stove cylinder, ignites, 1994:5.30

Ceiling furnace malfunctions ignites wood ceiling, 1993:6.83

Ceiling heater ignites store rafters and insulation, **2012:**2.22

Ceiling-mounted heating unit radiant heat ignites plastic on stored goods, 2008:1.23

Chafing dish fuel ignites curtains, 2006:4.26

Char broil pit fire, unattended, ignites grease in hood, 2000:6.96

Charcoal briquettes ignite cardboard box, apartment building, 2000:3.36

Charcoal food smoking unit, unattended, ignites porch, 2000:1.20

Charcoal from grill ignites bag, 1993:6.29

Charcoal grill, inside dwelling, ignites draperies, 1994:4.32

Charcoal grill coals ignite wood deck, 2012:5.22

Charcoal grill embers ignite couch on porch, 2008:3.21

Charcoal grill fire statistics, 2003:4.13

Charcoal grill ignites mattress on balcony, 2001:5.26

Charcoal grill trash ignited by, 1993:3.35

Charcoal grill unattended, ignites combustibles, 1996:2.23

Charcoal grill unattended on wooden porch, ignites dwelling fire, 2012:5.70

Commercial cooking operations, safety requirements, **1997:**1.33

Commercial fryer technology and vegetable oil use lead to new Class K hazard category, **1999:**4.72

Cooking food overheats, ignites, 1993:1.27

Deep fat fryer fire ignites grease in hood and duct work, 1994:3.28

Deep fat fryer fire ignites in hospital cafeteria, 2003:2.22

Deep fat fryer fire ignites residual oil in unit, 2009:2.27

Deep fat fryer fire malfunctions, ignites oil, 2011:5.14

Deep fat fryer oil ignited by aerosol can explosion, **2006:**3.30

Deep fat fryer overheats, ignites contents, 1992:5.25

Electric baseboard heater ignites bedding, 2009:1.17

Electric baseboard heater ignites catastrophic fire, 2003:5.75

Electric baseboard heater ignites curtains, **2009:**1.20

Electric baseboard heater ignites sofa, **2009:**3.42

Electric heat lamp ignites wooden steps, **2009**:3.35

Electric heater, portable, ignites gasoline vapors, 2011:1.23, 2.26

Electric heater, submersible, ignites pail, 2011:4.19

Electric heater cord, joined to extension cord, overheats, ignites living room contents, **1994:**5.96

Electric heater ignites bedding, **1991:**1.30, **2005:**1.16, **2010:**1.21

Electric heater ignites blanket, **1994:**5.98, **2013:**6.20

Electric heater ignites clothing, 1995:4.38

Electric heater ignites clothing, other combustibles, **2010:5**.30

Electric heater ignites combustibles in catastrophic fire, 1992:4.69

Electric heater ignites mattress, furniture, newspapers in catastrophic fire, 1992:4.67

Electric heater overheats, ignites combustibles, 1997:4.22

Electric heater possible cause of fatal fire, 1992:6.28

Electric heater wiring ignites wood floor and wall, **2010:**4.23

Electric heaters overload electrical system, catastrophic fire cause, 2005:5.57

Electric hot plate ignites pentane vapors in lab fire, 1992:3.33

Electric hot plate ignites table in catastrophic fire, 1992:4.68

Electric skillet, unattended, ignites trash, combustibles, 1995:2.29

Electric space heater, and extension cord, create high-resistance arc, ignite combustibles, **1998:**5.46

Electric space heater, unattended, ignites clothing, 2007:1.18

Electric space heater, unattended, ignites wood, 2000:3.38

Electric space heaters, oil-filled, ignite newspapers, **2001:**6.20

Electric space heater arcs, ignites combustibles, 2001:6.61

Electric space heater cord ignites bedding, 2006:2.26, 28

Electric space heater cord ignites couch, **2012:**2.17

Electric space heater cord ignites kitchen cabinets, 2006:2.28

Electric space heater cord ignites wood, paper, clothing, 2013:4.22

Electric space heater extension cord ignites fatal fire, **2008:**2.26

Electric space heater extension cord ignites wood, paper, 2013:2.19

Electric space heater ignites bedding, 2003:2.23, 2003:6.14, 2004:2.18, 2009:6.24

Electric space heater ignites bedding/clothing in catastrophic fire, 1995:5.53

Electric space heater ignites bedding or chair, **2007:**1.20

Electric space heater ignites catastrophic fire, 2003:5.75, 2013:5.61

Electric space heater ignites clothes, **2010:**5.34

Electric space heater ignites clothes, towel, 2013:4.21

Electric space heater ignites clothing pile, 2006:5.34

Electric space heater ignites combustibles, 2007:6.18, 2012:2.15

Electric space heater ignites couch fabric, 2004:1.15

Electric space heater ignites fabric and carpet, 2009:1.18

Electric space heater ignites furniture, 1997:5.51

Electric space heater ignites hydraulic oil, **1995**:6.102

Electric space heater ignites kerosene residue from stove, 2001:1.22

Electric space heater ignites love seat in catastrophic fire, **1995:**5.58

Electric space heater ignites magazines or newspapers, 2013:5.22

Electric space heater ignites paper dropped into heater, 1999:2.24

Electric space heater ignites sofa bed, **2010**:3.33

Electric space heater ignites towel, fire spreads to bed, 1999:1.19

Electric space heater ignites upholstered materials, 1997:2.22

Electric space heater ignites wooden item, 2011:5.76

Electric space heater malfunctions, ignites, 2003:1.12

Electric space heater malfunctions, ignites combustibles, **2006**:6.18

Electric stove, unattended, ignites secondary fire, 1993:5.64

Electric stove burner ignites cardboard box, 2013:6.18

Electric stove burner ignites clothing, **1999:**3.48, **2011:**7.17

Electric stove burner ignites cookbook, **2013:**2.20

Electric stove burner ignites stored items, **2013:**3.22

Electric stove burner melts plastic pot, 2011:7.16

Electric stove burners, unattended, ignite fire, 2006:4.24

Electric stove ignites stored cardboard boxes, 2002:5.21

Electric wall heater, left on, ignites paneling and towels, 1999:5.52

Electric wall heater ignites cardboard box, 1994:1.32

Electric wall heater ignites fabric, 2004:3.20

Electric wall heater ignites wallboard, 1991:1.28

Electric wall heater wiring shorted, ignites home contents, 2007:6.20

Electric warming registers ignite cardboard boxes, **2001**:4.22

Food placed in oven overheats, ignites, 1996:6.22

Frying pan ignites in catastrophic fire, **1991:**4.66

Furnace, catastrophic fire cause, 2002:5.82

Furnace fire ignites insulation, combustibles, 2009:4.17

Furnace fire spreads through manufactured home, 2001:5.77

Furnace ignites cardboard boxes, 2005:6.22

Furnace ignites paper, **2013:**5.60

Furnace ignites sofa, 2006:5.32

Furnace ignites sofa placed over vent, 2005:2.22

Furnace malfunctions, ignites fatal dwelling fire, 2008:5.29

Furnace malfunctions, ignites framing, 2005:1.18

Furnace overheats, ignites flooring, 2006:5.28

Furnace overheats due to improperly installed limit switch, 1995:6.99

Gas boiler ruptures, severs gas line and ignites fire, 1993:6.83

Gas ceiling heater ignites cardboard, 1995:6.100

Gas fryer pilot light ignites leaking natural gas, 1992:6.25

Gas furnace heat ignites upholstered chair, 1995:5.62

Gas furnace ignites accumulated coffee dust, 2009:2.26

Gas furnace ignites clothing, 1995:5.54

Gas furnace ignites combustibles, 2002:1.19

Gas furnace ignites floor, 1991:1.27

Gas furnace ignites leaking gas, 2013:6.56

Gas furnace ignites rubbish in fatal apartment fire, 1991:4.25

Gas furnace valve connection problem ignites fatal dwelling fire, 2010:2.25

Gas grill, fire started near, 2008:6.18

Gas grill gas line improperly connected, gas ignited by pilot, **2003:**1.12

Gas grill radiant heat ignites wooden structural members, **2002**:3.32

Gas heater, installed incorrectly, ignites roof, 1993:6.84

Gas heater, wall-mounted, ignites clothing, 2011:1.22

Gas heater ignites gasoline vapors, 1997:2.23

Gas heater ignites heat transfer fluid (HTF), 1991:6.76

Gas heater ignites natural gas from ruptured piping, **1994:**1.30

Gas heater ignites paper, 1993:5.36

Gas heater ignites paper dust, 1991:6.75

Gas heater ignites stored cardboard boxes, 2003:6.16

Gas heater leak ignites dwelling fire, 2012:6.25

Gas heater radiant heat ignites boxes, 1997:6.57

Gas heating unit ignites stored combustibles, 1995:1.34

Gas oven/broiler malfunctions, ignites kitchen wall, 1997:5.52

Gas oven heat ignites wood structural members, 1997:6.50

Gas oven vent pipe leaks heat, ignites combustibles, 1997:6.53

Gas space heater ignites wall, 2000:3.36

Gas stove, children ignite combustibles using, 2009:3.40

Gas stove, operating unattended, ignites cabinets, 1995:5.56

Gas stove burner, ignites bottle sterilizer, cabinets, 2008:4.21

Gas stove burner, used as heat source, ignites cabinets, 1997:1.25

Gas stove burner ignites cardbox box, other combustibles, 2013:4.20

Gas stove burner ignites clothing, 2008:1.19, 2.23

Gas stove burner ignites combustibles, 2009:6.23

Gas stove burner ignites grease, food deposits, 1992:3.34

Gas stove burners, unattended, ignite combustibles, 2001:5.77

Gas stove heat ignites grease in exhaust system, 1997:6.22

Gas stove ignites siding in direct contact with stove flue, **2011:**7.18

Gas stove line, not properly capped, ignites kitchen fire, 2008:1.23

Gas stove pilot ignites leaking natural gas, 1995:3.39

Gas stove pulled from wall fuels apartment fire, 1991:3.26

Gas stove used for heating, catastrophic fire factor, 1991:4.65

Gas wall heater malfunctions, ignites wood framing, 1994:5.96

Gas water heater, baskets of clothing near heater ignited, 1999:5.51

Gas water heater conductive heat ignites foam insulation, 1998:2.18

Gas water heater flue pipe ignites stored combustibles, 2009:6.25

Gas water heater fuel tank ignites flash fire, 2011:5.18

Gas water heater ignites accumulated gas, 1996:2.23

Gas water heater ignites floor sealant vapors, 2007:6.22

Gas water heater ignites gas leaking from connection, 2004:4.16

Gas water heater ignites gasoline fumes from open container, 2002:6.21

Gas water heater ignites gasoline vapors in dwelling fire, 2004:5.17

Gas water heater ignites natural gas pipeline leak, 2002:6.18

Gas water heater ignites paper records, 2005:6.47

Gas water heater ignites propane leak, 2011:4.17, 2012:3.38

Gas water heater ignites stored combustibles, 2012:4.24

Gas water heater pilot ignites gasoline, catastrophic fire factor, 1996:5.91

Gas water heater pilot light blown out, catastrophic fire factor, 1993:5.68

Gas water heater pilot light ignites gasoline vapors, 1991:4.67

Grease in pan ignites, fire spreads to wood cabinets, 1997:5.22

Grill ignites grease, food, 1995:2.31

Grill ignites grease in hood and duct, 2012:3.39

Grill ignites oil, grease in hood and duct, **1996:**5.25

Heat lamps ignite plastic trays, 1996:3.36

Heat pump failed, **1994:**6.90

Heat trace cable ignites wood framing, 1996:6.24

Heater, wall, ignites bedding, 2011:3.36

Heater ignites bedding, 2008:5.58

Heater ignites combustibles, 2006:6.72

Heater ignites couch, 2006:6.21

Heater ignites plastic materials, 2005:6.46

Heating and air conditioning unit malfunctions, ignites plastic housing, 2009:4.18

Heating and cooling unit cord, damaged, ignites cord insulation, 2000:2.21

Heating equipment failure ignites insulation, 2004:6.53

Heating pipe ignites released mineral oil, **2010**:3.44

Heating season fire safety tips, 1998:6.120

Heating unit, portable, overheats wood framing materials, 2006:6.68

Heating unit element breaks off, ignites linen in cart, 2012:5.29

Heating unit near wall, possible school fire cause, **2000:**4.20

Heating vent air spreads fire, 2004:2.18

Hot plate fire spreads throughout building, **2000**:6.96

Hot plate ignites clothing, plywood walls, 1999:5.50

Hot plate probable cause of recreational facility fire, 1993:6.88

Hydraulic oil ignited by natural gas burners, catastrophic fire, **1992:**1.29

Infrared heater ignites natural gas leak, 1996:6.65

Kerosene heater, factor in catastrophic fire, 1997:5.50

Kerosene heater, improperly installed, ignites fatal manufactured home fire, 2001:5.24

Kerosene heater, possible factor in fatal fire, **2013:**1.20

Kerosene heater, unvented, ignites chair, 2000:5.58

Kerosene heater fuel spills, ignites carpet, **1998:**6.23

Kerosene heater ignites acetone, 2005:6.22

Kerosene heater ignites combustibles, 1995:1.34, 2009:2.25

Kerosene heater ignites gasoline vapors, 2009:3.40

Kerosene heater ignites wood paneling, 1998:5.45

Kerosene heater possibly refueled with alcohol, fails, ignites fatal fire, 1998:2.16

Kerosene heater tips over, fatal fire cause, 2007:6.19

Kerosene heater tips over, ignites combustibles, catastrophic fire factor, 1997:5.49

Kerosene heater using gasoline ignites dwelling fire, 2008:1.19

Kerosene heater using gasoline ignites vapors, 1999:5.56

Kerosene heater with faulty fuel cell seal ignites dwelling fire, **1999:**1.17

Kerosene space heater, fuel spilled from, ignites dwelling fire, 2000:6.17, 2010:1:23

Kerosene space heater flashes, with fireball, ignites pole spray curtain, 2000:6.86

Kitchen fire statistics, fire safety information, 1998:1.88

LP-Gas grill leaks fuel, ignites roof, 2000:4.18

LP-Gas grill tank, improperly installed, leaks, ignites restaurant fire, 1998:3.36

LP-Gas regulator malfunctions, causes heater explosion/fire, 1997:5.49

LP-Gas stove flame ignites clothing of disabled, elderly person, 1998:2.16

LP-Gas stove supply line leaks, ignites fire/explosion, 1999:1.18

Microwave oven, foil arcs in oven, ignites paper, 2010:1.24

Microwave oven exhaust malfunctions, ignites combustibles, 2012:6.26

Microwave oven malfunctions, ignites fire, 1996:3.36, 2010:5.32

Natural gas appliance pilot lights surge, ignite manufactured homes fire, 1996:3.36

Natural gas ceiling space heater hit by forklift, fuel feed line dislodged, 2001:2.24

Natural gas direct vent wall heater regulator leak ignites carpet, 2000:5.22

Natural gas heater, 1994:6.64

Natural gas heater, under repair, leaks gas, 1995:1.33

Natural gas wall heater ignites gasoline vapors, 2001:6.21

Natural gas water heater ignites stored combustibles, 1995:5.60

Natural gas water heater line leak ignited by homeowner, 1999:3.48

Natural gas water heater pilot ignites lacquer thinner vapors, 1994:5.104

Natural gas water heater possible catastrophic fire cause, 1995:5.62

Oil-fired boiler malfunctions, ignites dwelling fire, **2011**:2.22

Oil-fired furnace vent deteriorates, ignites church fire, 2004:6.19

Oil-fired furnace vent ignites structural members, 1995:5.54

Oil-fired hot air heating unit, installed incorrectly, ignites wood structure, 1994:1.29

Oil furnace malfunctions, fire spreads through chimney, 1997:6.57

Oven ignites combustibles stored in oven, 2010:6.23

Overhead heater ignites stored paper bales, **1999:**6.90

Paraffin stove use increase fire danger in poorest South African homes, 2006:2:70

Portable heater ignites boat fire, 2002:3.34

Pot, unattended, catastrophic dwelling fire cause, 2002:5.82, 2005:5.57, 2008:5.58

Pot, unattended, catastrophic manufactured home fire cause, 2006:5.60

Pot, unattended, ignites apartment building fire, 1999:5.19, 52, 2002:5.20, 2005:6.18,

2006:2.26, 28, **2008**:4.22, **2011**:2.28, 5.18, **2012**:2.15, **2013**:3.27, 28

Pot, unattended, ignites dwelling fire, **1999:**1.18, **1999:**3.46, **1999:**5.19, **2000:**2.22, **2000:**5.20, 57, **2000:**6.16, 17, **2002:**2.24, **2005:**3.28, **2008:**5.24, **2010:**3.34, 5.33, 6.23, **2011:**3.36,

Pot, unattended, ignites oil and food, **2009:**2.23

Pot, unattended, melts, ignites wood cabinets, 1995:5.53

Pot, unattended, melts, radiant heat ignites hood filter, wooden cabinets, 1997:5.51

Pot, unattended, overheats, ignites cabinets in fatal fire, 2007:5.28, 2008:3.21

Pot, unattended, overheats, ignites catastrophic fire, 1993:5.62, 1994:5.96, 98

Pot, unattended, overheats, ignites fatal fire, 1995:5.34

Pot, unattended, overheats, ignites grease, **1995**:5.62, **1997**:1.25, **2009**:2.22, **2009**:4.19, **2010**:6.22, **2011**:1.22, **2012**:1.16, 18, 4.22, 26, 28

Pot, unattended, overheats, ignites oil, **1996**:1.22, 6.22, **1998**:5.15, 6.23, **2003**:2.20, **2004**:1.15, 3.18, 3.20, **2006**:1.18, 2.28, 5.34, 6.22, **2008**:4.22, 6.19, **2009**:1.19, **2011**:3.45, 4.16, 5.16, **2012**:6.27, **2013**:2.21, 3.28, 5.25, 6.20

Pot, unattended, overheats, ignites oil, catastrophic fire, 1995:5.58, 1998:5.49, 2012:5.74

Pots, unattended, as lead cause of, 1999:5.20

Pot ignites food, fatal dwelling fire, 2009:6.23

Pot of paraffin wax, unattended, ignites, fire spread by water, 2001:4.23

Pot of wax, unattended, ignites, 2006:1.18

Pot overheats, ignites food, trash, 2013:6.21

Pot overheats, ignites oil, 2013:5.59

Pot overheats, ignites oil, fire spread by water, 2006:3.38, 2010:5.31

Propane baseboard heater, fire started at, 2000:5.56

Propane from grill tank released, contributes to fire spread, 1996:4.22

Propane from grill tank released, ignited by spark, 1994:3.28

Propane grill, left unattended, ignites porch, 2008:2.24

Propane grill fuel ignited by open flame, 1991:5.26

Propane grill fuel tank leaks, ignites dwelling fire, 1997:4.19

Propane grill igniter ignites leaked fuel, 2013:2.14

Propane grill in kitchen ignites stored boxes, 2004:6.18

Propane grill left on to clean, ignites wood siding, 2002:3.30

Propane grill possible ignition cause, failure fueled fire, **2001:**2.22

Propane heater, ceiling, ignites cardboard boxes, 2003:2.24

Propane heater, portable, ignites combustibles, **2011:**1.26

Propane heater, portable, ignites paper, 1995:6.35

Propane heater, portable, ignites walls, **2004:**2.19

Propane heater, portable, releases fuel, ignites trailer fire, 1999:3.46

Propane heater, room, unattended, ignites building-under-construction fire, 2005:6.19

Propane heater, wall-mounted, ignites fatal dwelling fire, 2011:2.25

Propane heater ignites building-under-construction fire, 2006:6.69

Propane heater ignites explosion and fire, 1991:3.27, 2008:6.23

Propane heater ignites leaked acetylene, 2006:5.63

Propane heater ignites powdered tryptophan, 2002:6.22

Propane heater used to dry wet stock ignites boxes, 2000:6.91

Propane heaters ignite wood sprinkler enclosures, 1995:1.32

Propane heating and air conditioning system fuel feeds fire, 2005:6.21

Propane space heater ignites gasoline vapors, 1997:1.26

Propane stove, catastrophic dwelling fire cause, 2002:5.82

Propane stove fuel contributes to fire spread, 1994:5.96

Propane water heater ignites gasoline vapors in fatal dwelling fire, 1993:2.21

Radiant ceiling heater ignites stored goods, 2009:5.28

Residential fires, cooking equipment as lead cause of, 1999:5.20

Space heater as possible cause, catastrophic fire, 2010:5.64

Space heater ignites bedding, **2011:**7.16

Space heater ignites cardboard boxes, 2009:2.22

Space heater ignites chair, possible fatal fire cause, 1991:5.26

Space heater ignites clothing, **2010:**2.23

Space heater ignites clothing, furniture, combustibles, **2010**:6.20

Space heater ignites combustible liquids in catastrophic fire, 1992:4.71

Space heater ignites combustibles, 1996:2.24, 1996:6.21

Space heater ignites combustibles, catastrophic fire, 1991:4.64, 1992:4.68

Space heater ignites curtains, 2012:1.16

Space heater ignites furniture, 1997:5.51

Space heater ignites gas in catastrophic fire, 1991:4.66

Space heater ignites gasoline vapors, 1997:1.26

Space heater ignites lantern fuel, 1994:3.28

Space heater ignites mattress, 2000:5.57

Space heater ignites structural components, 1995:6.108

Space heater ignites toy, 2012:3.36

Space heater ignites upholstered materials, 1997:2.22

Space heater used to ignite wood by child in fatal fire, 1998:1.23

Steel drum used as stove, catastrophic dwelling fire cause, 2002:5.82

Stove burner ignites clothing, **1994:**2.29, **2012:**1.17, 3.34

Stove burner ignites paper set on fire by child, **2010:**1.21

Stove burner ignites spilled food or oil, 2010:6.24

Stove burner turned on by child, ignites plastic trays, 2000:5.57

Stove burners ignite book placed on stove, 1994:5.27

Stove burners ignite kitchen fire, 2006:5.28

Stove fire ignites cabinets, 2012:4.24

Stove fire spreads to other rooms, **2004:**2.19

Stove ignites cardboard boxes, 2012:3.29

Stove ignites catastrophic fire, 2003:5.75, 2004:5.68

Stove ignites fatal fire, 2009:3.33

Stove turned on, unattended, ignites combustibles, cabinet, **2012**:3.30

Stove turned on, unattended, ignites restaurant fire, 2002:2.26

Stove turned on, unattended, ignites wooden cabinets, 2002:1.21

Tank heater, electrical distribution system malfunction, **2001**:6.23

Tank heater ignites epoxy in truck, **2011:**5.19

Toaster oven cord ignites wood framing in catastrophic fire, 1992:4.67

Toaster oven short circuits, ignites bread wrappings, paneling, 1998:3.38

Trends show home heating and cooking fires have decreased, but heating fires remain deadlier, **2001:**2.63

Warming candle ignites cloth drape in food station, **2004:**1.14

Water heater pipe, dislodged, ignites paneling, structural framing, 1999:5.20

Wood-fired heater ignites structural framing, 1999:5.51

Wood stove, catastrophic fire cause, 1991:4.64, 68

Wood stove, improperly installed, ignites wood paneling, 1998:5.50

Wood stove, radiant heat from flue ignites stored wood, 1992:5.25

Wood stove chimney, improperly installed, ignites paneling and supports, 1994:5.27

Wood stove ignites structural framing, catastrophic fire factor, 1997:5.49

Wood stove near fire origin point, 1995:5.58

Wood stove near source of fire origin, 1998:5.46

Wood stoves, catastrophic fires caused by, 1991:4.64,

HELIPORTS

Fire protection of rooftop helipads exemplified at Chandler Medical Center, Lexington, Kentucky, **2000**:4.42

NFPA 418, *Heliports*, addresses hospital heliport safety issues, **2012:**1.54

HEWITT, TERRY-DAWN

Profile of, 1998:2.32

HIGH-RISE BUILDINGS

Active fire protection required for high-rises, **1996**:6.34

Chicago adopts building ordinance to increase safety, control costs, 2005:1.34

Commercial building fires, study examines deployment and tactics for, 2012:2.32, 3.46

Construction boom in skyscraper high rises raises fire safety concerns, 2001:3.56

In Dubai, construction plans for world's tallest building include crisis response plan, 2007:2.44

Education needed for high-rise fire safety, 1999:3.84

Evacuation methods, unconventional, reviewed, 2003:6.46

Evacuation plans for people with disabilities, **2002:**4.58

Fire protection systems for high-rises, 1994:2.36

Fire safety design, 1993:6.4

Firefighter crew size and rescue times correlated, study indicates, 2013:3.9

Firefighter staffing levels and response times, study indicates value of adequate, 2013:4.30

Fires in buildings, history of, 2002:3.160

Hong Kong Fire Services Department launches high-rise fire safety campaign, 2001:3.83

Kingdom Centre, Saudi Arabia, and Jin Mao Tower, China, used NFPA codes and standards in design and construction, **2002**:3.66

Life safety codes and standards for, 1992:1.12

National Fire Alarm Code addresses emergency communications systems requirements, **2001:**3.50

NFPA code changes proposed to improve occupant and responder safety in high-rises, **2007**:2.36

NFPA code changes to address post-9/11 concerns reviewed, **2011:**5.42

NFPA codes and standards address fire risk concerns, 1997:6.84

NFPA codes and standards useful worldwide, 1996:2.36

Orlando International Airport's new air traffic control tower incorporates new fire safety features, **2003**:3.68

Performance-based design approaches to sprinkler reliability, **1999:**4.24

Petronas Towers, Kuala Lumpur, Malaysia, world's newest tallest buildings, 2001:3.64

Simulated plane crash into high-rise tests emergency preparedness, 1993:6.35

Speaker circuit survivability, National Fire Alarm Code®, requirement, 2001:3.76

Sprinkler retrofit required by Chicago, other cities, states, 2005:2.30

Staging and stairway support help manage high-rise fire logistics, 2003:2.32

Standpipe system study should be included in pre-incident planning, 2013:5.34

Statistics on fires and associated losses, 2009:4.71, 2012:5.85

Stratosphere Mall and Tower, Las Vegas, Nevada, fire protection systems, 2001:6.66

Tactics for wind-driven conditions at high-rise building fires subject of Fire Protection Research Foundation study, **2008:**6.24

Traditional approach to fire safety is still best approach, 2003:1.58

U. S. high rise fires; systematic tracking system, 1994:2.47

```
Willis Tower management and Chicago Fire Department join forces to protect country's tallest
         building, 2013:3.64
HIGH-RISE BUILDING FIRES
  Apartment buildings
     Florida, 1990, 1991:3.25
     Florida, 1993, 1994:5.27
     Illinois, 2005, 2006:6.22
     New York, 1993, 1994:5.27
     New York, Dec. 18, 1998, fire investigation report, 1999:3.84
     New York, Dec. 23, 1998, fire investigation report, 1999:3.84
     Oklahoma, 2007, 2008:3.28
     Virginia, 1992, 1993:3.35
  Catastrophic
     Office building, Pennsylvania, Feb. 23, 1991, 1992:4.71
     Office building complex, New York, Feb. 26, 1993, 1994:5.104, 1994:6.90
  Club/hotel, Indianapolis, Ind., Feb. 3, 1992, 1992:6.31
  Condominium, Illinois, 1990, 1991:6.23
  Department store/offices, Hawaii, July, 1993, 1994:6.91
  Dormitory, Arizona, 1990, 1991:2.29
  Dormitory, Illinois, 2001, 2002:6.21
  Fire protection needs revealed by recent fires, 1992:5.56
  Louisville, Ky., Fire Department training program, 1994:2.55
  Office buildings
     California, March, 1991, 1992:6.78
     Iowa, 1992, 1993:1.26
     Los Angeles, Calif., Feb. 15, 1992, 1992:5.56
     Los Angeles, Calif., May 4, 1988, 1992:5.56
     Massachusetts, 1991, 1992:5.28
     New York, 1996, 1997:6.22
     New York, April, 2003, 2004:6.53
     Parque Central, Caracas, Venezuela, fire report shows lack of sprinkler maintenance, testing,
            2005:2.46
     Pennsylvania, Feb., 1991, 1992:6.74
     Philadelphia, Pa., Feb. 23, 1991, 1991:5.64, 1992:5.56
     Utah, 1990, 1991:2.30
  Operational priorities at fires, 2001:3.40
  World Trade Center, New York (See WORLD TRADE CENTER, N. Y., N. Y.)
HIGH-TECH INDUSTRIES
  Fire protection for, 1992:2.32
HIGHWAYS
```

California, highway fire, Nov., 2005, **2006**:6.69

California, highway fire, April, 2007, 2008:6.45

Connecticut, highway fire, March, 2004, 2005:6.48

NFPA 502, *Road Tunnels, Bridges, and Other Limited Access Highways*, guides Boston's "Big Dig" Central Artery/Tunnel Project fire safety, **2003:**3.42

HISTORIC BUILDINGS

Alarm system retrofits for historic landmarks are keen challenge, 2003:1.30

Colonial Williamsburg, Virginia, sprinkler system corrosion issues led to NFPA 909 changes, **2013:5**.16

Colonial Williamsburg, Virginia, successfully balances fire protection and historic preservation, **2003:**1.40

Colonial Williamsburg includes Fire Protection Research Foundation in program to insure fire protection method appropriate to physical environment, **2013**:6.28

Fenway Park, nation's oldest ballpark, renovations incorporate fire and life safety elements, **2012:**4.48

Mount Athos, Greece, monastic community balances fire protection with preserving historic sites, **2000:**6.72

NFPA 909, Protection of Cultural Resources Including Museums, Libraries, Places of Worship, and Historic Properties, provides fire protection guidance for historical, cultural properties, **2000:**6.28

NFPA 914, Fire Protection in Historic Structures, questions answered, 2003:2.34

NFPA 914, *Recommended Practice for Fire Protection in Historic Structures*, changes to standard, **2000:**6.75

NFPA 914, *Recommended Practice for Fire Protection in Historic Structures*, fall meeting review, **2000:**5.91

NFPA codes create balance between life safety and preservation, 2003:1.26

Performance-based design aids preservation, fire protection goals, 1999:5.28

Sprinkler technology for historical retrofits has improved, 2003:1.20

Statue of Liberty renovation incorporates fire/life safety improvements while maintaining historical components, **2012:**4.60

U. S. Capitol fire protection offers special challenges, 2000:6.57

HISTORIC BUILDING FIRES. See also MANSION FIRES

California, 1996, 1997:3.29

Church, Barrington, Illinois, Oct. 28, 1998, fire investigation report, 1999:3.102

Church, Iowa, 1998, **1999:**3.43

Massachusetts, 1994, 1995:4.39

Store, Pennsylvania, 2004, 2005:1.19

U. S. Treasury Building fire indicated life safety deficiencies, 1996:6.52

West Virginia, 1996, 1997:6.22

Wisconsin, 2008, 2009:3.42

HOARDING

Apartment building fire, fatal, factor in, **2013:**4.20

Compulsive hoarding fire safety issues addressed by fire service/social agency teamwork, **2012:**1.44

Dwelling fire, catastrophic, factor in, **2012:**5.71

Dwelling fire, fatal, factor in, **2012:**4.20, 24, **2013:**1.20, 3.22, 4.20, 22

HOEBEL, JAMES F.

Profile of, **1997:**2.37

HOME FIRES. See DWELLING FIRES; RESIDENTIAL FIRES

HOMELAND SECURITY. See also DISASTER RESPONSE

Coordinating homeland security and NFPA 72® requirements for mass notification, **2004:**1.29, 1.40

Homeland security requires firm foundation of basic fire safety principles, 2004:1.26

Many NFPA standards address homeland security needs, 2004:1.40

NFPA codes and standards provide cohesive approach for U.S. Homeland Security Department agencies, **2009**:4.46

- U. S. Homeland Security Department adopts 5 NFPA standards for first responder equipment, **2004**:2.34
- U. S. Homeland Security Department adopts 8 NFPA standards for first responder personal protective equipment, **2007**:3.18
- U. S. Homeland Security Department adopts 11 NFPA standards for emergency responders, **2007**:6.14
- U. S. Homeland Security Department has adopted NFPA equipment standards but preparedness lags, **2005**:1.12

HOMELESS. See also VAGRANTS

Catastrophic fires involving, **1991:**4.67, **2011:**5.77

Catastrophic wharf fire victims, 1998:5.53

Fatal truck fire, Massachusetts, 1996, 1997:5.24

Mercantile building fire started by, 2013:4.18

Risk Watch® program adapted for mothers and children in emergency shelters, 2006:4.68

Tavern fire started by, 1999:1.18

Vacant dwelling fire victim(s), **2000:**5.60, **2010:**6.21

Vacant store fire started by, 1999:6.20, 2012:2.18

Warehouse fire started by, 2000:5.59

HOMELESS SHELTER FIRES. See GROUP HOME FIRES

HONDURAS

Comayagua prison fire, Feb., 2012, **2012:**5.50

HONG KONG

Fire safety provisions at Hong Kong International Airport, 2001:1.38

Fire Services Department launches high-rise fire safety campaign, 2001:3.83

HOODS, KITCHEN VENTILATION

Blocks sprinklers from deep fat fryer fire, 1992:5.25

Char broil pit fire, unattended, ignites grease in hood; manual suppression system not used, **2000**:6.96

Dry chemical extinguishing system operates, but fire above system, 1997:6.53

Extinguishing system did not operate, 2011:5.14

Extinguishing system disconnected, 2011:3.45

Filters in hood missing, delays activation of dry chemical system, 2003:2.22

Fire spreads to concealed spaces from hood; makeup air system fails to shut down, 1999:5.21

Fire spreads to hood exhaust system, **2011:**3.45

Grill fire ignites grease prior to suppression system activation, 1996:5.25

Improperly installed hood allows heat to pyrolize wall studs, 2002:6.22

Manually activated, extinguishes restaurant fire, 2009:2.27

Sprinkler in hood extinguishes fire, 1992:6.25

Wet chemical extinguishing system, satisfactory performance, 2003:2.20

HOSPITALS. See also HEALTH CARE OCCUPANCIES

Construction/renovation of facilities requires flexibility, Northwestern Memorial Hospital, Chicago, **2000:**2.48

Feather River Hospital, Paradise, California, July, 2008, evacuation report, 2011:1.60

New York-Presbyterian Hospital conducts self-examination of fire walls/barriers to improve fire safety, **2007:**5.76

Pre-incident plans needed by hospitals, **2004:**1.22

Tropical Storm Allison overwhelmed Houston, Texas, hospitals, incident investigation report, **2002:**4.48

HOSPITAL FIRES

Catastrophic

New York, Sept. 1, 1993, 1994:5.105

Virginia, Dec. 31, 1995, 1995:5.64

Connecticut, 2003, 2004:4.18

Connecticut, 2005, 2006:1.20

Florida, 2000, **2001:**5.26

Florida, 2004, 2005:6.22

Florida, 2010, **2011:**2.30

Georgia, 2009, 2010:3.42

Hartford Hospital, Connecticut, Dec. 8, 1961, 2009:1.46

Illinois, 1994, **1995:**1.31

Illinois, 1997, 1998:1.24

Illinois, 1998, **1999:**2.26

Iowa, 2002, 2003:6.16

Massachusetts, Jan. 24, 1993, 1993:5.49

Massachusetts, 1995, 1996:5.26

Massachusetts, Oct. 16, 1996, analysis, 1997:3.88

Massachusetts, 2002, 2003:3.14

Michigan, 2001, 2002:5.21

Missouri, 1997, 1998:5.17

New Jersey, 2002, 2003:2.202

Ohio, 1994, **1995:**2.31

Ohio, 2001, **2002:**5.21

Ontario, Canada, 1992, **1993:**2.20

Pennsylvania, 1991, 1992:2.27

Pennsylvania, 2011, 2012:5.29

Tennessee, 1991, 1992:5.25

Texas, 2009, **2010:**1.27

Texas, 2011, **2012:**3.39, 5.29

HOSPITALS

NFPA 418, *Heliports*, addresses hospital heliport safety issues, **2012:**1.54

HOT TUBS

National Electrical Code prevents accidents, 1992:4.22

HOT WORK. See WELDING AND CUTTING OPERATIONS

HOTELS

Fire protection challenges for Mandalay Bay Hotel and Casino, Las Vegas, NV, **2005**:3.108 Monte Carlo Hotel Casino fire, Las Vegas, Nevada, Jan. 25, 2008, led to new inspection and training procedures in Clark County, NV, **2010**:3.82

Statistics on U.S. fires, 1999:5.112

Statistics on U.S. fires, 2002-2005, 2008:3.16

Use of NFPA best practices makes hotels worldwide safer, 2001:2.72

HOTEL FIRES. See also RESORT FIRES

Alaska, March 20, 1996, 1997:6.57

Alaska, 2006, 2007:1.15

California, Palace Hotel, San Francisco, 1906, 2000:4.70

California, 1990, **1991:**6.24

California, 1993, 1994:2.28

California, 2003, 2004:3.18

California, 2004, 2005:6.21

California, 2007, 2008:6.21

Catastrophic

Alabama, Nov., 2002, **2003:**5.75

Alabama, Jan., 2010, 2011:5.78

Florida, April 6, 1990, 1991:4.64

Georgia, June, 2007, 2008:5.59

Illinois, March 16, 1993, 1994:5.95

Minnesota, July 12, 1991, 1992:4.67

Minnesota, July, 2011, 2012:5.72

Nevada, Oct., 2006, 2007:5.57

South Carolina, Jan., 2004, 2005:5.56

Colorado, Nov., 2000, 2001:6.64

Colorado, 2008, 2009:3.38

Connecticut, Aug., 2005, 2006:6.69

Connecticut, Great Cedar Hotel, Foxwood Resorts, Ledyard, Jan. 29, 2008, 2008:3.69

Favorable hotel fire safety trends lead to change in reporting protocol, **1996:**4.55

Florida, 1993, **1994:**2.29

Florida, 1994, **1995:**2.29

Florida, 1997, **1998:**6.23

Florida, 2011, **2012:**6.27

Illinois, March, 1992, **1993:**6.81

Illinois, 2009, 2010:4.27, 2010:5.29

Indiana, 1992, **1992:**6.31

Kansas, 2010, 2011:2.27

Kentucky, 2001, 2002:1.20

Lasalle Hotel fire, Chicago, 1946, 2006:5.96, 2013:3.128

Maine, March, 1994, **1995:**6.108

Maine, 2011, 2012:4.22

Massachusetts, 2006, 2007:1.15

Michigan, 1991, 1992:1.22

Michigan, 1994, 1995:1.33

Michigan, 1997, 1998:3.41

Minnesota, 2005, 2006:3.34

Mississippi, 1995, **1996:**5.24

wiississippi, 1775, **1770.**5.

Nevada, 1997, **1998:**5.16 Nevada, 1998, **1999:**2.24 Nevada, Jan., 2008, **2009:**6.77

Nevada, June, 1998, 1999:6.95

Nevada, MGM Grand Hotel fire, Las Vegas, Nov. 21, 1980, **1996**:2.70, **2001**:2.96, **2010**:3.120

Nevada, Monte Carlo Hotel Casino, Las Vegas, Jan. 25, 2008, fire investigation report,

2008:3.67

New Jersey, 1993, **1994:**2.30

New Jersey, 2001, **2002:**6.21

New York, Nov., 2008, **2009:**6.79

Ohio, 1996, 1997:6.19

Pennsylvania, 2001, 2002:6.20

Pennsylvania, 2007, 2008:6.22

Puerto Rico, Dupont Plaza Hotel fire, San Juan, Jan. 1, 1986, 2012:6.80

South Dakota, 2010, **2011:**1.24

Texas, 1996, 1997:4.19

Thailand, Royal Jomtien Hotel, July 11, 1997, fire investigation report, 1998:2.34

Virginia, 2001, 2002:2.26

Virginia, 2011, 2012:4.24

Washington, 2004, 2005:1.17

Washington, 2012, 2013:4.19

HOTSEAT COLUMNS. See PROFILE COLUMNS

HOUSEKEEPING, POOR

Catastrophic dwelling fire, factor in, 2009:5.79

Dwelling fire, factor in, **2013:**6.23

Hardwood flooring manufacturing plant fire, factor in, 2007:6.76

Kennel fire, factor in, 1993:2.20

Printing plant fire, factor in, 1993:4.27

Seed cleaning warehouse fire, factor in, 1999:3.44

HOUSING FOR ELDERLY FIRES. See also ASSISTED LIVING FACILITIES

California, 1995, **1996:**5.24

California, 2012, 2013:1.24

Connecticut, 2005, **2006**:2.26

Florida, 2011, 2012:3.36

Illinois, 1993, **1994:**1.31

Kansas, 1990, 1991:3.25

Kentucky, 1998, 1999:6.19

Massachusetts, 1992, 1993:6.28

Michigan, 2012, 2012:3.29

Missouri, 1989, **1991:**1.30

Nevada, 2004, 2005:5.32

Oklahoma, 2006, 2007:1.19

Pennsylvania, Nov., 2006, **2007**:6.80

Rhode Island, 2011, 2012:5.25

Rhode Island, 2012, **2013**:6.18

Virginia, Feb., 2003, 2004:6.56

HOUSTON, TEXAS

Tropical Storm Allison overwhelmed area hospitals, incident investigation report, 2002:4.48

```
HVAC SYSTEMS
```

Electric fault in wiring ignites framing, 1997:5.23

Fan motor seizes, overheats, ignites nursing home fire, **2004:**4.19

Fire spread through, **1994:**5.104

High-rise club/hotel fire, factor in, 1992:6.31

Interlocks, automatically triggered by smoke in catastrophic fire, 1997:5.52

Motor seizes, overheats, ignites insulation, 2010:1.27

Propane-fueled system feeds dwelling fire, 2005:6.21

Roof-mounted, fire ignites hotel framing materials, 2005:1.17

Roof-mounted, fire spread to, 1994:6.35

Smoke, combustion products in high-rise office building fire distributed by, 1992:5.56

Smoke exhausted from shopping mall fire using, 2009:5.29

Smoke in ducts sets off fire alarm system, 2013:4.24

Sprinklers blocked by, 1994:2.30

Supermarket fire, factor in, **1991:**2.30

HYDRANTS, FIRE. See FIRE SERVICE OPERATIONS HAMPERED

HYDROCARBONS

Heat exchanger rupture ignites vapors, **2011:**5.77

Incendiary (suspicious) fire ignited by, 2012:6.18

Radiant heat flux hazard criterion to establish fire safety zones, 2006:5.74

Torch ignites hydrocarbon vapors, 2009:4.22

HYDROELECTRIC PLANTS. See ELECTRIC GENERATING PLANT FIRES HYDROGEN

Fuel use and safety issues, 2005:3.58

Technology development requires research on infrastructure safety, 2006:4.22

HYDROGEN FIRES

Electrical arc ignites hydrogen, **1991:**3.31, **1995:**6.102

Friction when line ruptures ignites hydrogen, 1994:6.36

Hydrogen from chemical reaction ignites, 1994:6.95, 2012:6.62

Hydrogen generated by release of sulfuric acid, ignites, 1993:4.27

Hydrogen peroxide leak reacts with adhesive, ignites manufacturing plant fire, 2011:7.22

LP-Gas burner ignites hydrogen, 1992:5.28

HYDROGEN FIRES AND EXPLOSIONS

Leak ignited by friction spark, manufacturing plant fire, 2012:5.74

Mechanical failure ruptures hydrogen line, power plant fire, 2008:6.44

Pipe connection failed, 1991:5.30

Power plant fire ignites hydrogen, **1994**:6.92, **1995**:6.100

HYPERBARIC CHAMBERS

NFPA 99, Health Care Facilities, compliance with requirements of, **2000:**2.27

I IDAHO

Apartment building fire, 2010, **2011:**5.16

Catastrophic fires

Aircraft, Aug., 2011, 2012:5.75

Manufactured home, Sept. 27, 1997, 1998:5.46

Manufactured home, June, 2010, 2011:5.76

Motor vehicle, July 4, 1997, 1998:5.55

Motor vehicle, June, 2007, 2008:5.63

Club fire, Dec., 2008, 2009:6.84

Dwelling fire, 1995, **1996:**4.22

Fatal fires

Dwelling, 2008, 2009:3.36

Manufactured home, 2007, 2008:4.22

Manufactured home, 2011, 2012:3.30

Wildland/urban interface, 2010, 2011:6.18

Manufacturing plant fire, Nov., 1998, **1999:**6.92

Mill fire, July, 1998, 1999:6.90

Warehouse fire, Jan., 1998, 1999:6.92

Wildland fire, 1993:4.26

Wildland/urban interface fire, 1996, 1997:4.21

ILLINOIS. See also CHICAGO, ILLINOIS

Apartment building fire, 1994, **1995**:4.37

Apartment building fire, 2005, 2006:6.22

Apartment building fire, 2007, 2008:4.22

Apartment building fire, 2009, 2010:1.25

Apartment building fire, 2010, 2011:7.18

Building-under-construction fire, 2010, 2011:1.25

Bus fire, 1991, **1992:**4.26

Casino, March, 2009, 2010:6.63

Catastrophic fires

Aircraft, Oct. 30, 1996, 1997:5.54

Aircraft, Nov. 19, 1996, 1997:5.54

Apartment building, May 30, 1990, 1991:4.65

Apartment building, March 14, 1991, 1992:4.69

Apartment building, Dec. 9, 1991, 1992:4.67

Apartment building, March 20, 1994, 1995:5.53

Apartment building, Oct. 26, 1997, 1998:5.46

Apartment building, May 31, 1999, 2000:5.56

Apartment building, March, 2001, 2002:5.82

Apartment building, Sept., 2006, 2007:5.58

Apartment building, Feb., 2010, 2011:5.73

Apartment building, May, 2011, 2012:5.69

Automobiles, Feb., 2004, 2005:5.60

Automobiles, Aug., 2004, 2005:5.61

Barge, July 3, 1997, 1998:5.55

Dwelling, Jan. 11, 1990, 1991:4.65

Dwelling, Jan. 1, 1991, 1992:4.68

Dwelling, Dec. 6, 1992, 1993:5.64

Dwelling, Aug. 14, 1994, 1995:5.54

Dwelling, Aug. 12, 1995, 1996:5.93

Dwelling, Jan. 14, 1995, **1996:**5.91

Dwelling, Jan., 2000, **2001:**5.75

Dwelling, April, 2007, 2008:5.59

Gas distribution main fire/explosion, Jan. 17, 1992, 1993:5.68

Hotel, March 16, 1993, **1994:**5.95

Manufactured home, May, 2003, 2004:5.69

Manufacturing plant, April, 2004, 2005:5.59

Office building, Oct., 2003, 2004:5.71

Railroad rolling stock/truck, March 15, 1999, 2000:5.61

Train, Dec. 22, 1995, **1996:**5.101

Church fire, 1989, 1991:1.30

Church fire, 1998, 1999:5.21

Church fire, Oct. 28, 1998, fire investigation report, 1999:3.102

Club fire, 1994, **1995:**3.39

Coal mine fire, Sept., 1991, 1992:6.77

Coal preparation plant fire, Dec., 1993, 1994:6.93

Condominium fire, 1990, 1991:6.23

Condominium fire, Nov. 17, 1996, 1997:6.58

Dormitory fire, 1999, 2000:6.16

Dormitory fire, 2001, 2002:6.21

DuPage County, Illinois, fire investigation task force works against arson, 2001:1.65

Dwelling fire, 1994, **1995**:6.36

Dwelling fire, 2010, 2011:5.16

Dwelling under construction, 1990, 1991:3.27

Electric generating plant fire, Nov., 1994, 1995:6.100

Electric generating plant fire, Dec. 18, 1996, 1997:6.58

Electric generating plant fire, 1998, 1999:6.95

Electric generating plant fire, Nov., 2007, 2008:6.44

Fatal fires

Apartment building, 1990, **1991:**4.25

Apartment building, 1993, **1994:**1.31

Apartment building, 2004, **2005:**5.27

Apartment building, 2012, **2013**:5.23

Dwelling, 1997, 1998:3.38

Dwelling, 1998, 1999:3.46

Dwelling, 2002, 2003:5.16

Dwelling, 2005, 2006:1.18

Dwelling, 2006, 2007:3.26

Dwelling, 2007, 2008:2.24, 3.26, 5.24

Dwelling, 2008, **2009:**5.25

Dwelling, 2009, 2010:5.32

Dwelling, 2011, **2012**:6.21

Group home, 1994, **1995:**6.37

Hospital, 1994, 1995:1.31

Hospital, 1998, 1999:2.26

Hotel, 2008, 2009:5.26

Hotel, 2009, **2010**:4.27

Railroad rolling stock, March 15, 1994, 2000:5.61, 6.94

Vacant building, 1998, **1999:**1.18

Garage, parking, fire, 2010, **2011**:3.48

Garage, residential, fire, 2011, **2012:**1.15

Hospital fire, 1997, 1998:1.24

Hotel fire, Jan., 1992, 1993:6.81

Hotel fire, 2009, 2010:5.29

Manufacturing plant fire, Sept., 1992, 1993:6.83

Manufacturing plant fire, May, 1993, 1994:6.94

Manufacturing plant fire, 1994, 1995:2.32, 1995:3.38

Manufacturing plant fire, March, 1994, 1995:6.108

Manufacturing plant fire, Sept., 1994, **1995:**6.107

Manufacturing plant fire, Oct., 1995, 1996:6.65

Manufacturing plant fire, Feb. 7, 1996, **1997:**6.52

Manufacturing plant fire, May 1, 1996, **1997**:6.50

Manufacturing plant fire, 1997, 1998:4.20

Manufacturing plant fire, April 23, 1999, 2000:6.84

Manufacturing plant fire, May 6, 1999, 2000:6.86

Manufacturing plant fire, April, 2002, 2003:6.77

Manufacturing plant fire, Aug., 2006, 2007:6.76

Manufacturing plant fire, 2008, 2009:6.26

Manufacturing plant fire, 2009, 2010:6.27

Manufacturing plant fire, 2010, 2011:5.19

Manufacturing plant fire, 2011, 2012:2.19

Manufacturing plant fire, April, 2012, 2013:6.52

Marina fire, 2012, 2013:4.18

Mill fire, Aug., 1993, 1994:6.94

Mixed-occupancy fire, 1992, 1993:3.34

Multiple occupancy complex fire, 2000, 2001:3.26

Nuclear energy plant fire, April, 1994, 1995:6.102

Nursing home fire, 1997, 1998:1.24

Nursing home fire, 2001, **2002:**1.21

Nursing home fire, 2006, **2007:**5.32

Nursing home fire, 2010, **2011:**4.22

Nursing home fire, 2011, **2012:**1.18

Office building fire, Aug. 11, 1999, 2000:6.93

Office building fire, 2008, **2009:**6.27

Recreational facility fire, March, 1992, 1993:6.88

Refinery fire, 2001, 2002:6.75

Restaurant/country club fire, Oct. 18, 1996, **1997:**6.59

Restaurant fire, 1991, 1992:5.30

Restaurant fire, 2000, 2001:4.22

Restaurant fire, 2008, 2009:2.27

Shopping mall fire, 2010, **2011**:4.21

Storage facility fire, Feb., 2009, 2009:6.80

Store fires, 1989, **1991:**1.29

```
Store fires, 1992, 1993:3.34
```

Store fire, 1993, **1994:**1.32

Store fire, Apr. 24, 1996, 1997:6.54

Store fire, Oct. 29, 1996, 1997:6.53

Store fire, Sept., 1998, 1999:6.94

Store fire, 2001, **2002:**5.22

Store fire, May, 2007, 2008:6.44

Store fire, 2008, **2009:**4.20

Store fire, 2011, **2012:**5.31

Transformer fire, Sept., 2009, 2010:6.68

United Airlines Operations Control Center fire, Elk Grove, Aug. 11, 1999, fire investigation, **2001:**1.55

Warehouse fire, Aug., 1993, 1994:6.96

Warehouse fire, Jan., 1993, 1994:6.96

Warehouse fire, 1994, 1995:3.38

Warehouse fire, Oct. 29, 1996, 1997:6.56

Warehouse fire, Aug. 19, 1999, 2000:6.88

Warehouse fire, 2000, 2001:2.24

Warehouse fire, Oct., 2003, 2004:6.57

Warehouse fire, 2009, **2010**:2.26

Warehouse fire, 2010, 2011:3.48

Wastewater treatment plant, Dec., 2010, 2011:7.59

IMPERIAL FOODS PROCESSING PLANT

Catastrophic, Sept. 3, 1991, **1992:**1.29

IN A FLASH COLUMNS, **2004**:1.12, 2.12, 3.16, 4.14, 5.10, 6.12, **2005**:1.10, 2.10, 3.16, 4.10, 5.14, 6.10, **2006**:1.10, 2.15, 3.19, 4.11, 5.19, 6.11, **2007**:1.11, 2.13, 3.17, 4.13, 5.17, 6.11, **2008**:1.13, 2.19, 3.11, 4.13, 5.15, 6.11, **2009**:1.11, 2.15, 3.23, 4.11, 5.17, 6.15, **2010**:1.15, 2.17, 3.23, 4.17, 5.23, 6.15, **2011**:1.15, 2.17, 3.19, 4.9, 5.9, 7.9, **2012**:1.9, 2.9, 3.11, 4.11, 5.13, 6.9, **2013**:1.7, 2.9, 3.9, 4.9, 5.11, 6.9

Comparing sizes of World Trade Center floor area and aircraft, 2002:5.17

Cultural facilities, property loss in, 2003:1.11

Examples of news items from previous columns, **2007:**Fall.162

Fire service factors in Homeland Security Department, 2003:2.19

Gas- and charcoal-fueled grill fire statistics, 2003:4.13

High cost of fire in United States, statistical summary, 2002:3.28

Home escape plans and drills are Fire Prevention Week theme, 2003:5.13

NFPA 101®, *Life Safety Code*®, has been widely adopted by states and federal government agencies, **2002:**4.14

Nursing home fire statistics, 2003:6.11

Office occupancies, structure fires in, 2002:2.20

Public assemblies, structure fires in, 2002:1.16

Sprinkler systems need regular maintenance, testing, and available water supply, 2003:3.13

U. S. Chemical Safety and Hazard Investigation Board provides reports on chemical incidents worldwide, **2002**:6.17

IN COMPLIANCE COLUMNS. See also BUILDING TO CODE COLUMNS

Airport safety addressed in several NFPA standards, 2004:5.30

Alarm system acceptance testing, 2004:6.28

Answers to code questions may require research, 2005:5:40

Assembly occupancy risk management using performance-based design, 2000:3.50

Building height and area table regulations discussed, 2001:1.30

Building site plan needs exit discharge from exit to public way, 1998:5.22

Code cycle revisions reflect technical changes, knowledge from fire investigations, 2005:1.26

Code requirements unique to health care facilities can impede compliance, 2000:2.30

Codes include referenced publications lists, **2005**:4.30

Code's Scope, Purpose, and Application sections clarify subject addressed by code, 2006:3.44

Cooking equipment protection, Life Safety Code and NFPA 96 requirements for, 2009:6.33

Development of performance-based provisions for Life Safety Code, 1998:2.24

Door inspections require special vigilance, 2009:4.30

Egress capacity factors differ in NFPA 101[®], *Life Safety Code*, and the *International Building Code* 2003, **2007:**1.28

Electric locks, evaluating for compliance with NFPA 101, 1999:6.26

Electrical room fire protection and enclosure requirements, **2008:5**.38

Emergency lighting requirements, Life Safety Code®, 2005:6.28

Enforcement of codes keeps life loss low in educational occupancy fires, 2003:5.32

Equivalency code sections requires submitting technical documentation to AHJ, 2006:2.36

Evaluating need for structural fire resistance with performance-based design, 2000:5.34

For existing building systems, code scope and application sections should be reviewed carefully, **2007**:3.44

Exit access, exterior exits, and exit discharge must be clear of obstructions, 1998:6.28

Exit sign placement and lighting requirements, 2006:1.28

Federal bills offer economic incentive for sprinkler installation in existing buildings, 2005:3.38

Fire protection, water supply industries discuss sprinkler backflow prevention, 1997:6.26

Fire protection-rated door requirements included in different codes, 2008:1.29

Fire protection system supervision requirement is important feature of system, 2006:4.34

Fire-resistive construction requirements vary with intent of code requirement, 2003:2.36

Flammable liquid storage cabinets promote housekeeping and provide minimal separation, **2011:**2.37

Health care and residential board-and-care facilities differentiated, 1999:4.32

Historic building preservation and fire protection aided by performance-based design, **1999:**5.28

For historic buildings, NFPA codes create balance between life safety and preservation, **2003:**1.26

Homeland security requires firm foundation of basic fire safety principles, **2004:**1.26

Interior finish materials need scrutiny in assembly occupancies, 2005:2.34

Kiss nightclub fire, Brazil, raises question again of hazardous interior finish materials, **2013:**2.32

Loading dock presents transportation life-safety issues, **2003:**3.32

NARRP and other codes address rehabilitation of existing buildings, 2000:6.24

NFPA 1, *Uniform Fire Code*TM, applicability, requirements, and resolution of conflict with other codes explained, **2007**:2.30

NFPA 30, *Flammable and Combustible Liquids Code*, promotes safe dispensing and use of liquids outside of storage, **2011:**3.56

- NFPA 72, National Fire Alarm Code®, proposed changes to improve system design, 1999:2.32
- NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Equipment, application to nursing home cooking operations, **2013:**5.36
- NFPA 101®, *Life Safety Code*®, 2006, includes significant changes to building rehabilitation requirements, **2008:**2.38
- NFPA 101®, *Life Safety Code*®, 2009, changes reflected in proposed OSHA Subpart E updates, **2010**:6.34
- NFPA 101®, Life Safety Code®, 2009, changes reviewed, **2009:**2.34, 3.52
- NFPA 101®, Life Safety Code®, 2009, elevator egress regulations in, 2009:5.36
- NFPA 101®, *Life Safety Code*®, 2012, includes major changes for health care occupancies, **2012:**1.34
- NFPA 101®, *Life Safety Code*®, 2012, updates placement and use of items in health care occupancy corridors, **2013:**1.34
- NFPA 101®, *Life Safety Code*®, access-controlled egress doors and locks requirements, **2007**:5.40
- NFPA 101®, Life Safety Code®, addresses barrier protection for hazardous areas, 2013:3.40
- NFPA 101®, Life Safety Code®, addresses egress path design issues, 2001:5.36
- NFPA 101®, *Life Safety Code*®, addresses egress through intervening rooms and spaces, **2007:**6.30
- NFPA 101®, Life Safety Code®, addresses exit sign placement, 2010:3.52
- NFPA 101®, Life Safety Code®, addresses life safety for high-hazard uses, 2000:4.30
- NFPA 101®, Life Safety Code®, addresses vertical opening protection, 2010:1.34
- NFPA 101®, Life Safety Code®, airport emergency evacuation plans, 2002:5.32
- NFPA 101®, Life Safety Code®, application to nursing home cooking operations, 2013:5.36
- NFPA 101®, Life Safety Code®, assembly occupancy emergency requirements, 2002:1.30
- NFPA 101®, Life Safety Code®, egress distance requirements discussed, 2008:6.30
- NFPA 101®, Life Safety Code®, elevator lobby egress requirements, 2011:5.34
- NFPA 101®, Life Safety Code®, emergency plans content requirements and when plans are required, 2010:4.40
- NFPA 101®, *Life Safety Code*®, evacuation diagram requirements and building a better diagram, **2013:**6.32
- NFPA 101®, Life Safety Code®, exit stair signage and marking requirements, 2011:1.34
- NFPA 101®, *Life Safety Code*®, fire alarm requirements have created life safety improvements but challenges remain, **2013:**4.32
- NFPA 101®, *Life Safety Code*®, fire barrier, smoke barrier, and smoke partition requirements, **2012:**3.48
- NFPA 101®, *Life Safety Code*®, fire drill requirements, **2010:**5.42
- NFPA 101®, *Life Safety Code*®, has specific fire protection system supervision requirements, **2006:**6.32
- NFPA 101®, *Life Safety Code*®, health care occupancy emergency planning requirements, **2002:**4.30
- NFPA 101®, Life Safety Code®, mezzanine construction requirements, 2009:1.30
- NFPA 101®, Life Safety Code®, office building requirements, 2000:1.26
- NFPA 101[®], *Life Safety Code*[®], panic hardware and fire exit hardware definitions and requirements, **2007:**4.36

NFPA 101®, *Life Safety Code*®, provisions differentiate mixed-use and incidental occupancies, **2002:**3.46

NFPA 101®, Life Safety Code®, quantitative goals define desired safety level, 2011:4.34

NFPA 101®, *Life Safety Code*®, regulations on placement of furnishings and other items in corridors, **2010**:2.36

NFPA 101®, *Life Safety Code*®, requires calculation of simultaneous occupancy load, **2008**:3.40

NFPA 101®, *Life Safety Code*®, requires different number of means of egress for various occupancies, **2012:**2.34

NFPA 101®, *Life Safety Code*®, smoke barriers and smoke partitions, purpose, application, and use in, **2001:**6.28

NFPA 101®, *Life Safety Code*®, specifies when fire alarm system or detection is required and how system is to operate, **2012**:6.34

NFPA 101®, Life Safety Code® addresses lockup safety, 2011:7.34

NFPA 101B, *Means of Egress*, new document scheduled for 1998 NFPA Fall Meeting, **1998:**1.28

NFPA 5000, *NFPA Building Code*TM, has new approach to fire compartments and building height, **2001:**3.46

NFPA codes and standards define "hazard" based on document's purpose, 2008:4.32

NFPA proposes requiring residential sprinklers; Congress considers tax incentive program, **2004:**2.28

Occupancy classification determination critical to applying NFPA 101®, *Life Safety Code*®, and NFPA 5000®, *Building Construction and Safety Code*®, **2006:**5.40

Occupant load calculations crucial to accurate code applications, **2001:**4.32

Occupant load in assembly uses, calculating, 1999:3.54

Office, store renovations can lead to code-compliance problems, 1997:4.26

Office building space rearrangement can affect egress, 2002:2.36

Open flame devices, tableside cooking, and food warming, as ignition sources in assembly occupancies, **2003**:6.26

Petrochemical plant emergencies, planning for, 2002:6.28

Protecting mixed occupancies, 1997:3.38

Residential fire safety relies on education, 2003:4.30

School bulletin boards and decorations, code requirements for, 2012:5.38

School exits require balancing fire safety and security needs, 1998:3.46

Sports venues, operational requirements for, 2004:3.34

Techniques for reading and interpreting codes aid compliance, 2004:4.28

Tents, code requirements for, 2012:4.36

In U. S., residential fire protection is not a priority, **2001**:2.32

Users' manuals needed to document building fire protection systems, 1998:4.26

Uses of, and alternatives to, occupancy classifications, 1997:5.28

IN THE MARKET COLUMNS

Alarm systems, **2001:**6.80

Carbon monoxide alarms and detectors, 1999:1.72

Door accessories, 2002:2.86

Extinguishing agents, 1999:6.98, 2001:1.69

Fire pumps, **2001:**5.94

Firestopping products, **1999:**4.98, **2000:**2.85

Halon alternatives, **2000:**4.86

Hazardous materials, protective clothing for handling, **2001:**4.80

Networked alarm/security systems, 2000:5.95

Portable fire extinguishers, 2000:1.90

Pumps and valves, **1999:**5.102

Safety and accident prevention signs, 2002:1.71

Smoke detectors, **2001:**2.82

Sprinkler heads, hidden, 2000:6.99

Testing facilities, third party, 1999:2.84

INCENDIARY (SUSPICIOUS) FIRES. See also JUVENILE FIRESETTING

Aircraft hangar, 2001, 2002:3.34

Apartment building, California, May, 2003, 2004:6.54

Apartment building, California, Nov., 1993, 1994:6.89

Apartment building, Colorado, 1997, 1998:4.20

Apartment building, Illinois, 2010, 2011:7.18

Apartment building, Kansas, 2010, 2011:1.21

Apartment building, Massachusetts, 1998, 1999:6.17

Apartment building, Michigan, 2009, 2010:4.30

Apartment building, Missouri, 2007, 2008:6.21

Apartment building, Nebraska, 2006, 2007:4.25

Apartment building, New Jersey, 2002, 2003:5.16

Apartment building, New York, 1993, 1994:5.27

Apartment building, New York, 2000, 2001:5.24

Apartment building, North Carolina, 2002, 2003:1.15

Apartment building, Ohio, 1996, 1997:4.20

Apartment building, Ohio, 2000, 2001:2.22, 2001:4.24

Apartment building, Ohio, 2006, 2007:3.34

Apartment building, Pennsylvania, 2002, 2003:2.22, 2003:5.16

Apartment building, Rhode Island, 1999, 2000:4.19

Apartment building, Texas, Jan. 16, 1997, 1998:6.90

Apartment building, Texas, 2001, 2002:3.32

Apartment building, Texas, 2007, 2008:3.24

Apartment building, Texas, 2009, 2010:4.23, 2010:4.24

Apartment building, Virginia, 2001, 2002:4.20

Apartment building, West Virginia, 2001, 2002:4.20

Apartment building, Wisconsin, 2006, 2007:2.22

Apartment building-under-construction, California, June, 1998, 1999:6.96

Apartment complex fire, New Mexico, July, 1995, 1996:6.74

Arsonists use pyrotechnic accelerants in Washington fires, 1992:6.67

Assisted living facility, Colorado, 2001, 2002:2.24

Auto salvage yard, Alabama, 1998, 1999:2.25

Automobile, Massachusetts, 1998, 1999:6.20

Automotive parts warehouse, North Carolina, Aug. 12, 1997, 1998:6.88

Building-under-construction, California, 2001, 2002:3.36

Building-under-construction, California, Jan., 2004, 2005:6.44

Building-under-construction, Delaware, Oct., 2000, 2001:6.63
Building-under-construction, Florida, 1998, 1999:4.21
Building-under-construction, Indiana, March, 2009, 2010:6.63
Building-under-construction, Nevada, Jan., 2003, 2004:6.55
Building-under-construction, Nevada, Sept., 2003, 2004:6.54
Building-under-construction, Oregon, Aug. 19, 1999, 2000:6.95
Building-under-construction, Oregon, March, 2003, 2004:6.54
Building-under-construction, Washington, 2005, 2006:6.24
Building-under-construction, Washington, March, 2006, 2007:6.81
Building-under-renovation, California, 1991, 1992:5.26
Building-under-renovation, California, Oct., 2005, 2006:6.68
Catastrophic

Apartment building, Alabama, Sept., 2001, 2002:5.82 Apartment building, California, Sept. 7, 1991, 1992:4.69 Apartment building, California, May 3, 1993, 1994:5.95 Apartment building, Illinois, Dec. 6, 1992, 1993:5.64 Apartment building, Illinois, March 20, 1994, 1995:5.53 Apartment building, Illinois, Sept. 15, 1997, 1998:5.46 Apartment building, Illinois, May 31, 1999, 2000:5.56 Apartment building, Illinois, Feb., 2010, 2011:5.73 Apartment building, Maryland, Oct., 2002, 2003:5.75 Apartment building, Massachusetts, Feb. 24, 1999, 2000:5.57 Apartment building, Minnesota, Feb. 28, 1994, 1995:5.58 Apartment building, Missouri, March 12, 1999, 2000:5.56 Apartment building, New York, Aug. 4, 1990, 1991:4.66 Apartment building, New York, March 13, 1991, 1992:4.67 Apartment building, New York, Nov., 2001, 2002:5.82 Apartment building, New York, March, 2003, 2004:5.69 Apartment building, North Carolina, Sept. 5, 1993, 1994:5.100 Apartment building, Ohio, 2004, **2005:**5.56 Apartment building, Oregon, June 28, 1996, 1997:5.49 Apartment building, Rhode Island, Feb. 27, 1993, 1994:5.96 Automobile, Kentucky, Sept. 27, 1996, 1997:5.55 Board and care facility, California, Oct. 3, 1995, 1996:5.97 Board and care facility, Texas, Aug. 13, 1990, 1991:4.68 Board and care facility, Texas, April 11, 1993, 1994:5.105 Board and care facility, Washington, April 27, 1998, 1999:5.54 Church, Texas, Feb. 15, 1999, 2000:5.60 Club fire, New York, March 25, 1990, 1991:4.67 Dwelling, Washington, Dec. 17, 1992, 1993:5.66 Dwelling, Alabama, Aug. 27, 1990, 1991:4.64 Dwelling, Alabama, July 20, 1997, 1998:5.50 Dwelling, California, 1992, 1993:5.64 Dwelling, California, May 29, 1995, 1996:5.91 Dwelling, California, April 26, 1997, 1998:5.45 Dwelling, Illinois, May 30, 1990, 1991:4.65

```
Dwelling, Illinois, Jan. 14, 1995, 1996:5.91
```

Dwelling, Illinois, April, 2007, 2008:5.59

Dwelling, Indiana, June 30, 1994, **1995:**5.60

Dwelling, Maryland, July 7, 1992, **1993:**5.62

Dwelling, Maryland, June, 2001, 2002:5.82

Dwelling, Michigan, Feb. 28, 1990, 1991:4.64

Dwelling, Michigan, Oct. 3, 1992, 1993:5.62

Dwelling, Michigan, Nov. 30, 1993, 1994:5.102

Dwelling, Michigan, April, 2001, 2001:5.76

Dwelling, New Jersey, Feb. 13, 1992, 1993:5.62

Dwelling, New York, June 28, 1994, 1995:5.60

Dwelling, Ohio, Jan. 26, 1992, 1993:5.62

Dwelling, Ohio, March, 2000, 2001:5.76

Dwelling, Ohio, May, 2005, 2006:5.60

Dwelling, Ohio, Jan., 2008, **2009:**5.80

Dwelling, Ohio, March, 2008, 2009:5.79

Dwelling, Oklahoma, Sept. 21, 1993, 1994:5.100

Dwelling, Pennsylvania, March 3, 1990, 1991:4.64

Dwelling, Pennsylvania, July 30, 1990, 1991:4.66

Dwelling, Pennsylvania, Dec. 23, 1994, 1995:5.58

Dwelling, Pennsylvania, Oct. 24, 1997, 1998:5.50

Dwelling, Pennsylvania, Nov., 2003, 2004:5.70

Dwelling, Pennsylvania, Oct., 2004, 2005:5.57

Dwelling, Tennessee, March 31, 1992, 1993:5.62

Dwelling, Texas, Feb. 2, 1995, 1996:5.92

Dwelling, Washington, April, 2011, 2012:5.69

Dwelling, West Virginia, Nov. 21, 1997, 1998:5.50

High-rise building complex, New York, Feb. 26, 1993, 1994:5.104, 1994:6.90

Hospital, Virginia, Dec. 31, 1994, 1995:5.64

Hotel, Colorado, Jan. 27, 1997, 1998:5.49

Hotel, Georgia, June, 2007, 2008:5.59

Hotel, Nevada, Oct., 2006, 2007:5.57

Hotel, South Carolina, Jan., 2004, 2005:5.56

Manufacturing plant/warehouse, Washington, Jan. 5, 1995, 1996:5.96

Motor vehicle, Florida, Dec., 2003, 2004:5.73

Motor vehicle, Massachusetts, March, 2007, 2008:5.62

Motor vehicle, Utah, Aug., 2007, 2008:5.63

Multiple occupancy, New York, Jan. 16, 1990, 1991:4.65

Nursing home, Connecticut, Feb., 2003, **2004:**5.70

Office building, Florida, Dec., 2007, 2008:5.61

Office building, Oklahoma, Apr. 19, 1995, **1996:**1.50, **1996:**1.59, **1996:**5.94, **1996:**6.69

Office building, Texas, March, 2007, 2008:5.61

Rooming house, Ohio, April, 2003, 2004:5.69

Rooming house, Ohio, Nov., 2009, 2010:5.67

Store, New York, Dec. 8, 1995, 1996:5.94

Store/apartment building, New York, Aug. 22, 1994, 1995:5.66

Vacant store, California, Oct. 22, 1991, 1992:4.71

Wildland, California, Oct., 2006, 2007:5.62

Wildland/urban interface, California, Nov. 2, 1993, 1994:5.108

Wildland/urban interface, California, Oct., 2003, 2004:5.73

Church, Colorado, 2005, 2006:1.22

Church, Massachusetts, 1992, 1993:2.21

Church, Ohio, 1994, 1995:3.39

Church, Pennsylvania, Feb., 1995, 1996:6.73

Church, Texas, Jan., 2010, **2011:**7.55

Club, Florida, Jan., 1993, **1994:**6.91

Club, Gothenburg, Sweden, Oct. 28, 1998, 2000:3.117

Club/restaurant/office building, Oklahoma, Jan., 1994, 1995:6.98

College building, Arizona, Nov., 2007, 2008:6.45

College building, Kentucky, 2005, 2006:5.30

College building, Nebraska, 2006, **2007**:6.17

College building, Pennsylvania, 2009, 2010:2.26

College building, Rhode Island, 1994, 1995:3.37

Cotton warehouse, Missouri, Feb. 24, 1997, 1998:6.88

Dance studio, vacant, in shopping center, California, 1998, 1999:4.21

Department store, North Carolina, 1997, 1998:6.22

Department store, Texas, Sept., 1995, 1996:6.72

Department store, Virginia, 1998, 1999:5.21

Detention facility, California, 1992, 1993:5.36

Detention facility, Delaware, 1990, 1991:3.25

Detention facility, Florida, 1992, 1993:3.33

Detention facility, North Carolina, 1996, 1997:1.27

Detention facility, Pennsylvania, 1994, 1995:5.33

Dormitory, Illinois, 2001, 2002:6.21

Dormitory, Maine, 2000, 2001:3.30

Dormitory, New Jersey, Jan. 19, 2000, 2009:5.62

Dormitory fire statistics, 1997:3.152

Dumpster, Oregon, 1999, 2000:4.19

Dumpster outside warehouse, Hawaii, 1989, 1991:1.31

DuPage County, Illinois, fire investigation task force works against arson, 2001:1.65

Dwelling, California, April, 1992, 1993:6.79

Dwelling, California, Jan., 1998, 1999:6.97

Dwelling, Illinois, 2011, 2012:6.21

Dwelling, Kansas, 2006, 2007:1.17

Dwelling, Massachusetts, 1993, 1994:6.34

Dwelling, New York, 1994, 1995:4.37

Dwelling, Ohio, 2007, 2008:1.21

Dwelling, Ohio, 2012, 2013:3.24

Dwelling, Oklahoma, 2006, 2007:4.26

Dwelling, Pennsylvania, 2006, 2007:3.32

Dwelling, Texas, 1999, 2000:3.34

Dwelling, Washington, 2000, 2001:6.21

Dwelling, Washington, 2011, 2012:6.24

Dwelling under renovation, California, 1999, 2000:3.36

Fairgrounds storage, Connecticut, 2005, 2006:2.30

Fire loss, 1999, **2000:**5.86

Firefighter fatalities related to, 1995:4.87, 1996:4.66, 70, 1997:4.51, 1999:4.64, 2006:4.56

Firefighter injuries related to, 1997:6.74

Gas storage tank, New Mexico, 2000, 2001:1.23

Government building, Massachusetts, 1991, 1992:6.26

Health clinics, California, 1995, 1996:1.24

Hospital, Connecticut, 2003, 2004:4.18

Hospital, Florida, 2010, 2011:2.30

Hospital, Illinois, 1994, 1995:1.31

Hospital, Ohio, 1994, 1995:2.31

Hotel, Alaska, 2006, 2007:1.15

Hotel, Florida, 1994, **1995**:2.29

Hotel, Michigan, 1991, 1992:1.22

Hotel, Minnesota, 2005, 2006:3.34

Hotel, Pennsylvania, 2007, 2008:6.22

Hotel, Texas, 1996, 1997:4.19

Hotels, Michigan, 1997, 1998:3.41

Industrial complex, Michigan, April, 1994, 1995:6.108

Kennel, Massachusetts, 1992, 1993:2.20

Library, California, Jan., 1992, **1993:**6.79

Library, Connecticut, 1996, 1997:1.26

Lumberyard, Illinois, May, 2007, 2008:6.44

Lumberyard, Pennsylvania, March 25, 1999, 2000:6.91

Manufactured home, Colorado, 1997, 1998:1.23

Manufactured home, Florida, 1990, 1991:5.28

Manufactured home, Louisiana, 2008, 2009:6.20

Manufactured home, South Carolina, 2005, 2006:4.26

Manufacturing plant, Arkansas, July, 1994, 1995:6.104

Manufacturing plant, Arkansas, Dec., 1994, 1995:6.106

Manufacturing plant, California, Oct., 2003, 2004:6.53

Manufacturing plant, California, April, 1994, 1995:6.107

Manufacturing plant, California, 1997, 1998:2.20

Manufacturing plant, California, 2002, 2003:1.14, 2003:5.18

Manufacturing plant, Connecticut, 1999, 2000:2.23

Manufacturing plant, Florida, July, 2007, 2008:6.42

Manufacturing plant, Georgia, March, 1994, 1995:6.106

Manufacturing plant, Illinois, May 6, 1999, 2000:6.86

Manufacturing plant, Illinois, April, 2002, 2003:6.77

Manufacturing plant, Indiana, Oct., 1994, 1995:6.104

Manufacturing plant, Indiana, Dec. 24, 1997, **1998**:6.84

Manufacturing plant, Indiana, Mar., 1998, 1999:6.91

Manufacturing plant, Indiana, April 30, 1999, 2000:6.86

Manufacturing plant, Iowa, March 23,1996, **1997**:6.52

Manufacturing plant, Maine, 1994, 1995:5.34

Manufacturing plant, Massachusetts, Jan., 1992, 1993:6.84

Manufacturing plant, Massachusetts, 1998, 1999:1.19

Manufacturing plant, Michigan, Aug., 1991, 1992:6.78

Manufacturing plant, Michigan, Jan., 1993, 1994:6.95

Manufacturing plant, Michigan, June, 1993, 1994:6.93

Manufacturing plant, Michigan, 1998, 1999:4.20

Manufacturing plant, Missouri, April, 2002, 2003:6.78

Manufacturing plant, New Mexico, March, 1992, 1993:6.85

Manufacturing plant, New York, Aug., 1995, 1996:6.65

Manufacturing plant, North Carolina, May, 1992, 1993:6.84

Manufacturing plant, North Carolina, 1994, 1995:2.32

Manufacturing plant, North Carolina, Oct., 1994, 1995:6.103

Manufacturing plant, Ohio, Oct., 1994, 1995:6.104

Manufacturing plant, Pennsylvania, June, 1991, **1992:**6.80

Manufacturing plant, Utah, Feb. 1, 1997, 1998:6.86

Manufacturing plant, Wisconsin, 2011, 2012:1.20

Medical center complex, New York, 1990, 1991:6.7

Mill fire, Connecticut, 1995, 1996:2.25

Motion picture studio/manufacturing complex, California, Nov., 1990, 1991:6.74

Multiple-use occupancy, Illinois, 1992, 1993:3.34

Multiple-use occupancy, Massachusetts, 1991, 1992:1.23

NFPA Urban Fire Safety Project works with communities to fight arson, 2009:3.56

Nursing home, Ohio, 2005, 2006:4.28

Nursing home, Utah, 1991, 1992:4.27

Office/apartment building, New York, Aug., 1994, 1995:6.100

Office building, California, 1993, 1994:5.30

Office building, California, 1995, 1996:1.21

Office building, California, 2001, 2002:2.22

Office building, California, 2002, 2003:6.16

Office building, Denver, Colo., Sept. 28, 1992, 1993:2.33

Office building, Massachusetts, 1999, 2000:4.16

Office building, Michigan, June, 2000, 2001:6.63

Office building, Nebraska, May, 2011, 2012:6.64

Office building, North Carolina, July, 2011, 2012:6.64

Office building, Vermont, 2011, 2012:6.18

Office building, Washington, 1993, 1994:2.29

Office building/warehouse, Texas, Oct., 1994, 1995:6.99

Our Lady of the Angels school, Chicago, IL, 1958, 1996:1.72

Restaurant, Florida, 2002, 2003:6.12

Restaurant, Illinois, 1991, 1992:5.30

Restaurant, Massachusetts, 1996, 1997:5.22

Restaurant, Minnesota, 2001, 2002:5.22

Restaurant, Ohio, 2000, 2001:1.20

Restaurant, Virginia, 1996, 1997:2.21

Retail warehouse store, Arizona, March 21, 1998, 1998:4.49

Rooming house, Massachusetts, 1996, 1997:1.26

Sawmill, Ohio, March, 2004, 2005:6.46

School, Alaska, Aug., 2006, 2007:6.82

School, Arizona, 2010, 2011:4.19

School, California, July, 2010, 2011:7.58

School, Connecticut, 2007, 2008:1.22

School, Florida, 1993, 1994:1.29

School, Indiana, Dec., 1994, 1995:6.98

School, Maine, 2003, 2004:5.20

School, Minnesota, April, 1994, 1995:6.98

School, Mississippi, 1990, 1991:3.27

School, Missouri, April, 2010, 2011:7.57

School, New Jersey, 2011, 2012:1.22

School, Nova Scotia, Canada, 1991, 1992:5.30

School, Oregon, 1991, 1992:2.25

School, Rhode Island, March, 1992, 1993:6.79

School, Texas, 2007, 2008:4.24

School, Virginia, 2012, 2013:3.29

School, Washington, Jan., 2002, 2003:6.81

School, Washington, 2006, 2007:3.23

Ship, Maine, May, 2012, 2013:6.59

Shopping mall, California, Oct., 2010, 2011:7.59

Shopping mall, Louisiana, Sept., 2005, 2006:6.74

Shopping mall, Nevada, 1992, 1993:2.19

Shopping mall, New York, May, 1991, **1992:**6.77

Shopping mall, Tennessee, 2009, 2010:3.42

Storage, outside, Utah, July, 2004, 2005:6.49

Storage building, Massachusetts, 1996, 1997:2.23

Storage facility, Massachusetts, 1993, 1994:2.27

Storage facility, New Hampshire, Jan. 8, 1996, 1997:6.56

Storage facility, New Mexico, 1999, 2000:6.14

Storage facility, Texas, June/July, 1995, 1996:6.66

Storage facility and office building, Ohio, May, 1998, 1999:6.92

Store, Arizona, 1998, 1999:6.94

Store, Arizona, 2003, **2004**:6.20

Store, Arizona, June, 2006, 2007:6.78, 79

Store, California, 1992, 1993:5.38

Store, California, 1996, 1997:1.27

Store, California, 2011, 2012:1.22

Store, Colorado, 2005, **2006:**1.20

Store, Florida, 1993, **1994:**5.30

Store, Florida, 2007, 2008:6.23

Store, Illinois, 1989, 1991:1.29

Store, Massachusetts, 1989, **1991:**1.28

Store, Massachusetts, 1994, 1995:4.39, 1995:5.36

Store, Massachusetts, 2002, 2003:4.16

```
Store, Michigan, 1991, 1992:6.25
```

Store, Michigan, 1999, 2000:1.19

Store, Michigan, 2006, 2007:1.20

Store, Mississippi, 1993, **1994:**1.32

Store, New York, Nov., 2005, 2006:6.69

Store, Ohio, Nov. 13, 1996, 1997:6.54

Store, Ohio, 2002, 2003:5.20

Store, Pennsylvania, Jan., 2002, 2003:6.81

Store, Tennessee, 2011, 2012:4.30

Store, Texas, 2000, 2001:4.22

Store, Texas, May, 2009, 2010:6.69

Store, Texas, Oct., 2011, 2012:6.64

Store, Texas, 2012, **2013**:6.24

Store, Washington, 1998, 1999:5.22

Store, Washington, 2001, 2002:3.34

Store, Washington, 2007, 2008:3.32

Substance abuse treatment center, Florida, 2012, 2013:1.21

Subway token booth, New York, 1995, 1996:6.24

Theater, Georgia, 1999, 2000:6.14

Tire fire, Ontario, Canada, 1990, 1991:1.50

U. S. arson statistics, 2009:4.70

U. S. arson statistics, 2003, 2005:3.18

U. S. arson statistics: fire damage and firesetters, 1995:2.112

U. S. arson statistics: types of fires and firesetters, 1998:6.39

U. S. national reporting systems for fire investigations, 1998:3.80

Vacant building, Alabama, 2002, 2003:5.18

Vacant building, Arizona, 2008, 2009:5.24

Vacant building, Illinois, 1998, **1999:**1.18

Vacant building, Massachusetts, Aug. 29, 1999, 2000:6.95

Vacant building, Massachusetts, 2000, 2001:6.18

Vacant building, Massachusetts, 2001, 2002:2.25, 2002:6.18

Vacant building, Minnesota, Sept., 2002, 2003:6.79

Vacant building, Nevada, Feb. 19, 1999, **2000:**6.95

Vacant building, New York, 2000, 2001:5.26

Vacant building, North Carolina, 2008, 2009:5.27

Vacant dwelling inventory, swelled by foreclosures, fire threat addressed by Columbus, Ohio, fire service, **2009:**5.44

Warehouse, Colorado, Nov., 1992, 1993:6.87

Warehouse, Colorado, Nov., 1998, **1999**:6.92

Warehouse, Colorado, Dec., 2002, 2003:6.78

Warehouse, Georgia, May, 1992, **1993:**6.86

Warehouse, Illinois, 1994, 1995:3.38

Warehouse, Illinois, 2010, 2011:3.48

Warehouse, Indiana, July, 1993, 1994:6.96

Warehouse, Louisiana, March 21, 1996, 1997:6.54

Warehouse, Maryland, May, 2005, 2006:6.68

```
Warehouse, Massachusetts, Nov., 1993, 1994:6.97
```

Warehouse, Michigan, 1995, 1996:3.39

Warehouse, Missouri, 1991, 1992:6.26

Warehouse, New York, 2002, **2003**:3.20

Warehouse, New York, April, 2003, 2004:6.57

Warehouse, North Carolina, Oct., 1998, 1999:6.92

Warehouse, Ohio, Feb., 2000, 2001:6.62

Warehouse, Pennsylvania, Aug. 27, 1996, 1997:6.56

Warehouse, Pennsylvania, June, 2006, 2007:6.77

Warehouse, Rhode Island, May, 1992, 1993:6.86

Warehouse, Tennessee, March, 2004, 2005:6.47

Warehouse, Virginia, Sept., 2005, 2006:6.73

Warehouse, Virginia, 2010, 2011:1.27

Warehouse, Washington, Sept., 1992, 1993:6.86

Warehouse, Wisconsin, April 21, 1999, 2000:6.90

Warehouse/office building, California, 1991, 1992:1.23

Wildland, Arizona, June, 2002, 2003:6.80

Wildland, California, Aug., 1992, 1993:6.88

Wildland, California, Nov., 1993, 1994:6.99

Wildland, California, Oct., 1993, 1994:6.99

Wildland, California, Dec. 21, 1999, 2000:6.94

Wildland/urban interface, California, June 27, 1990, 1991:1.60, 61, 1991:6.73, 75

Wildland/urban interface, California, Oct., 1991, 1992:6.74

Wildland/urban interface, California, Aug., 1994, 1995:6.111

Wildland/urban interface, California, Oct., 2003, 2004:6.55

Wildland/urban interface, California, Oct., 2006, 2007:6.81

Wildland/urban interface, California, Oct., 2007, 2008:6.43

Wildland/urban interface, California, Aug., 2009, 2010:6.67

Wildland/urban interface, California, 2010, 2011:6.18

Wildland/urban interface, New York, Aug., 1995, 1996:6.74

INCENSE

Fatal dwelling fire caused by, **1998:**4.19

INCINERATOR FIRES

Arkansas, 1994, 1995:6.38

INDIANA

Building-under-construction fire, March, 2009, **2010**:6.63

Catastrophic fires

Bulk storage elevator fire, Oct. 1, 1996, 1997:5.52

Dwelling, June 30, 1994, 1995:5.60

Dwelling, Aug. 9, 1994, 1995:5.56

Dwelling, Dec. 4, 1995, **1996:**5.93

Dwelling, Jan. 18, 1998, 1999:5.50

Dwelling, Feb., 2004, 2005:5.57

Dwelling, Sept., 2005, 2006:5.61

Dwelling, March, 2006, 2007:5.57

Electric generating plant, Oct. 5, 1992, **1993:**5.67

Manufacturing plant, June 22, 1995, 1996:5.97

Manufacturing plant, Oct., 2001, 2002:5.82

Motor vehicle, Dec., 2007, 2008:5.63

Restaurant/hotel, Feb. 6, 1992, 1993:5.66

Truck, March 20, 1993, 1994:5.106

Church fire, 1993, **1994:**4.31

Church fire, Sept., 1993, 1994:6.89

College building fire, 1994, **1995:**5.35

Dormitory fire, April, 2002, 2003:6.81

Dwelling fire, 1993, **1994:**1.30

Electric generating plant fire, July, 1998, 1999:6.95

Fatal fires

Apartment building, 2000, 2001:2.22

Apartment building, 2008, **2009:**4.19

Apartment building, 2009, **2010**:6.22

Assisted living facility, 2010, 2011:4.17

Dwelling, 1998, 1999:1.17

Dwelling, 1999, 2000:5.22

Dwelling, 2001, 2002:1.20

Dwelling, 2004, **2005:**1.16, 3.24, 5.27

Dwelling, 2007, 2008:2.23, 25

Dwelling, 2008, 2009:3.39

Dwelling, 2011, 2012:4.20

Dwelling, 2012, 2013:3.22

Garage, 2012, 2013:3.26

High-rise club/hotel, Feb. 5, 1992, 1992:6.31

Manufactured home, 2000, 2001:3.30

Manufactured home, 2010, 2011:7.14

Manufacturing plant, 2003, **2004:**5.20, **2004:**6.21

Tank storage facility fire, 2011, 2012:1.21

Indiana State Fair stage rigging collapse, Aug. 13, 2011, spurs improved emergency planning and management procedures, **2012**:4.68

Indianapolis's new airport's water based-suppression system, 2008:4.48

Lumber yard, June, 1998, **1999:**6.92

Manufacturing plant fires, June, 1994, 1995:6.103

Manufacturing plant fire, July, 1994, 1995:6.102

Manufacturing plant fire, Oct., 1994, **1995**:6.104

Manufacturing plant fire, May, 1995, 1996:6.65

Manufacturing plant fire, Aug., 1995, 1996:6.65

Manufacturing plant fire, March 19, 1996, **1997**:6.50

Manufacturing plant fire, Dec. 24, 1997, 1998:6.84

Manufacturing plant fire, Mar., 1998, 1999:6.91

Manufacturing plant fire, April 30, 1999, 2000:6.86

Manufacturing plant fire, Oct., 2002, 2003:6.77

Manufacturing plant fire, Sept., 2005, 2006:6.70

Manufacturing plant fire, Sept., 2007, 2008:6.42

Manufacturing plant fire, 2011, 2012:4.30

Office building fire, July 16, 1996, **1997:**6.53

Restaurant fire, 1995, 1996:5.25

School fire, Dec., 1994, 1995:6.98

School fire, 2000, **2001**:6.23

Store fire, April 21, 1999, 2000:6.92

Store fire, 2005, **2006:**1.20

Vacant building fire, June 25, 1999, **2000:**6.95

Warehouse fire, April, 1992, 1993:6.87

Warehouse fire, July, 1993, 1994:6.96

Warehouse fire, . 8, 1996, 1997:6.57

Warehouse fire, March 18, 1997, 1998:6.88

Warehouse fire, Feb., 1998, 1999:6.92

Warehouse fire, Dec., 1998, 1999:6.91

INDIANAPOLIS, IND.

Fatal high-rise club/hotel fire, Feb. 5, 1992, 1992:6.31

Water-based suppression for new airport, 2008:4.48

INDUSTRIAL MACHINERY

Center for Disease Control statistics indicate workplace safety has improved, 2001:5.38

NFPA 85, *Boiler and Combustion Systems Hazards*, contributes to industrial facility safety, **2001:**5.33

INDUSTRIAL MACHINERY FIRES

Air compressor ignites lubricating oil, 1992:6.79

Air compressor ignites oil vapors, 2013:6.52

Air dryer motor malfunctions, ignites wiring, insulation, 1997:1.28

Air scrubbing machinery malfunctions, ignites combustible piping, 2010:2.28

Augur malfunctions, creates powdered tryptophan which ignites, **2002**:6.22

Bearing box overheats on conveyor belt, ignites chaff and dust, 1993:6.83

Bearing in paper production machine overheats, ignites paper, 2010:1.26

Blast furnace fire, 2004:6.52

Book binding machine overheats, ignites glue, 1993:4.27

Compressor malfunction causes explosion, fire, 2005:6.46

Conveyor failure causes sugar dust to ignite, 1997:6.49

Conveyor malfunction causes lint, paper buildup on furnace, 2013:6.54

Cooking oil heating unit explosion ignites natural gas supply, 2012:6.63

Dryer, plywood veneer, heat ignites plywood, combustibles, 2000:6.84

Dryer, wood products, fire, 2009:4.17

Drying machine overheats, ignites pet food, 1994:3.29

Electric motor on pump and augur malfunctions, ignites basement fire, 2008:6.42

Electrical turbine start-up causes explosion, oil fire, **2003:**6.80

Electroforming tank heater overheats, ignites tank contents, 1997:4.22

Forging equipment heat ignites cardboard, 1997:6.52

Form machine malfunctions, ignites acrylic sheet, 1997:4.22

Gas compressor, **1998:**6.85

Gas-fired oven point of origin of fireball, 2000:5.60

Grinding machine malfunctions, ignites oil mist, 2003:6.15

Grinding mill filter system, fire started in, 2013:1.26

Grinding wheel sparks ignite wooden studs, 1998:1.24

Heat exchanger ruptures, ignites hydrocarbon and naphtha vapors, 2011:5.77

Hole-boring machine sparks ignite coolant oil, **2006:**6.70

Hydrocracker unit pipe ruptures, causes explosion/fire, 1998:6.84

Laser-processing machine, fire started in, 2009:2.26, 2013:3.30

Leaking oil ignited by furnace, 1997:6.49

Mechanical equipment using bearings malfunctions, spark ignites wood flour, 2013:4.24

Packaging machine malfunctions, ignites combustible materials, 1993:6.29

Paper ignited by jammed molding machine, sucked into waste disposal system, 1997:5.24

Poloyol pump malfunctions, causes exothermic reaction, 1998:3.41

Production equipment malfunctions, ignites combustibles, 1995:6.107

Pulverizing unit explosion, followed by fire, 1997:6.58

Pump alcohol leak spills onto electrical equipment, ignites, 2013:1.26

Residual products in oven ignite, fire spreads through open oven door, 2004:5.71, 2004:6.52

Resin pump malfunctions, ignites resin, 2004:2.17

Sawdust in motor above veneer dryer ignites, **1997:**6.49

Waste-handling machine overheats, ignites fiber residue, 1992:5.30

Waxing machine, fire started in combustibles near, 1998:6.86

Wire-stranding machine heating coil malfunctions, 2004:2.17

INDUSTRIAL OCCUPANCIES. See also MANUFACTURING PLANT FIRES

Causes of fires in, **1994:**4.40

Chemical Safety Board and NFPA cooperate to change practice of intentional releases of natural gas, **2011**:3.11

Fire alarm system design and installation challenges, 2001:5.40, 2009:2.36

NFPA 101, Life Safety Code, applied to, 1994:4.16

NFPA 101, Life Safety Code, is key to fire safety, 1994:4.36

Planning for petrochemical plant emergencies, 2002:6.28

Pre-incident planning and cooperation essential to industrial facility firefighting, 2002:6.26

Sprinkler and alarm system code requirements, 2012:2.36

INDUSTRIAL OVENS. See OVENS, INDUSTRIAL

INFORMATION TECHNOLOGY EQUIPMENT. See COMPUTERS AND RELATED EQUIPMENT

INJURIES. See FIRE INJURIES; FIREFIGHTER INJURIES

INS AND OUTS COLUMNS

Communication and NFPA support system aid community adoption of standards, 2004:1.31

Consumer feedback leads to better nfpa.org Web site and online catalog, 2004:2.36

Fire Protection Research Foundation President Kathleen Almand presents organizational goals, **2005:**1.30

International NFPA chapters get boost from NFPA strategic plan, 2004:3.42

NFPA 18, Wetting Agents, to be reconsidered by committee, 2003:6.34

NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, compliance workshops, **2004:**6.32

NFPA 5000TM revision cycle changed, **2003:**4.36

NFPA increase profile in media and as advocacy group, 2004:5.34

NFPA partners with American Petroleum Institute and OSHA for petroleum and petrochemical industry safety, **2004:**4.32

NFPA World Safety Conference and Exhibition (2003) to host World Organization of Building Officials' congress, **2003:**3.38

Technical Committee on Cultural Resources hosts workshop on standard changes, 2003:1.32

Technical Committee on Vehicular Alternative Fuel Systems works to regulate alternative fuels, **2003**:2.42

INSIDE THE BELTWAY COLUMNS

Aging firefighting air fleet may lead to decrease in missions in 2003, **2003**:4.32

Assistance to Local Firefighters Grant Program increased by congress, 2002:3.48

Blue ribbon panel's recommendations to improve US Fire Administration, National Fire Academy, and FEMA fire programs, **1999:**2.34

Campus Fire Safety Right-to-Know Act has good prospects for passage, 2003:6.28

Centers for Disease Control statistics indicate workplace safety has improved, 2001:5.38

Congress considers natural disaster relief policy reform, 1997:5.31

Congress no longer exempts itself from OSHA laws, 1999:3.56

Congress pushes for World Trade Center collapse study by National Institute of Standards and Technology, **2002**:5.34

Congress to take up Bush's Healthy Forest Initiative again, 2003:2.38

Congressional Fire Services Institute (CFSI) makes fire services/safety visible to Congress, 1998:1.31

Consumer Products Safety Commission and Congress consider federal upholstery standards, **2004:**2.30

Dangers of regulatory reform, **1997:**3.41

Electronic Records and Signatures in Commerce Act gives online contracts same force as paper contracts, **2000:**6.26

Emergency response information required from fire service by Environmental Protection Agency, **1999**:4.34

Federal Communications Commission provides emergency radio frequencies, establishes 311 number, **1997:**4.29

Federal haz-mat regulations cover intrastate shipments of agricultural chemicals, **1998:**5.25 Federal program trains first responders for terrorist attacks, **1998:**6.31

FEMA Project Impact focus groups gauge public awareness of disaster mitigation, **2000**:2.32 Firefighter Investment and Response Enhancement (FIRE) Act offers fire prevention and wellness/fitness program grants, **2001**:3.48

Firefighter Investment and Response Enhancement Act (FIRE) to increase federal funding of local fire service, **2000:**5.36

Homeland Security Department must standardize first responder preparation, 2003:5.34

Homeless Veterans Assistance Act requires that veterans' housing comply with NFPA 101®, provides grants, **2004:**1.28

Increased truck-related fatalities spur revamp of federal safety program, 1999:5.30

Life Safety Code® TIA allows hand sanitizer stations in health care facility public areas, **2004:**3.36

Manufactured Housing Improvement Act of 2000 updates safety standards, **2002**:2.38 National standards strategy and international acceptance of NFPA standards, **2001**:1.32

NFPA 101®, *Life Safety Code*®, adoption requirement for Medicare/Medicaid reimbursement promotes health care occupancy safety, **2002**:4.32

NFPA 5000, NFPA Building CodeTM, will be included in federal code set, **2001:**4.34

"Operation Respond" addresses hazardous materials at railroad fires, 2000:3.52

OSHA standards' NFPA codes/standards references need updating, 2000:1.28

OSHA's NFPA-based fire-safety standard for shipyards nears finalization, **2003**:3.34 Politics of fire safety regulations, **1998**:4.29

Propane safety rules clarified by Congress and EPA with NFPA help, 2002:1.32

"Reinventing government" efforts encourage federal government/NFPA cooperation, 1999:1.26

Senate committee moves to protect chemical facilities from terrorism, 2002:6.30

Suggested federal fire safety initiatives for 2000 and beyond, 1999:6.28

Technology Transfer Act helps, but not all federal regulatory references to standards updated, **1997:**6.29

Technology Transfer Act increases federal use of NFPA codes and standards, 2000:4.32

U. S. Consumer Products Safety Commission addresses fire safety issues, 1998:3.49

U. S. Fire Administration looking for fire departments missing from 2002 National Fire Department Census, **2003:**1.28

US Fire Administration and FBI programs can mitigate risk to modern infrastructures, **2001:**6.30

US Fire Administration redefines itself for the 21st century, **2001:**2.34

Volunteer Protection Act of 1997 protects volunteers from liability, 1998:2.27

INSPECTIONS. See also FIRE INSPECTIONS

Electrical inspections threatened by budget cutbacks, 1996:6.80

Electrical inspections to be covered by 70E, proposal for, 2011:1.40

Fire Protection Research Foundation studies enhance technical basis for inspection, testing, and maintenance requirements, **2012**:6.28

Fire protection system inspection/maintenance record retention and referral by inspection professionals, **2006:**2.32

Life safety inspection effectiveness evaluated by Austin, Texas, fire department, 2002:6.66

NFPA 5000, *Building Code*TM, certification test for building inspectors/plans examiners developed by NFPA, **2002**:6.62

INSTITUTIONAL OCCUPANCIES. *See* separately listed occupancies INSULATION

In ceiling, factor in fire spread, **1999:**6.90

Cellulose

Electric fan motor, ignited by, **2013:**3.24

Fire, ignited by, **1998:**6.86

Plumber's torch, ignited by, 2008:6.43

Propane torch, ignited by, 2004:2.18

Saw sparks, ignited by, 2002:4.16

Welding, ignited by, 1995:2.32

Wiring, ignited by, **1994:**4.29

Dislodged foil backing blocks sprinkler spray, 1999:6.94

Excelsior, ignited by cutting torch filings, 1997:2.23

Exposed, contributed to fire spread, 1997:6.56, 57, 59

```
Fiber board, ignited by welding, 1994:6.94
  Fiberglass
     Fire spread, factor in, 1993:6.86
     Manufacturing plant fire, Kentucky, Feb. 20, 2003, 2008:6.61
     Particles create explosion, 2004:5.71, 6.52
  Foam
     Cable, overheated, ignited by, 2000:6.94
     Conductive heat from water heater, ignited by, 1998:2.18
     Cooling unit, overheated, ignited by, 1999:6.90
     Cutting torch, ignited by, 1998:6.84
     Factor in fire spread, 1993:6.85, 86, 1995:6.107, 1997:5.52, 6.56, 59
     Polyurethane, factor in fire spread, 1995:6.107
     Polyurethane, fueled fire, 1991:6.75
     Polyurethane, ignited by welding, 1996:6.68
     Polyurethane, in freezer, ignited by welding fire, 1998:6.84
     Roofing torch, ignited by, 2012:6.66
     Styrofoam, ignited by welding, 1994:6.93
     Urethane, ignited by short-circuit, 1994:3.27
     Welding, ignited by, 1994:6.93, 1995:6.106, 1996:6.68, 1998:4.21
  Foil-faced, carries ground to roof, ignites framing, 1995:5.35
  Ignited by cutting torch, 2002:4.18
  Ignited by furnace fire, 2009:4.17
  Ignited by grinding equipment, 2010:3.43
  Ignited by heating equipment, 2004:6.53, 2012:2.22
  Ignited by plumber's torch, 2003:1.14
  Ignited by spontaneous ignition fire, 2004:3.24
  Manufactured home fire limited to smoldering by tight insulation, 2009:5.81
  Oil-soaked, ignites, 1994:6.92
  Paper-backed
     Heat of fire, ignited by, 1997:6.19
     Light ballast arc, ignited by, 2003:2.24
  Pipe, ignited by open-flame torch, 1991:6.23
  Plastic
     Electric box malfunction, ignited by, 1996:3.40
     Overheated electric motor, ignited by, 2003:3.14
     Rigid plastic, ignited in incendiary fire, 1995:6.104
  Vinyl-backed, factor in fire spread, 1997:3.33
INSURANCE
  Citizens should be liable for fire-causing actions, 1995:4.38
INTERAGENCY RESPONSE
  Tire fire, Canada, 1991:1.60
INTERIOR FINISHES
  Assembly occupancy finishes need scrutiny; Life Safety Code® requirements, 2005:2.34
  Factors affecting fire hazards of, 1992:4.33
```

Fuel catastrophic fires, **1992:** 4.67, 69, **1993:** 5.62, 64, **1994:** 5.95, 96, 98, 102, 105 Fuels board and care facility fire, **1993:** 1.29

Green buildings (See ENVIRONMENT)

Test methods must keep current with growing number of products, 2001:2.53

Wall paneling fuels catastrophic fires, 1995:5.60, 1996:5.93

Wood paneling fuels club/hotel fire, 1992:6.31

INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

Partnering with NFPA on *Comprehensive Consensus Codes*TM (C3) creates new opportunities for cooperation, **2002:**6.56

INTERNATIONAL CODE COUNCIL

Partnering with NFPA in coalition to promote code adoption, 4.12

INTERNET. See also APPS

All NFPA documents now online for review, 2005:5.18

Fire protection applications of Internet, 1995:6.41

Fire protection information, access to, 1996:6.44

Firewise Mapper interactive online tool links Firewise Communities with crucial wildfire information, **2013:**1.9

NFPA Facebook page has 50,000 likes, Linked-In discussion groups have 50,000 members, **2013:**5.15

NFPA Facebook page is hit with fans, 2010:5.27

NFPA Fire Protection Research Foundation tests how social media can aid code development, **2010**:5.36

NFPA joins Google+, 2012:2.11

NFPA webinars (Internet seminars) start in September, 2008, 2008:5.20

Redesigning NFPA Web site, 2001:6.78

Social media used for emergency preparedness, 2012:4.14

INTOXICATION. See ALCOHOL (BEVERAGE)

IOWA

Aircraft fire, United Flight 232 crash, Sioux City, Iowa, looking back on, 2004:5.96

Apartment building fire, 2005, **2006**:4.24

Automobile repair shop fire, 2000, 2001:6.22

Building-under-construction fire, April, 2003, 2004:6.53

Catastrophic fires

Apartment building, Dec. 22, 1999, 2000:5.57

Automobile, Nov. 23, 1994, 1995:5.68

Dwelling, March 24, 1994, 1995:5.54

Dwelling, Dec. 9, 1995, 1996:5.93

Dwelling, Mar. 13, 1998, 1999:5.52

Dwelling, Sept. 6, 1999, 2000:5.56

Manufacturing plant, Dec. 13, 1994, 1995:5.66

Motor vehicle, July, 2000, 2001:5.80

Restaurant, Oct. 17, 1994, 1995:5.62

Church fire, 1998, 1999:3.43

Dwelling fire, 1991, **1992:**4.26

Dwelling fire, 1992, **1993:**3.35

Fatal fires

Apartment building, Dec. 22, 1999, 2000:4.54

Apartment building, 2010, 2011:5.16

```
Dwelling, 1991, 1992:1.22
     Dwelling, 2003, 2004:5.14
     Dwelling, 2008, 2009:4.20
     Dwelling, 2011, 2012:3.34
     Foundry, 1989, 1991:1.31
     Garage, 2009, 2010:4.26
     Manufactured home, 2008, 2009:4.18
     Manufactured home, 2011, 2012:3.35
     Recreational vehicle, 2010, 2011:1.26
     Tank explosion, April 9, 1998, fire investigation report, 1998:6.42
  High-rise office building fire, 1992, 1993:1.26
  Hospital fire, 2002, 2003:6.16
  Manufacturing plant fire, Feb., 1995, 1996:6.63
  Manufacturing plant fire, 1996, 1997:1.28
  Manufacturing plant fire, March 23, 1996, 1997:6.52
  Manufacturing plant fire, March 30, 1996, 1997:6.49
  Manufacturing plant fire, Dec., 2003, 2004:6.53
  Manufacturing plant fire, 2012, 2013:1.26
  Office building fire, Jan., 2011, 2012:6.65
  Restaurant fire, 2008, 2009:5.27
  Restaurant fire, 2011, 2012:1.23
  Store fire, 2010, 2011:2.30
  Warehouse fire, Feb., 1995, 1996:6.68
  Warehouse fire, April, 1995, 1996:6.66
  Warehouse fire, 1997, 1998:1.25
  Warehouse fire, April 22, 1997, 1998:6.87
  Warehouse fire, 2001, 2002:6.75
IROQUOIS THEATRE FIRE, CHICAGO, ILL.
  E. Foy's first person account, 1995:4.75
  Looking Back column, 2003:6.104
IRVING, TEXAS
  Stadium fire, October 13, 1993, 1994:4.49
ISMAN, WARREN
  Legacy to hazardous materials instruction, 1992:2.22
JACKSON, JONATHAN
  Olympic hopeful tells own story as Alliance to Stop Consumer Fireworks advocate, 2010:4.56
JAEGER, TOM
  NFPA board chair interviewed on organization's future and health care changes, 2010:5.17
JAPAN
  Earthquake and subsequent fire, July 12, 1993, 1994:3.89
  Fire service technology used by, 1991:5.51
  Kanto earthquake fires, Sept. 1, 1923, 2013:6.72
  Tokyo fire service pioneers robot use, 1992:2.67
  Tokyo's low fire rate testifies to well-trained fire service, 2002:3.72
```

JAVERI, SULTAN M.

Profile of, 1997:3.48

JENSEN, ROLF

Remembering fire protection engineering design professional, 2008:3.144

JOHNSON, JEFF

International Association of Fire Chiefs president supports NFPA push for residential sprinklers, **2010**:4.19

JOHNSON, JOSEPH E.

Profile of, **2007:**4.13

JONAS, JAY

New York City Fire Department deputy chief, interview with, 2012:3.22

JOPLIN, MISSOURI

St. John's Regional Medical Center, destroyed in 2011 tornado, builds new facility better able to withstand tornadoes, **2013**:1.44

JUST ASK COLUMNS

Airport gate area requirements, questions answered, 1998:4.24

Alarm system installation questions answered, 1997:4.25

Carbon monoxide questions answered, 1998:5.20

Certified Fire Protection Specialist credential highlights your skills, 2004:2.26

Extinguisher questions answered, 1997:2.29

Extinguishing agent selection for medical facilities, 2002:4.29

Firefighter health and safety, questions answered, 1999:1.22

Firefighter injuries, questions answered, **1999:**6.24

Fireworks questions answered, 1998:3.44

Hyperbaric chamber compliance, 2000:2.27

Life safety in dormitories, 2000:5.30

National Electrical Code questions answered, 1997:6.25

National Electrical Code requires arc fault circuit interrupters in dwelling unit bedrooms, **2001**:2.31

NFPA 1, Fire Prevention Code, questions answered, 1998:2.22

NFPA 10, Portable Fire Extinguishers, questions answered, 2001:6.26

NFPA 11, Low Expansion Foam, questions answered, 2002:5.31

NFPA 13, *Installation of Sprinkler Systems*, 1999 edition incorporates storage facility information, **2000**:4.26

NFPA 13, Installation of Sprinkler Systems, proposed changes to 2002 edition, 2002:2.35

NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, questions answered, **2003:**1.24

NFPA 25, *Inspection, Testing, and Maintenance of Water-based Fire Protection Systems*, questions answered, **2000:**6.22

NFPA 72®, *National Fire Alarm Code*®, performance-based design of detector spacing, **2000:**1.24

NFPA 72®, National Fire Alarm Code®, questions answered, 2002:3.45

NFPA 85, Boiler and Combustion Systems Hazards, questions answered, 2001:5.33

NFPA 90A, *Installation of Air Conditioning and Ventilating Systems*, questions answered, **1999:**3.52

NFPA 99, *Health Care Facilities*, and NFPA 99C, *Gas and Vacuum Systems*, outline gas and vacuum system use requirements, **2001:**3.43

NFPA 101®, *Life Safety Code*®, 2000 edition incorporates performance-based design, **2000:**3.46

NFPA 101®, Life Safety Code®, addresses patron safety at assembly venues, 2002:1.29

NFPA 150, Fire and Life Safety in Animal Housing Facilities, Technical Committee addresses human and animal life safety issues, **2005**:4.24

NFPA 150, *Racetrack Stables*, proposed changes for human and animal fire and life safety; questions answered, **2004:**6.22

NFPA 301, Safety to Life from Fire on Merchant Vessels, questions answered, 2001:1.28

NFPA 403, Aircraft Rescue and Fire Fighting (ARFF) Services at Airports, questions answered, **2003:**3.30

NFPA 472, *Professional Competence of Responders to Hazardous Materials Emergencies*, questions answered, **2001:**4.31

NFPA 900, Building Energy Code, questions answered, 2004:3.32

NFPA 914, Fire Protection in Historic Structures, questions answered, 2003:2.34

NFPA document coordination project questions answered, **2003:**4.28

NFPA increases online training with certificate programs, 2002:6.27

NFPA Technical Advisory Services answers technical questions on code requirements, **2003:**5.30

NFPA Update, e-mail newsletter, questions answered, 2003:6.24

NFPA's full consensus process, questions answered, 2004:1.24

NFPA's One-Stop Data Shop offers statistical and data services, 2004:4.26

Private fire service main installation, 1997:3.37

Records protection, questions answered, 1999:5.26

Safe commercial cooking operations, 1997:1.33

Smoke detector questions answered, 1998:6.26

Sprinkler system installation, 1997:5.27

Sprinkler system requirements to be consolidated in NFPA 13, 1998:1.26

Water mist systems, questions answered, **1999**:4.26

Wildland/urban interface fires, questions answered, 1999:2.30

JUVENILE FIRESETTING

Apartment building fire cause, **2007:**5.26

Catastrophic apartment building fire cause, 1992:4.67, 2009:5.81

Church fire cause, 1994, **1995**:3.39

Club/restaurant/office building fire cause, 1995:6.98

Condominium fire cause, 1991:6.24

Detention facility fire cause, 1991:3.25, 1995:5.33

Dwelling fire cause, 1995:4.37, 2005:6.45

Fatal dwelling fire cause, **2002**:4.19

Fatal manufactured home fire cause, 1991:3.25

Major cause of U. S. arson fires, 1995:2.112

Manufacturing plant fire cause, 1997:6.52

Mill complex fire cause, 1994:6.98

NFPA Champion Award Program discourages firesetting, 1997:2.34

NFPA offers firesetters safety tip sheet, 2013:3.14

```
Phoenix, Ariz., program, 1991:1.22
  School fire cause, 1992:5.30, 2007:3.23, 2013:2.23
  School fire caused by fireworks prank, 1992:4.27
  Social services needed by troubled children, 1995:3.23
  Storage building fire cause, 1997:2.23
  Store/apartment building fire cause, 1995:5.66
  Store fire cause, 1993:2.19, 1994:1.32, 1996:6.72, 1997:1.27
  Vacant building fire cause, 2002:6.18, 2003:5.18
  Warehouse fire cause, 2005:2.26
   Who sets fires and how education can control firesetting, 1999:1.54
K
KADER INDUSTRIAL CO. (THAILAND) FIRE
  Investigative report, 1994:1.42
KANSAS
  Aircraft hangar fire, July, 1993, 1994:6.96
  Building-under-construction fire, March, 2004, 2005:6.44
  Catastrophic fires
     Aircraft, Apr. 19, 1995, 1996:5.100
     Aircraft, May, 2012, 2013:5.64
     Dwelling, Oct., 2000, 2001:5.75
     Dwelling, Oct., 2004, 2005:5.58
     Dwelling, Sept., 2006, 2007:5.59
     Electric power generating plant, Nov. 24, 1997, 1998:5.54
     Grain elevator, June 8, 1998, 1999:5.54, 1999:6.92
     Grain elevator, Oct., 2011, 2012:5.73
     Truck, Dec. 22, 1997, 1998:5.56
     Truck, Aug., 2005, 2006:5.63
  Church fire, 1998, 1999:6.17
  College building fire, June, 1991, 1992:6.78
  Dormitory fire, 2010, 2011:3.42
  Electric generating plant fire, Aug., 2000, 2001:6.64
  Fatal fires
     Apartment building, 2007, 2008:5.23
     Apartment building, 2008, 2009:1.19, 6.21
     Apartment building, 2010, 2011:1.21, 25
     Apartment building, 2012, 2013:3.27
     Dwelling, 1998, 1999:4.20
     Dwelling, 2001, 2002:2.25
     Dwelling, 2006, 2007:1.17
     Dwelling, 2008, 2009:5.26
     Dwelling, 2011, 2012:1.15, 6.23
     Dwelling, 2012, 2013:1.22
     Housing for elderly, 1990, 1991:3.25
     Limited-care facility, 1997, 1998:4.21
     Manufactured home, 1999, 2000:1.20
```

Manufacturing plant, 1989, **1991:**5.30

Manufacturing plant, 2010, **2011:**5.20

Motor vehicle, 1994, 1995:2.31

Grain elevator fire, 1998, 1999:5.54, 1999:6.92

Hotel fire, 2010, **2011:**2.27

Manufactured homes fire, 1995, 1996:3.36

Manufacturing plant fire, Dec., 2000, 2001:6.61

Manufacturing plant fire, 2002, 2003:5.18

Manufacturing plant fire, Sept., 2002, 2003:6.77

Manufacturing plant fire, May, 2003, 2004:6.53

Manufacturing plant fire, 2004, 2005:4.22

Manufacturing plant fire, 2007, 2008:2.28

Manufacturing plant fire, 2010, 2011:5.20

Railroad rolling stock fire, July 2, 1997, 1998:6.91

Shopping mall fire, 2008, **2009:**5.28

Store fire, 2006, 2007:2.17

Tank farm fire, 2007, **2008:**4.25

Warehouse fire, 1994, 1995:4.39

Wildland fire, Feb. 21, 1996, 1997:6.59

KANSAS CITY, MISSOURI

SubTropolis underground storage/manufacturing facility, requires unique fire protection measures, **1998:**6.68

KEIGHER, DONALD J.

Profile of, 1995:5.27

KENNEL FIRES

Massachusetts, 1992, 1993:2.20

KENTUCKY

Apartment building fire, 2005, **2006**:2.26

Beverly Hills Supper Club fire, May 28, 1977, **1996:**2.63

Boat fire, 1997, 1998:3.42

Building-under-construction fire, 2000, 2001:3.36

Catastrophic fires

Aircraft, Aug., 2006, **2007:**5.61

Automobile, Aug. 6, 1996, 1997:5.54

Automobile, Sept. 27, 1996, 1997:5.55

Coal mine, July 31, 1990, 1991:4.69

Coal mine, May, 2006, **2007:**5.60

Dwelling, Nov. 9, 1996, 1997:5.51

Dwelling, April 3, 1999, **2000:**5.57

Dwelling, Jan., 2000, 2001:5.76

Dwelling, Nov., 2001, 2002:5.82

Dwelling, Feb., 2003, 2004:5.68

Dwelling, Feb., 2004, 2005:5.57

Dwelling, Feb., 2007, 2008:5.57

Dwelling, July, 2009, **2010:**5.63

Manufactured home, Sept. 30, 1994, 1995:5.60

```
Manufactured home, Feb., 2004, 2000:5.57
     Manufactured home, March, 2006, 2007:5.58
     Manufactured home, April, 2010, 2011:5.75
     Manufacturing plant, Feb., 2003, 2004:5.71
     Natural gas well, Aug., 2004, 2005:5.59
     Storage tank, July 2, 1993, 1994:5.104
  College building fire, 1994, 1995:5.35
  Fatal fires
     Apartment building, 2001, 2002:5.20
     Apartment building, 2003, 2004:4.16
     Dwelling, 1990, 1991:5.26
     Dwelling, 1997, 1998:4.19
     Dwelling, 1998, 1999:4.19
     Dwelling, 2002, 2003:1.14
     Dwelling, 2004, 2005:4.20
     Dwelling, 2006, 2007:6.20
     Dwelling, 2007, 2008:5.29
     Dwelling, 2008, 2009:4.18
     Housing for elderly, 1998, 1999:6.19
     Manufactured home, 1993, 1994:4.32, 1994:5.27
     Manufacturing plant fire, Feb., 2003, 2004:6.52
     Stable fire, 2003, 2004:6.21
  Fire-safe cigarettes legislation considered by state, 2007:2.15
  Fraternity house fire, 2005, 2006:5.30
  Hotel fire, 2001, 2002:1.20
  Manufactured home fire, 2001, 2002:1.20
  Manufacturing plant fire, Feb., 1994, 1995:6.106
  Manufacturing plant fire, Feb. 20, 2003, 2008:6.61
  Manufacturing plant fire, Feb., 2008, 2009:6.76
  Manufacturing plant fire, March, 2011, 2012:6.61
  Marina fire, 2001, 2002:1.21
  NFPA 1, Uniform Fire Code<sup>TM</sup> and NFPA 101, Life Safety Code® adopted by state, 2006:6.12
  Office building fire, 2001, 2002:6.75
  Storage facilities fire, Nov. 7, 1996, 1997:6.57
  Store fire, 2004, 2005:1.20
  Warehouse fire, May, 2000, 2001:6.61
KEOKUK, IOWA
  Apartment building fire, Dec. 22, 1999, 2000:4.54
KEROSENE
  Acetone ignited by kerosene, 2005:6.22
  Heaters
     Acetone ignited by, 2005:6.22
     Catastrophic fire, factor in, 1997:5.50
     Combustibles ignited by, 1995:1.34, 2009:2.25
     Fatal fire, possible factor in, 2013:1.20
     Faulty fuel cell seal ignites dwelling fire, 1999:1.17
```

Flashes, with fireball, ignites pole spray curtain, 2000:6.86

Fuel spills, ignites carpet, 1998:6.23

Fuel spills, ignites dwelling fire, 2000:6.17, 2010:1.23

Gasoline used as fuel in, ignites dwelling fire, 2008:1.19, 2009:5.80

Gasoline used as fuel in, ignites vapors, 1999:5.56

Gasoline vapors ignited by, **2009:**3.40

Improperly installed, ignites fatal manufactured home fire, 2001:5.24

Polymer dust ignited by, 2013:5.28

Possibly refueled with alcohol, fails, ignites fatal fire, 1998:2.16

Rips over, fatal fire cause, **2007:**6.19

Tips over, ignites combustibles, catastrophic fire factor, 1997:5.49

Unvented, ignites chair, 2000:5.58

Wood paneling ignited by, 1998:5.45

Kerosene fuels catastrophic fire, 1992:4.69, 1996:5.92

Lamp, spill from, ignited fatal fire, 1997:6.20, 2013:1.24

Lantern, factor in fatal fire, 2009:4.17, 2012:1.17

Stored kerosene contributes to spread of catastrophic fire, 1994:5.96

Stove, kerosene residue leaking from, ignited by electric space heater, 2001:1.22

KIEFFER, SUSAN

Interview with, 2013:6.14

KILN FIRES

Natural gas pipeline to kiln fails, gas ignited by pilot flame, 1997:6.52

Paper ignited by kiln in school fire, 1997:3.34

KUNG, HSIANG-CHENG

Profile of, **1995:**4.31

L

LABAUVE, LAMAR

Profile of, **1996:**1.37

LABORATORY FIRES

California, 1990, **1991:**5.30

California, May, 2001, 2001:6.64

California, Jan., 2002, **2003:**6.79

California, Feb., 2011, 2012:6.64

Colorado, July, 2011, 2012:6.64

Delaware, 2004, 2005:4.22

Florida, Dec., 2007, 2008:5.61

Michigan, 1991, 1992:3.33

Michigan, 2000, **2001:**1.20

Minnesota, 2011, 2012:5.28

New Hampshire, 2007, 2008:1.24

New York, 1995, 1996:3.40

North Carolina, 2011, 2012:2.19

Ohio, 2011, **2012:**1.23

Ontario, Canada, 1992, 1993:6.27

Oregon, 2009, 2010:4.31

```
Pennsylvania, 1991, 1992:4.25
  Texas, 1991, 1992:5.28
  Texas, 1996, 1997:5.23
   Washington, 1998, 1999:3.43
LAKE VIEW SCHOOL FIRE
  Collinswood, Ohio, March 4, 1908, 2008:5.64
LAKE WORTH, TEXAS
  Church fire, Feb. 15, 1999, 2000:4.55
  Church fire, Feb. 15, 1999, fire investigation report, 1999:4.76
LANTERNS
  Propane lantern, without glass, ignites combustibles, 1995:5.36
LARGE-LOSS FIRES, U.S.
  1990, study of, 1991:6.28
   1991, study of, 1992:6.40
  1992, study of, 1993:6.73
  1993, study of, 1994:6.84
  1994, study of, 1995:6.94
   1995, study of, 1996:6.58
   1996, study of, 1997:6.44
  1997, study of, 1998:6.80
  1998, study of, 1999:6.84
  1999, study of, 2000:6.78
  2000, study of, 2001:6.57
  2001, study of, 2002:6.70
  2002, study of, 2003:6.74
  2003, study of, 2004:6.48
  2004, study of, 2005:6.40
  2005, study of, 2006:6.64
  2006, study of, 2007:6.72
  2007, study of, 2008:6.38
  2008, study of, 2009:6:74
  2009, study of, 2010:6.62
  2010, study of, 2011:7.54
  2011, study of, 2012:6.60
  2012, study of, 2013:6.50
  Ford Motor Company, Dearborn, Michigan, Feb. 1, 1999, study indicates problems with
         large-loss fire investigations, 2004:4.58
  History of coverage in Ouarterly, 2007:Fall. 34
  History of study, 1995:5.87
LARGE-LOSS-OF-LIFE FIRES
  China, toy manufacturing plant, Nov. 19, 1993, 1994:1.48
  Comayagua, Honduras, prison, Feb. 14, 2012, 2012:5.50
  General Slocum excursion steamer, N. Y., N. Y., 1904, 1995:4.80
  Iroquois Theatre fire, Chicago, Ill., 1903, 1995:4.75
  Karachi, Pakistan, clothing manufacturing plant. Sept., 12, 2012, 2012:6.9
  Lake View School, Collinswood, Ohio, March 4, 1908, 2008:5.64
```

New York, club, March 25, 1990, 1991:4.67

North Carolina, food manufacturing plant, Sept. 3, 1991, 1992:1.29

Ohio State Penitentiary, April 21, 1930, 1995:5.84

S. S. Noronic cruise ship, Toronto, Canada, Sept. 17, 1949, 1997:1.58

Texas, manufacturing plant, July 5, 1990, 1991:4.67

Texas City, Texas, BP Refinery explosion and fire, March 23, 2005, 2007:4.78

Texas City, Texas, explosion and fire of ships carrying ammonium nitrate, April 16, 1947, **2012:**3.112

Thailand, toy manufacturing plant, May 10, 1993, 1994:1.42

World Trade Center, N.Y., N.Y. (See WORLD TRADE CENTER, N. Y., N. Y.)

LARGE VOLUME SPACES

Fire Dynamics Simulator software provides safest atrium smoke control design for real world enforcement, **2008:**1.50

Fire protection engineering for atria in green building designs, 2008:1.56

Fire spread factor, **1995:**6.98

LAS VEGAS, NEVADA

City Center fire protection systems, **2010**:3.62

Mandalay Bay Hotel and Casino construction faced fire protection challenges, 2005:3.108

MGM Grand Hotel fire, Nov. 21, 1980, 1996:2.70, 2001:2.96, 2005:2.96, 2010:3.120

Monte Carlo Hotel Casino fire, Jan. 25, 2008, fire investigation report, 2008:3.67

Monte Carlo Hotel Casino fire, Jan. 25, 2008, led to new inspection and training procedures in Clark County, NV, **2010**:3.82

Stratosphere Mall and Tower fire protection systems, 2001:6.66

Stratosphere Tower design uses performance and prescriptive codes, 1997:3.72

Stratosphere Tower provides lessons for elevator-based evacuation, 2009:4.58

Theaters present unique fire protection challenges, 2008:3.58

LASALLE HOTEL FIRE

Chicago, 1946, 2006:5.96, 2013:3.128

LATIN AMERICA. See also specific countries

NFPA contribution to fire safety, **2005**:2.50

LAUZIERE, KENNETH

Unites States Capitol Visitor Center's acceptance testing, review of, 2010:6.38

LAWRY, EDWARD C.

Profile of, 1999:1.35

LEADERSHIP COLUMNS

Advice to aid transition of new fire chief, 1997:5.32

Bridging the gap between administration and field workers, 2001:2.38

Conflict between fire service divisions over scarce resources hinders overall mission, **2002:**6.34

Customer service as fire service priority, 1998:1.32

Empowerment of fire service employees requires clear communications, 1998:3.50

Encouraging total staff participation works best for incorporating organizational change, **2002:**4.36

Feedback from organization members essential to evaluation efforts, 2001:3.52

Fire service participation in technical research can aid fire safety, **1997:**4.30

Firefighter fatalities are personal loss to fellow fire service members, 1999:4.38

Firefighters serve as role models to children, 1999:1.30

Firefighters work with youth through Big Brothers/Big Sisters program, 1998:2.28

Future leaders should take responsibility for reaching their goals, 1997:6.30

Gender sensitivity training to combat workplace sexual harassment, 1999:5.34

Humanistic leadership benefits everyone, 2002:3.52

Leadership means taking a stand even on controversial issues, 1998:5.26

Learning leadership skills is a process, **2001:**1.35

Metropolitan Fire Chiefs Conference, 1998, explores key issues of urban fire service, **1999**;3.62

Noteworthy leaders know hard work pays off, don't apologize for success, 2002:2.42

Personal responsibility plays important role in firefighter health and safety, 1999:2.38

In personnel selection, asking right questions helps, **2000**:2.38

Post 9/11, fire service leaders' leadership skills tested by various issues, 2002:5.38

"Progressive" has lost meaning through overuse, 2000:3.56

Quality is highest in organization that learn through experience, 2000:5.41

Recognizing team and individual efforts, 2001:4.38

Risk Watch as safety education tool in effort to mitigate nonfire incidents, 1998:6.32

Spanish-language versions of Learn Not to Burn Curriculum for Hispanic/Latino populations, **1998:**4.30

Success can be achieved with a balanced lifestyle, **2000**:6.30

Successful leadership involves meeting changing expectations, 2002:1.36

Toronto's new amalgamated metropolitan area fire service led by Alan Speed, 2000:4.37

Twenty-first century promises changes in technology, population, and fire service operations, **1999:**6.32

US looks to firefighters after 9-11-01, 2001:6.32

When in Doubt, Lead! (Compton) highlights value of teamwork, 2000:1.32

When in Doubt, Lead...Part 2 (Compton) provides sage advice, 2001:5.42

Without regulatory authority, alternative methods can influence fire safety, 1997:2.33

Working relationships between fire chiefs and city managers, 1997:1.37

Worldwide, fire service leaders can learn from each other, 1997:3.42

LEAP, UTAWNA

Residential sprinkler advocate emphasizes value for people with disabilities, **2010**:4.50 LEAVENWORTH, WASH.

Wildland fire, 1994, 1995:2.48

LEDYARD, CONNECTICUT

Great Cedar Hotel fire, Foxwood Resorts, Jan. 29, 2008, 2008;3.69

LEGOLAND® FLORIDA

NFPA joins amusement park fire safety partnership, 2012:2.38

NFPA partners with amusement park to promote Fire Prevention Week activities, **2012:**6.11 LESCHAK. PAM

U.S. Fire Service Fire Adapted Communities program manager, interview with, **2012:**4.16 LEXINGTON, KENTUCKY

Fire protection of rooftop helipads exemplified at Chandler Medical Center, **2000:**4.42 LIBRARIES

NFPA 909, Protection of Cultural Resources Including Museums, Libraries, Places of Worship, and Historic Properties, provides fire protection guidance for historical, cultural properties, **2000:**6.28

Property loss in cultural facilities, 2003:1.11

LIBRARY FIRES

California, Jan., 1992, 1993:6.79

Connecticut, 1996, 1997:1.26

LIFE SAFETY. See also FIRE SAFETY

Baltimore Convention Center expansion integrates new and existing life safety systems, **1999:**3.138

Centers for Disease Control statistics indicate workplace safety has improved, 2001:5.38

College dormitory constructed for life safety, 1999:1.60

Convention center life safety challenges addressed by NFPA codes and standards, 2007:2.54

Effectiveness of life safety inspections evaluated by Austin, Texas, fire department, 2002:6.66

Imminent life hazard at working structure fire, risk vs. benefit in determining, 2011:7.32

Life safety messages linked to FIRE Act funding, 2004:4.34

Loading dock presents transportation life-safety issues, 2003:3.32

Mall of America, Bloomington, Minn., life safety systems, 1999:6.66

Microprocessor-controlled life safety system installed at Winterthur Museum, 1992:5.63

NFPA 3, Commissioning and Integrated Testing of Fire Protection and Life Safety Systems, colleges can demonstrate value of new code, **2011:**5.24

NFPA 3, Commissioning and Integrated Testing of Fire Protection and Life Safety Systems, is being developed to address testing and start-up problems, **2009:**3.62

NFPA 101A, Alternative Approaches to Life Safety, 2010 changes, 2009:3.86

NFPA Fire and Life Safety Conference, 2010, preview, 2010:6.15

NFPA Journal sets standard for life safety discussions, 2007:Fall.96

NFPA maritime codes, standards, and training aid marine industry life safety, **2004:**4.38 LIFE SAFETY CODE®

1991 edition, changes in, **1991:**3.33

1991 edition, contents and furnishing regulations, 1991:4.20

1991 edition, overview, **1991:**5.61

1999 edition, changes reviewed, **1999:**5.97

1999 edition, performance-based design chapter proposed, 1999:1.24, 1999:4.82

2000 edition incorporates performance-based design, 2000:3.46

2006 edition, improved health care occupancy design requirements, **2006:**1.42

2006 edition, proposed changes, 2005:2.60

2006 edition includes significant changes to building rehabilitation requirements, 2008:2.38

2006 edition requires residential sprinklers, 2005:4.10

2009 edition, changes proposed to improve occupant and responder safety in high-rise buildings, **2007:**2.36

2009 edition, changes reflected in proposed OSHA Subpart E updates, 2010:6.34

2009 edition, changes reviewed, **2009**:2.34, 3.52

2009 edition, elevator egress regulations in, 2009:5.36

2009 edition, proposed changes, overview of, 2008:3.80

2012 edition, health care facility compliance with, 2012:1.62

2012 edition, health care occupancy corridor provisions, revisions to, 2013:1.34

2012 edition, health care revisions to, **2011:**1.48, 3.68, **2012:**1.34

2012 edition, proposed changes, overview of, **2011:**3.66

Access-controlled egress doors and locks requirements, 2007:5.40

Airport emergency evacuation requirements, provisions applicable to, **2002:**5.32

Airport fire alarm and communication system requirements, **2004:**5.32

Airport security measures jeopardize life safety, 1996:6.85

Americans with Disabilities Act spurs code changes, 1993:3.18, 1994:2.34

Application of code, questions answered, 2007:2.14

Application to industrial occupancies, 1994:4.16

Assembly occupancies, interior finish materials requirements for, 2005:2.34

Assembly occupancies, patron safety at, **2002:**1.29

Assembly occupancies, requirements for emergencies in, 2002:1.30

Assembly occupancy code changes proposed in response to Warwick, RI, nightclub fire, **2005**:3.44

Assisted living facilities, requirements for, 2002:4.38

Board and care facility protection requirements questioned, 1997:5.68

Building security provisions, **1992:**5.22

Building site plan needs exit discharge from exit to public way, 1998:5.22

Connecticut adopts code, 2006:2.18

Cooking equipment protection requirements, 2009:6.33

Crowd safety ensured by integrated, all-hazards systems approach, 2002:1.40

Development of performance-based provisions by NFPA, 1998:2.24

Disney World Animal Kingdom Lodge design used equivalency provisions in NFPA 101®, **2003:**5.38

Dormitories, life safety requirements for, 2000:5.30, 38

Egress capacity factors differ in NFPA 101[®], *Life Safety Code*, and the *International Building Code* 2003, **2007:**1.28

Egress corridors, placement of furnishings in, 2010:2.36

Egress distance requirements addressed by code, **2008**:6.30

Egress path design issues, **2001:**5.36

Egress through intervening rooms and space, restrictions and prohibitions on, 2007:6.30

Electric locks evaluated for code compliance, 1999:6.26

Elevator lobby egress requirements, **2011:**5.34

Emergency lighting requirements, 2005:6.28

Emergency plan content requirements and when plans are required, **2010**:4.40

Equivalencies and exceptions evaluated, 1995:1.16

Equivalency code section requires submitting technical documentation to AHJ, 2006:2:36

Evacuation diagram requirements and building a better diagram, 2013:6.32

Existing regulations, use of code with, 1996:3.97

Exit number requirements vary for different occupancies, 2012:2.34

Exit sign placement, 2010:3.52

Exit sign placement and lighting requirements, 2006:1.28

Exit stair signage and marking requirements, 2011:1.34

Fire alarm requirements have brought life safety improvements but challenges remain, **2013**:4.32

Fire alarm system and detection requirements, **2012**:6.34

Fire alarm system requirements for 'best' design, 2001:6.31

Fire barrier, smoke barrier, and smoke partition requirements, 2012:3.48

Fire drill requirements, **2010:**5.42

Fire protection system supervision, specific requirements for, 2006:6.32

Fire protection system supervision requirement important feature of system, 2006:4.34

Hazardous areas, barrier protection for, 2013:3.40

Health care and residential board-and-care facilities differentiated, 1999:4.32

Health care occupancies, 2012 edition changes for, 2011:1.48, 3.68, 2012:1.34

Health care occupancies, emergency planning requirements for, 2002:4.30

Health care occupancies, fire alarm requirements for, 2000:2.35

Health care occupancy compliance tips for 2012 edition, **2012:**1.62

Health care occupancy safety increased by tying Medicare/Medicaid reimbursement to code adoption, **2002**:4.32

High hazard uses, life safety requirements for, 2000:4.30

High-rise buildings, standards for, 1992:1.12

History of, **1992:**3.42, **1995:**5.82

Homeless Veterans Assistance Act requires veterans' housing compliance, provides grants, **2004:**1.28

Industrial fire safety depends on code compliance, 1994:4.36

Joint Commission on Accreditation of Healthcare Organizations requires compliance for health care occupancy accreditation, **2006:**1.47

Kentucky adopts code, 2006:6.12

Large assembly spaces, Technical Committee addresses emergency procedures for, **2011**:4.58 Life Safety Evaluation can improve safety at outdoor venues, **2011**:5.9

Lockup safety provisions, **2011:**7.34

Maine adopts code, **2007:**6.12

Maryland adopts code, 2007:2.13

Mezzanine construction requirements, 2009:1.30

Mixed use and multiple use building needs addressed by code, 2002:3.38

Mixed use occupancies differentiated from incidental occupancies, 2002:3.46

New code has user-friendly language, conforms with Americans with Disabilities Act, **1994:**2.34

NFPA 101B, *Means of Egress*, new document scheduled for 1998 NFPA Fall Meeting, **1998:**1.28

Nursing home cooking operations, application to, 2013:5.36

Nursing home culture change toward more homelike atmosphere requires code changes, **2010:**1.50

Occupancy classification determination critical to application of code requirements, **2006:**5.40 Occupant load calculations crucial to accurate code application, **2001:**4.32

Occupational Safety and Health Administration (OSHA) egress standards compared, **1993:**5.45 Office building requirements, **2000:**1.26

Office building space rearrangement can affect egress, 2002:2.36

Orlando International Airport's new air traffic control tower goes beyond Life Safety Code®, **2003:**3.68

Overview of, **1992:**3.42

Panic hardware and fire exit hardware definitions and requirements, 2007:4.36

Penetrations and smoke barriers, requirements for, 2007:5.81, 2012:3.48

Public address systems, required evaluation for emergency communications of, 2012:4.40

Quantitative goals define desired safety level, **2011**:4.34

Residential sprinkler protection required in 2006 edition, 2005:4.10

School bulletin boards and decorations, requirements for, 2012:5.38

School fire alarms allowed to be used for non-fire purposes, 2012:5.40

School lockdown procedures can run counter to NFPA 101[®], *Life Safety Code*[®] egress requirements, **2013:5**.55

Simultaneous occupancy must be included in total load calculation, 2008:3.40

Smoke barriers and smoke partitions, purpose, application, and use of, 2001:6.28

Sports venues, fire alarm challenges of, **2004:**3.38

Sports venues, operational requirements for, 2004:3.34

Sprinkler requirements for nursing homes, dwellings, nightclubs, 2005:5.14

State and federal government agencies have adopted code, 2002:4.14

Tents, requirements for, 2012:4.36

TIA allows hand sanitizer stations in health care facility public areas, 2004:3.36

U. S. Treasury Building fire indicated life safety deficiencies, 1996:6.52

Vermont adopts code, 2006:1:11

Vertical opening protection addressed in code, 2010:1.34

LIGHTING. See ELECTRICAL EQUIPMENT FIRES

LIGHTNING

Apartment building fire cause, 2003:3.16, 2010:4.30

Auditorium/hall fire cause, 1999:6.95

Barn fire cause, 2011:7.23

Church fire cause, **1994**:6.89, **1995**:6.98, **1999**:3.43, **2002**:3.34, **2004**:3.22

Coal mine fire cause, 2007:5.60

Dwelling fire cause, 1996:4.21

Educational facility fire cause, 1992:6.78

Firefighter injuries related to, **1999:**6.55, **2003:**6.71

Fuel transfer/docking facility fire, factor in, 2007:4.21

Historic mansion fire cause, 1994:4.31

Manufacturing plant fire cause, 2009:6.77, 2010:6.66

NFPA releases Lightning Fires and Lightning Strikes report, 2008:2.20

Office building/student center fire cause, 2000:6.92

Power outage caused by thunderstorm, factor in apartment building fire, 2008:5.23

Refinery fire cause, 2005:6.47

School fire, factor in, 2007:6.82

Store fire cause, **2000**:6.92

Tank storage facility fire, 2005:3.30

Vacant building fire cause, **2008:**6.42

Warehouse fire cause, 1998:6.88

Wildland fire cause, **1991:**1.60, 61, 62, **1991:**4.70, **1991:**6.78, **1993:**3.36, **1995:**5.67,

1999:6.97, **2001:**6.64, **2009:**5.84, **2011:**6.17, **2013:**6.54

Wildland/urban interface fire cause, 1995:6.111

LIMITED CARE FACILITY FIRES

Catastrophic, Ohio, Dec. 5, 1990, 1991:4.69

Connecticut, 2002, **2003:**4.17

Kansas, 1997, 1998:4.21

LINGENFELTER, GERALD

Profile of, **1996:**2.39

LINT

Carpet manufacturing plant fire, factor in, 1997:3.33

Carpet recycling plant fire, factor in, **2011:**2.29

Dryer fire ignites lint, **2001**:5.24, **2002**:5.20, **2004**:5.14, **2013**:6.23

Electrical malfunction ignites lint in void, shopping mall fire cause, 2009:5.28

Fireworks ignite dryer lint on roof, in ducts, 2011:4.22

Hosiery manufacturing plant fire, factor in, 1997:3.33

Paper products manufacturing plant, factor in, 2013:6.54

Textile manufacturing plant fire, factor in, 1995:6.107

LION, DOUGLAS R.

Profile of, **1993:**2.16

LIQUEFIED NATURAL GAS

In LNG vapor cloud, location of flammable concentration relative to visible cloud boundary, **2006**:3.68

Motor vehicle filling station service becomes more common, 2002:6.46

Motor vehicles fueled by, handling incidents involving, 1994:4.84

NFPA 30A, *Automotive and Marine Service Station*, expanded to cover alternative fuels, **2000**:4.83

Radiant heat flux hazard criterion to establish fire safety zones, 2006:5.74

Safety and fire protection for existing and new LNG facilities, 2007:1.44

LITTLE ROCK, ARKANSAS

Aircraft crash and fire, June 1, 1999, fire investigation report, **1999:**5.40

LOCK BOXES

Value in commercial building fires, **1991:**1.29

LODGING HOUSE FIRES. See ROOMING HOUSE FIRES

LONG, MARIAN H.

Profile of, **1996:**6.39

LOOKING BACK COLUMNS, 2011:5.96

Apollo 1 tragedy, 1967, **2006:**1.80

Assembly occupancy fires covered by Quarterly and NFPA Journal, 2007:2.96

Beverly Hills Supper Club fire, May 28, 1977, 2011:4.80

Brentwood-Bel Air fire, Nov., 1961, 2011:6.80

Bugbee, Percy, NFPA fire prevention leader remembered, 2008:6.88

Burlington Building fire, Chicago, 1922, led to development of NFPA 232, *Protecting Records*, **2002:**2.96

Centennial celebration for NFPA Journal, 2007:1.72

Cleveland Clinic fire, Cleveland, Ohio, 1929, led to hazardous materials storage standards, **2012**:1.80

Cold-Storage and Warehouse Building Fire, Worcester, Mass., 2003:4.80

Crowd management factors in Riverfront Stadium, Cincinnati, concert disaster, Dec. 3, 1979, **2002:**1.80

Dick Van Dyke stars in public service announcements, 2001:1.80

Dupont Plaza Hotel fire, San Juan, Puerto Rico, Jan. 1, 1986, 2012:6.80

Empire State Building aircraft crash and fire, July 28, 1945, 2013:4.88

Fire Prevention Week, history of, **2002:**5.112

Fireworks, United States' long and injurious fascination with, 2009:4.80

First fire prevention handbook, 2003:1:80

First Fire Prevention Week, 1925, safety message recalled, 2009:5.88

General Slocum steamship fire, New York, June 16, 1904, 2011:1.80

Great Fire of Boston, Nov. 10, 1872, 2011:3.128

Great Peshtigo Fire, Peshtigo, Wisconsin, 1871, 2003:2.78

Happy Land Social Club Fire, Bronx, NY, 1990, 2003:3.144, 2013:1.72

Hartford, Connecticut, circus fire, July 6, 1944, 2012:4.88

Health care facilities, fires at, 2002:4.112

High-rise office buildings, fires at, **2002:**3.160

Iroquois Theatre fire, Dec. 30, 1903, 2003:6.104

Jensen, Rolf, fire protection engineering design professional, remembered, 2008:3.144

Kanto, Japan, earthquake fires, Sept. 1, 1923, 2013:6.72

Katie Jane Memorial Home for the Aged, Warrenton, Missouri, fire, 1957, 2010:1.80

King's Cross Underground Station, London, Nov., 1987, 2010:6.96

Lasalle Hotel fire, Chicago, 1946, 2006:5.96, 2013:3.128

Livonia, Michigan, GM Plant fire, 1953, fueled by combustible roof, 2010:2.80

London Consolidated School explosion, New London, Texas, 1937, led to gas odorization requirements, **2010:**5.80

McCormick Place Exhibition Hall fire, 1967, 2004:3.136

MGM Grand Fire, Las Vegas, Nevada, 1980, 2001:2.96, 2005:2.96, 2010:3.120

Moulton, Robert. S., NFPA` chief technician remembered, 2008:1.80

NFPA 13, Installation of Sprinkler Systems, 2004:2.96

NFPA and federal government aviation safety efforts, history of, 2007:4.104

NFPA conferences in Chicago, previous, 2009:3.136

NFPA "Fire and Blast" publication, 1952, 2004:1.80

NFPA Journal cover themes, 2007:Fall.176

NFPA members lost at the World Trade Center attack and fire, remembrance, 2001:6.96

NFPA World Headquarters opening, June 14, 1981, 2001:3.160

9/11 Commission, 2002 to 2004, **2005:**1.64

NIST World Trade Center Report's controversial recommendations for changes in high-rise design, **2007**:3.160

Nursing home fires, history of, 5.112

Our Lady of the Angels School Fire, Chicago, Illinois, Dec. 1, 1958, 2003:5.104

Pemberton Mill fire, Lowell, Massachusetts, 1860, 2011:2.88

Piper Alpha North Sea oil rig explosion and fire, July 6, 1988, 2010:4.88, 2013:5.80

President's Conference on Fire Prevention, 1947, 2002:6.96

Residential de-cluttering was focus of 1949 spring clean-up brochure, 2009:2.80

San Francisco earthquake and fire, April 18, 1906, 2004:6.96

Smokey Stover cartoon enlisted by NFPA for Fire Prevention Week 1953, 2009:1.80

Sprinkler requirements in NFPA codes and standards, history of, 2007:6.112

Sprinklers invented and manufactured by Parmalee and Grinnell, 2011:7.80

SS Morro Castle disaster, 2004:4.80

SS *Sultana* explosion, April 27, 1865, killed 1,700 people including released Civil War prisoners, **2013**:2.88

Stevens, Richard E., architect of NFPA standards systems remembered, 2008:2.104

Tenarife, Canary Islands, aircraft collision disaster, March 27, 1977, 2012:2.80

Texas City, Texas, explosion and fire of ships carrying ammonium nitrate, April 16, 1947, **2012:**3.112

Triangle Shirtwaist fire, **2001:**5.104

Tryon, George H. (Hitch), III, aviation fire-safety leader remembered, 2008:4.102

U. S. Treasury Building fire, June 26, 1996, 2001:4.96

United Flight 232 crash-fire, Sioux City, Iowa, 2004:5.96

Wentworth, Franklin, first full-time NFPA secretary-treasurer, remembered, 2008:5.112

Winecoff Hotel fire, Atlanta, 1946, 2006:6.104

Woburn Nursing Center fire, Woburn, Massachusetts, Oct. 31, 1992, 2012:5.96

Wooden shingle dangers taken on by early twentieth century NFPA tracts, 2009:6.96

LOPES, ROCKY

Profile of, **1995:**1.22

LOS ANGELES, CALIF.

Disaster response plan of fire department, 1991:6.60

Fatal high-rise office building fire, May 4, 1988, 1992:5.56

High-rise office building fire, Feb. 15, 1992, 1992:5.56

New state-of-the art fire department dispatch center, 1994:2.66

Urban search and rescue program meets diverse demands, 1995:6.55

LOUISIANA

Catastrophic fires

Apartment building, Aug. 10, 1994, 1995:5.60

Apartment building, March, 2005, **2006:**5.60

Drilling platform, Feb. 15, 1991, 1992:4.71

Dwelling, Nov. 16, 1991, 1992:4.68

Dwelling, Oct. 9, 1997, 1998:5.50

Dwelling, Mar. 23, 1998, **1999:**5.50

Dwelling, Jan. 13, 1999, 2000:5.57

Dwelling, Dec., 2000, 2001:5.77

Dwelling, Aug., 2002, 2003:5.75

Manufactured home, April 10, 1990, 1991:4.65

Manufactured home, Feb., 2007, 2008:5.58

Manufactured home, June, 2008, 2009:5.81

Manufacturing plant, May 1, 1991, 1992:4.70

Marine vessel, Oct. 30, 1990, 1991:4.70

Marine vessels, Oct., 2006, 2007:5.62

Natural gas well, Oct. 24, 1998, 1999:5.54

Oil and natural gas drilling well, June 16, 1997, 1998:5.53, 6.91

Oil separation storage tank, Mar. 4, 1998, **1999:**5.55

Refinery, March 3, 1991, 1992:4.70, 1992:6.77

Refinery, Aug. 2, 1993, 1994:5.105, 1994:6.93

Storage tank, March 11, 1990, 1991:4.68

Storage tank, Aug. 17, 1990, 1991:4.68

Truck/locomotive, June, 2004, 2005:5.61

Warehouse, Dec., 2010, 2011:5.77

Convention center fire, 2001, **2002**:6.22

Fatal fires

Apartment building, 1997, 1998:2.16

Apartment building, 2008, 2009:2.22

Apartment building, 2011, 2012:6.18

Dwelling, 2008, 2009:4.20

Dwelling, 2010, 2011:5.15

Manufactured home, 2007, **2008:**1.20

Manufactured home, 2008, 2009:6.20

Manufactured home, 2009, 2010:2.23

Manufactured home, 2010, **2011**:1.23

Oil pipeline, 2009, **2010:**2.28

Manufacturing plant fire, May, 1991, 1992:6.75

Manufacturing plant fire, July, 1992, 1993:6.83

Manufacturing plant fire, April 15, 1997, 1998:6.84

Manufacturing plant fire, July 5, 1999, 2000:6.83

Manufacturing plant fire, April, 2003, 2004:6.52

Race track fire, Dec., 1993, 1994:6.89

Restaurant fire, March, 2006, 2007:6.83

Restaurant fire, Jan., 2010, 2011:7.56

Sawmill fire, 1993, **1994:**5.29

Shopping mall fire, Sept., 2005, 2006:6.74

Warehouse fire, March 21, 1996, 1997:6.54

Wharf/warehouse fire, Aug. 24, 1990, **1991:**6.73

Wildland fire, Aug., 2000, 2001:6.63

LOUISVILLE, KY.

Fire department and elderly agencies focus on seniors' fire safety, **1994:**3.13

Fire department training program for high-rise fires, 1994:2.55

LP-GAS. See also PROPANE

Commercial food-service appliances as ignition source in assembly occupancies, **2003**:6.26 Home structure fires, 2003-2007, **2010**:3.112

NFPA 30A, *Automotive and Marine Service Station*, expanded to cover alternative fuels, **2000**:4.83

NFPA 58, *Liquefied Petroleum Gas*, 2001 edition, revised to reflect federal safety rules, **2002:**1.32

NFPA 58, Liquefied Petroleum Gas Code, fall meeting review, 2000:5.91

NFPA 58, *Liquefied Petroleum Gas Code*, overfill prevention device requirement cuts gas grill fires, **2006:**3.19

NFPA 58, *Liquefied Petroleum Gas Code*, proposed changes for indoor use of composite cylinders, **2007**:2.61

LP-GAS FIRES. See also PROPANE

Bulk storage facility, Texas, 1995:1.31

Burner ignites leaking hydrogen, **1992:**5.28

Gas directed into house, ignited in incendiary fire, 1993:6.79

Grill tank, improperly installed, leaks, ignites restaurant fire, **1998**:3.36 Heater leak ignites dwelling fire, **2012**:6.25 Parts failure ignites gas at exterior wall at food processing plant, **1998**:6.86 Pilot light ignites gas from broken valve on LPG-powered cleaner, **1997**:6.57 Roofing torch, possible fire cause, **1996**:6.73

Stove flame ignites clothing of disable, elderly person, 1998:2.16

Stove ignites gasoline residue on clothing, 1994:5.97

Stove pilot light ignites aerosol insecticide, 1993:4.25

Tank car derailment, Weyauwega, Wisc., March 4, 1996, 1996:3.89

LP-GAS FIRES AND EXPLOSIONS. See also PROPANE

BLEVE, Farm, Iowa, April 9, 1998, fire investigation report, 1998:6.42

Bulk storage facility, Texas, April 7, 1992, 1993:5.67, 1993:6.87

Camping trailer, Alabama, Dec. 6, 1997, 1998:5.56

Distribution facility, Ohio, 1996, 1997:4.20

Dwelling, Iowa, Sept. 6, 1999, 2000:5.56

Dwelling, Missouri, 1999:1.18

Dwelling, North Dakota, 2011, 2012:3.38

Forklift gas cylinder BLEVEs, 1996:6.63

Manufactured home, Oklahoma, Apr. 20, 1996, 1997:5.49

Service station/store, West Virginia, Jan., 2007, 2008:5.60

Store, Georgia, Oct. 26, 1997, 1998:6.89

Tank truck, Mississippi, Jan. 20, 1992, 1993:5.68

LUCHT, DAVID A.

Profile of, **1993:**5.22

M

MADISON, WIS.

Cold storage warehouse fire, May 3, 1991, **1991:**6.37

MAINE

Apartment building fire, 1995, 1996:5.24

Armory fire, 2003, **2004:**6.18

Boatyard fire, 2001, 2002:6.75

Catastrophic fire, aircraft, June, 2006, 2007:5.63

College building fire, 2002, 2003:5.16

Dormitory fire, 2000, **2001:**3.30

Dormitory fire, 2012, 2013:6.22

Dwelling fire, 2003, **2004:**5.19

Fatal fires

Apartment building, 1999, **2000:**1.19

Apartment building, 2009, **2010:**1.21

Dwelling, 1998, 1999:6.17

Dwelling, 2006, 2007:2.18

Dwelling, 2012, 2013:3.26

Dwelling-under-construction, 2008, 2009:1.21

Hotel, 2001, 2002:4.20

Manufactured home, 1993, 1994:1.31

Manufactured home, 1995, **1996**:6.22

Hotel fire, 2011, 2012:4.22

Manufacturing plant fire, 1994, 1995:5.34

Manufacturing plant fire, 1997, 1998:1.24

Manufacturing plant fire, 1999, 2000:1.21

Manufacturing plant fire, July, 2008, 2009:6.75

Manufacturing plant fire, 2012, 2013:1.26

Marina fire, Feb. 1, 1999, 2000:6.86

Motel fire, March, 1994, 1995:6.108

NFPA 101[®], Life Safety Code[®], adopted by state, **2007:**6.12

Recreational facility fire, 1992, 1993:1.26

School fire, 1998, 1999:4.22

School fire, 2003, **2004:**5.20

Ship fire, May, 2012, **2013:**6.59

Storage facility fire, 2001, **2002:**6.75

Store fire, 2004, **2005:**1.20

Warehouse fire, Dec., 2008, 2009:6.81

MALAYSIA

Petronas Towers, Kuala Lumpur, world's newest tallest buildings, 2001:3.64

MANAGEMENT MATTERS COLUMNS

Ethnic diversity and cooperation valued in fire service, **1996:**6.33

Evaluating fire service from community perspective, 1996:3.49

Fire service must be prepared for terrorist attacks, 1996:2.35

Leadership requires future goals based on principles, 1996:1.33

Metropolitan fire chiefs and the NFPA, 1996:4.33

Urban fire service need greater community service role, 1996:5.35

MANN GULCH FIRE, MONT.

Wildland fire, 1949, 1995:2.42

MANSION FIRES

Massachusetts, 2000, 2001:6.18

Pennsylvania, 1993, **1994:**4.31

Utah, Dec., 1993, 1994:6.90

MANUFACTURED HOMES

Manufactured Housing Improvement Act of 2000 updates safety standards, 2002:2.38

NFPA 501, Manufactured Housing, 2010 changes, 2009:3.88

NFPA 501, Manufactured Housing, updated to address new fire safety challenges, 2001:2.49

U. S. Department of Housing and Urban Development manufactured housing standards committee considers pro-sprinkler argument, **2012:**2.12

MANUFACTURED HOME FIRES

Alabama, 1992, 1993:4.25

Alabama, 2011, 2012:1.16

Alaska, 2008, 2009:3.40

Alaska, 2009, **2010:**1.20

Arizona, 2007, 2008:6.19

Arizona, 2008, 2009:5.24

Arizona, 2011, **2012:**5.23

California, 1998, 1999:5.20, 1999:6.18

California, 2012, 2013:6.23

Catastrophic

Alabama, March, 2009, **2010:**5.64

Alabama, March, 2010, 2011:5.75

Arizona, March 26, 1995, **1996:**5.92

Arizona, Jan., 2001, 2002:5.82

Arkansas, Dec. 28, 1997, **1998:**5.50

Arkansas, April, 2005, 2006:5.60

California, Dec. 30, 1997, **1998:**5.50

California, Jan., 2010, 2011:5.74

Florida, April, 2006, **2007:**5.57

Florida, March, 2007, 2008:5.59

Florida, Nov., 2009, 2010:5.65

Georgia, April 11, 1994, 1995:5.56

Georgia, Feb. 4, 1995, 1996:5.92

Georgia, Dec. 14, 1996, 1997:5.49

Georgia, March, 2000, 2001:5.75

Georgia, Jan., 2002, 2003:5.75

Idaho, Sept. 27, 1997, 1998:5.46

Idaho, June, 2010, **2011:**5.76

Illinois, May, 2003, 2004:5.69

Indiana, Oct. 1, 1996, 1997:5.52

Iowa, Dec. 9, 1995, **1996:**5.93

Kentucky, Sept. 30, 1994, 1995:5.60

Kentucky, Feb., 2004, 2000:5.57

Kentucky, March, 2006, 2007:5.58

Kentucky, April, 2010, 2011:5.75

Louisiana, April 10, 1990, **1991:**4.65

Louisiana, Feb., 2007, 2008:5.58

Louisiana, June, 2008, **2009:**5.81

Michigan Feb. 6, 1990, 1991:4.64

Minnesota, Dec., 2001, 2002:5.82

Mississippi, Jan. 2, 1998, **1999:**5.51

Mississippi, Oct., 2002, 2003:5.75

Missouri, May, 2009, 2010:5.65

Nebraska, July, 2006, 2007:5.59

New York, April 13, 1999, 2000:5.58

New York, Dec., 2001, 2001:5.77

North Carolina, April 8, 1999, **2000:**5.58

North Carolina, July, 2003, **2004:**5.69

Ohio, Nov. 17, 1996, 1997:5.51

Ohio, April, 2008, 2009:5.82

Oklahoma, 1996, **1997:**5.49

South Carolina, Sept. 6, 1996, **1997:**5.51

South Carolina, Jan. 19, 1997, 1998:5.45

South Carolina, Sept., 2004, 2005:5.58

South Carolina, Jan., 2009, 2010:5.64

Tennessee, March 4, 1994, 1995:5.56

Tennessee, Sept., 2010, 2011:5.76

Texas, Dec. 12, 1999, 2000:5.58

Texas, Feb., 2001, 2002:5.82

Texas, April, 2005, **2006:**5.61

Texas, Jan., 2006, 2007:5.58

Texas, Jan., 2008, 2009:5.81, 82

Texas, March, 2011, 2012:5.69

Vermont, Feb., 2000, **2001:**5.75

Washington, Aug. 8, 1990, 1991:4.65

West Virginia, Dec., 2006, **2007:**5.59

Colorado, 1997, 1998:1.23

Colorado, 2007, 2008:3.30

Colorado, 2012, 2013:1.18

Florida, 1990, **1991:**4.26, **1991:**5.28

Florida, 1997, **1998:**4.20

Florida, 2001, **2002:**2.24

Florida, 2003, **2004:**5.18, **2004:**6.17

Florida, 2006, **2007:**4.26

Florida, 2008, **2009:**6.22

Idaho, 2007, 2008:4.22

Idaho, 2011, 2012:3.30

Indiana, 2000, 2001:3.30

Indiana, 2010, **2011:**7.14

Iowa, 2008, 2009:4.18

Kansas, 1995, **1996:**3.36

Kansas, 1999, **2000:**1.20

Kentucky, 1993, 1994:4.32, 1994:5.27

Kentucky, 2001, 2002:1.20

Louisiana, 2007, 2008:1.20

Louisiana, 2008, **2009:**6.20

Louisiana, 2009, 2010:2.23

Louisiana, 2010, 2011:1.23

Maine, 1993, **1994:**1.31

Maine, 1995, **1996:**6.22

Massachusetts, 1990, 1991:2.29

Massachusetts, 2000, 2001:5.25

Massachusetts, 2002, 2003:1.16

Michigan, 1992, **1993:**6.28

Michigan, 2008, 2009:6.24

Michigan, 2009, **2010:**5.33

Minnesota, 2011, 2012:5.26

Nevada, 2008, 2009:3.34

Nevada, 2009, **2010:**6.26

```
New Jersey, 1997, 1998:2.16
```

New York, 2012, 2013:1.25

North Carolina, 1997, 1998:2.16

North Carolina, 2004, **2005**:6.20

North Carolina, 2006, 2007:6.19

North Carolina, 2009, **2010**:3.33

North Carolina, 2010, 2011:2.22

North Dakota, 1995, 1996:2.23

North Dakota, 2006, 2007:6.19

Ohio, 1997, 1998:3.38

Oregon, 2007, 2008:5.24

Oregon, 2012, 2013:2.22

Overview of fire experience, **1992:**3.62, **1996:**2.55

South Carolina, Sept. 6, 1996, 1997:5.51

South Carolina, 2004, **2005:**2.24

South Carolina, 2005, 2006:4.26

South Carolina, 2011, **2012:**2.16

Tennessee, 2010, 2011:3.36

Texas, 2006, 2007:6.18

Texas, 2008, 2008:2.24

Texas, 2011, 2012:5.24

Washington, 1996, 1997:3.30

Washington, 2012, 2013:2.21

MANUFACTURING PLANTS

Dust explosions, causes and prevention, 2008:6.56

For Imperial Sugar, new refinery and new safety culture go hand-in-hand, 2010:2.44

NFPA 101, Life Safety Code, addresses life safety for high-hazard uses, 2000:4.30

NFPA 2112, Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire, annual meeting review, **2001:**2.81

NFPA motor vehicle plant paint shop regulations customized by General Motors, ${\bf 2001:}5.52$

Petrochemical plant emergencies, planning for, 2002:6.28

Pre-incident planning and cooperation essential to industrial facility firefighting, 2002:6.26

Process Hazard Assessment (PHA) determines hazards in industrial facility or piece of equipment, **2010:**2.50

Senate committee moves to protect chemical facilities from terrorism, 2002:6.30

Underground SubTropolis facility, Kansas City, Missouri, requires unique fire protection measures, **1998**:6.68

MANUFACTURING PLANT EXPLOSIONS

Dust, explosions caused by, 2008:6.56

Paper, Florida, April 13, 1994, 1995:5.66, 1995:6.106

Steel, Ohio, April 20, 1994, 1995:5.64

MANUFACTURING PLANT FIRES. See also MILL FIRES; REFINERIES, OIL, FIRES

Acetylene generation and packaging, New Jersey, Jan., 2005, 2006:5.63

Adhesive, Ohio, 1993, 1994:5.29

Adhesive, March, 2011, 2012:6.62

Agricultural products, Minnesota, August, 1992, 1993:6.83

Agricultural products, Nov., 1998, 1999:6.92

Air conditioner filters, Florida, July, 2007, 2008:6.42

Aircraft, California, 1993, 1994:4.31

Aircraft landing gear, California, Jan., 1992, 1993:6.84

Alcohol distillery, Kansas, Sept., 2002, 2003:5.18, 2003:6.77

Alcohol distillery, Kentucky, Nov. 7, 1996, 1997:6.57

Aluminum, Illinois, Aug., 1993, 1994:6.94

Aluminum, Indiana, July, 1994, 1995:6.102

Aluminum, Louisiana, July 5, 1999, **2000**:6.83

Aluminum, Massachusetts, 1994, 1995:1.33

Aluminum, Wisconsin, Aug., 2008, 2009:6.77

Aluminum furniture, Florida, 2012, 2013:1.26

Aluminum wheels, Indiana, 2003, 2004:5.20, 6.21

Ammonium nitrate mixing, Minnesota, Nov. 17, 1993, 1994:5.105

Apparel, Michigan, Aug., 1991, 1992:6.78

Automobile insulation, Kentucky, Feb., 2003, 2004:5.71, 2004:6.52

Automobile parts, Illinois, 2010, 2011:5.19

Automobile parts, Michigan, 1992, 1993:5.38

Automobile/truck accessories, Florida, 2000, 2001:3.36

Automobiles, Dearborn, Michigan, Feb. 1, 1999, fire investigation report, 2004:4.58

Automobiles, Livonia, Michigan, Aug. 12, 1953, 2010:2.80

Automotive adhesives, Missouri, 2001, 2002:1.22

Automotive parts, Michigan, Aug. 6, 1997, 1998:6.85

Bags, Louisiana, April, 2003, 2004:6.52

Bakery, Illinois, April 23, 1999, 2000:6.84

Bathtubs, Virginia, 1996, 1997:4.22

Batteries, California, 1990, 1991:3.31

Black powder, Pennsylvania, May 15, 1991, 1992:4.71

Blast furnace, Michigan, Jan., 2008, 2009:6:75

Blast furnace, Ohio, Aug., 2003, 2004:6.52

Boats, Florida, 1992, 1993:5.37

Boats, Florida, Sept. 5, 1996, 1997:1.28, 6.50

Boats, Maine, July, 2008, 2009:6.75

Boats, Massachusetts, 1993, 1994:1.29

Bottles, New Jersey, 1990, 1991:6.25

Bottles, New York, 1992, 1993:6.27

Bowling balls, Utah, 1990, **1991:**5.28

Boxes, Wisconsin, 2009, 2010:3.43

Brass rolling, Illinois, March, 1994, 1995:6.108

Buses, Arkansas, July, 1994, 1995:6.104

California, 2012, **2013:**2.25

Cardboard, North Carolina, 1994, 1995:3.40

Cardboard boxes, Indiana, April 30, 1000, 2000:6.86

Cardboard boxes, Massachusetts, June 6, 1997, 1998:6.86

Cardboard boxes, Oregon, Feb. 19, 1990, **1991:**6.75

Cardboard boxes, Washington, June, 1998, 1999:6.90

Carpet recycling, Georgia, 2010, 2011:2.29

Carpets, Georgia, Jan., 1995, 1996:6.62

Carpets, Georgia, 1996, 1997:3.33

Carpets, Georgia, May, 2008, **2009:**6.77

Causes, 1994:4.40

Chemical fertilizer, Iowa, Dec. 13, 1994, 1995:5.66

Chemical storage tanks, Missouri, 2002, 2003:3.18

Chemicals, California, 1992, 1993:4.27

Chemicals, Georgia, May, 2004, 2005:6.45

Chemicals, Illinois, April, 2004, 2005:5.59

Chemicals, Kentucky, March, 2011, 2012:6.61

Chemicals, Louisiana, May, 1991, 1992:6.75

Chemicals, Louisiana, April 15, 1997, 1998:6.84

Chemicals, Louisiana, May 1, 1991, 1992:4.70

Chemicals, Louisiana, July, 1992, 1993:6.83

Chemicals, Maryland, Oct., 1998, 1999:6.91

Chemicals, Nevada, 2001, 2002:6.75

Chemicals, North Carolina, 1995, 1996:3.39

Chemicals, Ohio, 1990, 1991:3.31

Chemicals, Ohio, May 27, 1994, 1995:5.66

Chemicals, Pennsylvania, Feb. 19, 1999, 2000:5.59

Chemicals, South Carolina, June, 1991, 1992:6.80

Chemicals, South Carolina, June 17, 1991, **1992:**4.70

Chemicals, Texas, July 5, 1990, 1991:4.67, 1991:6.78

Chemicals, Texas, March, 1991, 1992:6.75

Chemicals, Texas, Jan., 1992, 1993:6.83

Chemicals, Texas, July, 1995, 1996:6.64

Chemicals, Texas, Aug., 1995, 1996:6.64

Chemicals, Texas, Dec. 2, 1999, 2000:6.83

Chemicals, Texas, 2000, 2001:6.23

Chemicals, Texas, March, 2000, 2001:6.61

Chemicals, Texas, Oct., 2011, 2012:6.62

Chemicals, West Virginia, Dec., 2010, 2011:5.79

Chemicals and plastics, Minnesota, Feb. 6, 1997, 1998:6.85

Chemicals and plastics, Utah, Feb. 1, 1997, **1998:**6.86

Christmas ornaments, North Carolina, Oct., 1994, 1995:6.103

Circuit boards, California, 1993, **1994:**6.36

Clothing, Alabama, June, 1998, 1999:6.91

Clothing, Alabama, 2012, **2013**:4.25

Clothing, Bangladesh, Nov., 2012, 2013:1.8

Clothing, Karachi, Pakistan, Sept., 12, 2012, 2012:6.9

Clothing, North Carolina, May, 1992, 1993:6.84

Coal preparation, Illinois, Dec., 1993, **1994:**6.93

Composting, Georgia, Aug. 23, 1996, 1997:6.50

Composting, Georgia, Dec. 24, 1996, 1997:6.52

Composting storage plant, Connecticut, Nov. 28, 1999, 2000:6.83

Computer repair, Connecticut, 2005, 2006:2.30

Concrete forms, Oklahoma, 2004, 2005:6.22

Connecticut, 1996, **1997:**4.22

Connecticut, 1997, **1998:**3.42

Connecticut, 1999, **2000:**2.23

Cooking oil and grease processing, Pennsylvania, 2004, 2005:2.28

Cutlery, Massachusetts, 2008, 2009:3.44

Dairy, Minnesota, Dec., 2004, 2005:6.46

Dairy, South Carolina, 1991, **1992:**3.32

Defense contractor, New Hampshire, 2007, 2008:1.24

Die and casting company, Michigan, 2011, 2012:2.21

Doors, Montana, 2012, 2013:4.24

Dry cleaning/mixed, Michigan, April, 1994, 1995:6.108

Electrical appliance, electronic equipment, Maryland, March 28, 1990, 1991:6.77

Electronic appliances, New Hampshire, Aug. 22, 1996, 1997:6.52

Electronics, Massachusetts, 1994, 1995:3.40

Electronics equipment, Pennsylvania, May, 1998, 1999:6.91

Electronics repair, Texas, Oct., 1994, 1995:6.108

Engines, Connecticut, 2012, 2013:3.30

Epoxy, New Jersey, 2002, 2003:3.18

Exercise equipment, 1998, 1999:5.20

Explosives, Nevada, Jan. 7, 1998, 1999:5.55

Eyeglasses, Minnesota, 2012, 2013:6.24

Fabric, North Carolina, 2001, 2002:3.36

Fertilizer, South Carolina, Feb., 2011, 2012:6.61

Fiberboard, New York, 1995, 1996:5.23

Fiberboard/hardboard, Oregon, Nov. 18, 1996, 1997:6.50

Fiberglass, Missouri, 2003, 2004:2.17

Fiberglass, Ohio, 2000, 2001:2.24

Firearms, New Hampshire, March 27, 1997, 1998:6.86

Fireworks, Michigan, Dec. 11, 1998, 1999:5.54

Fireworks, Michigan, March 29, 1999, 2000:5.59

Fireworks, Mississippi, 1990, **1991:**4.30

Fireworks, Wisconsin, May 16, 1991, 1992:4.71

Foam, California, 1997, 1998:3.41, 6.21

Foam carpet padding, New Jersey, 1990, 1991:5.30

Foam padding, New Jersey, 2006, **2007:**5.32

Foam rubber, California, 1995, 1996:6.23

Food additives, Maine, 2012, **2013**:1.26

Food additives, Missouri, 2001, 2002:6.22

Food processing, Alabama, Sept., 2006, 2007:6.76

Food processing, Alaska, April 3, 1997, 1998:6.84

Food processing, Alaska, April 25, 1997, **1998:**6.92

Food processing, Alaska, 2008, 2009:2.26

Food processing, Alaska, July, 2008, **2009:**6.77

Food processing, Arizona, Nov. 12, 1992, 1993:4.33

```
Food processing, Arkansas, May, 1995, 1996:6.64
```

Food processing, California, April, 1994, 1995:6.107

Food processing, California, 1997, 1998:6.22

Food processing, California, May, 2011, 2012:6.63

Food processing, Georgia, May, 2003, 2004:6.52

Food processing, Georgia, Feb. 7., 2008, 2008:6.57, 2009:5.83, 6:75

Food processing, Illinois, Sept., 1992, 1993:6.83

Food processing, Illinois, Oct., 1995, **1996:**6.65

Food processing, Illinois, 2008, 2009:6.26

Food processing, Indiana, June, 1994, 1995:6.103

Food processing, Indiana, Dec. 24, 1997, 1998:6.84

Food processing, Iowa, Dec., 2003, 2004:6.53

Food processing, Iowa, 2012, **2013:**1.26

Food processing, Kansas, May, 2003, 2004:6.53

Food processing, Michigan, March 1, 1996, 1997:6.50

Food processing, Minnesota, May 4, 1997, 1998:6.86

Food processing, Minnesota, Aug., 1998, 1999:6.91

Food processing, Missouri, Oct., 1994, 1995:6.104

Food processing, Missouri, Oct., 2005, 2006:6.69

Food processing, Nebraska, Jan., 1998, 1999:6.90

Food processing, Nebraska, July 20, 1996, 1997:6.49

Food processing, New Jersey, 1992, 1993:2.20

Food processing, New York, May, 2008, 2009:6.77

Food processing, North Carolina, Sept. 3, 1991, 1992:1.29, 1992:4.70

Food processing, North Carolina, June, 2009, 2010:5.67

Food processing, Ohio, Nov. 1, 1996, **1997**:6.49

Food processing, Ohio, June 16, 1999, **2000**:6.85

Food processing, Ohio, Aug., 2003, 2004:6.53

Food processing, Oregon, July, 1995, **1996**:6.64

Food processing, Oregon, 2006, 2007:6.22

Food processing, Pennsylvania, June, 1991, 1992:6.80

Food processing, Pennsylvania, 2006, 2007:2.22

Food processing, Tennessee, Sept.. 18, 1997, 1998:6.85

Food processing, Virginia, Sept. 1, 1996, **1997:**6.50

Food processing, Virginia, 2002, 2003:2.25

Food processing, Virginia, July, 2006, 2007:6.77

Food processing, Washington, Jan. 5, 1995, 1996:5.96

Foundry, Iowa, 1989, 1991:1.31

Foundry, Washington, 2009, 2010:6.27

Furniture, California, 1990, 1991:6.25

Furniture, Florida, 2012, **2013:**1.26

Furniture, Georgia, March, 1994, 1995:6.106

Furniture, Illinois, Feb. 7, 1996, 1997:6.52

Furniture, Indiana, Oct., 1994, 1995:6.104

Furniture, Indiana, Sept., 2005, 2006:6.70

Furniture, Kentucky, Feb., 2008, 2009:6.76

Furniture, Michigan, 2011, **2012:**3.40

Furniture, New York, 1995, 1996:5.26

Furniture, New York, Aug., 1995, 1996:6.65

Furniture, North Carolina, Oct., 1994, 1995:6.103

Furniture, North Carolina, 1995, 1996:4.24

Furniture, Pennsylvania, 1992, 1993:1.28

Furniture, Texas, Apr. 23, 1996, **1997**:6.49

Furniture, Utah, 1990, 1991:2.31

Furniture, Virginia, Feb., 1993, 1994:6.93

Furniture refinishing, Pennsylvania, Dec. 20, 1991, 1992:3.73, 1992:4.71

Garage doors, Ohio, 2012, 2013:3.29

Georgia, March, 2001, 2002:5.82

Grease recycling, California, 2012, 2013:5.27

Heavy equipment and machine, Texas, 2010, 2011:3.46

Heavy machine parts, Michigan, 1998, 1999:4.20

High-energy fuel, Wyoming, 1993, 1994:3.30

Hosiery, North Carolina, 1996, 1997:3.33

Ice cream, Arkansas, 1990, 1991:5.28

Illinois, 2009, **2010:**6.27

Incinerators, Pennsylvania, 1990, 1991:5.28

Indiana, Oct., 2001, 2002:5.82

Indiana, 2011, **2012:**4.30

Industrial supplies, Kansas, 2004, 2005:4.22

Ink, Texas, 1992, 1993:1.28

Ink and dyes, Ohio, July 10, 1990, 1991:6.74

Insulation, Kentucky, Feb. 20, 2003, 2008:6.61

Iron foundry, Illinois, May 1, 1996, **1997**:6.50

Iron foundry and castings plant, Massachusetts, Feb. 25, 1999, 2000:5.60, 2000:6.85

Jewelry, California, Jan. 12, 1990, **1991**:6.75

Kansas, 2008, 2008:2.28

Knitting and finishing, North Carolina, March 28, 1999, 2000:6.85

Knitting mill, Pennsylvania, Sept. 5, 1997, 1998:6.84

Laundry and dry-cleaning, New Mexico, March, 1992, 1993:6.85

Laundry facility, California, 1998, 1999:2.26

Laundry facility, Minnesota, 2010, 2011:7.21

Light-manufacturing, Colorado, 2006, 2007:6.22

Machine shop, California, 1990, 1991:6.25

Machinery parts, Arkansas, July, 2009, 2010:6.66

Machines, Minnesota, Dec., 1992, 1993:6.83

Magnesium smelting operation, New Jersey, 1992, 1993:3.34

Magnets, Pennsylvania, Dec., 1993, 1994:6.95

Maintenance shop, California, 1993, 1994:4.31

Manufactured-home, Alabama, Feb., 2000, 2001:6.61

Manufactured-home, Nebraska, 2007, 2008:2.28

Manufactured-home, Texas, Dec., 2006, 2007:6.77

Massachusetts, 2002, 2003:6.15

Massachusetts, 2008, 2009:2.26

Massachusetts, 2010, 2011:5.19

Meat packing, Arkansas, March, 2008, 2009:6.75

Meat packing, Texas, June, 1991, 1992:6.79

Meat processing, California, March, 1994, 1995:6.106

Meat processing, California, Aug., 1998, 1999:6.91

Meat processing, Iowa, March 30, 1996, **1997**:6.49

Meat processing, Kansas, Dec., 2000, 2001:6.61

Meat processing, Kentucky, Feb., 1994, 1995:6.106

Meat processing, Minnesota, April, 2009, 2010:6.65

Medical supplies, Oklahoma, 1992, 1993:5.37

Metal, Florida, Feb., 1998, 1999:6.91

Metal, Maryland, Dec., 1992, 1993:6.85

Metal building components, Texas, Jan. 31, 1997, 1998:6.86

Metal extrusion, South Carolina, Jan., 1993, 1994:6.95

Metal fabrication, California, 1997, 1998:2.20

Metal foundry, Indiana, June 22, 1995, 1996:5.97

Metal plating, North Carolina, 2000, 2001:6.22

Metal preparation, South Dakota, Dec. 15, 1990, 1991:6.75

Metal processing, Newton, Massachusetts, Oct. 25, 1993, 1994:6.63

Metal products, California, Oct., 2003, 2004:6.53

Metal products, Illinois, 2012, 2013:6.52

Metal products, Indiana, May, 1995, 1996:6.65

Metal products, Iowa, March 23, 1996, 1997:6.52

Metal products, Michigan, Nov., 2005, 2006:6.70

Metal products, New Hampshire, 2002, 2003:4.16

Metal products, Ohio, March, 2005, 2006:6.70

Metal products, Ohio, Sept. 13, 1996, 1997:6.52

Metal products, Pennsylvania, July 16, 1999, 2000:6.85

Metal products, Pennsylvania, Sept., 2000, 2001:6.61

Metal products, Washington, Aug., 2003, 2004:6.53

Metal products machining, California, Aug. 26, 1997, 1998:6.84

Metal storage lockers, Michigan, Jan., 1993, 1994:6.95

Methanol production, Texas, Oct., 1994, **1995**:6.102

Mixed industry, Virginia, April, 1995, 1996:6.63

Mixed light industry, Massachusetts, Jan., 1992, 1993:6.84

Model rockets, Arizona, Mar. 27, 1998, 1999:5.55

Modular homes, New York, Jan. 19, 1999, 2000:6.85

Motion picture studio/manufacturing plant, California, Nov. 6, 1990, 1991:6.74

Motor vehicle assembly, Virginia, March, 2000, 2001:5.78, 2001:6.61

Motor vehicle conversion, Indiana, Aug., 1995, 1996:6.65

Motor vehicle parts, Georgia, Oct., 2012, 2013:6.51

Motor vehicle parts, Michigan, Aug. 13, 1999, 2000:6.86

Motor vehicle parts, Michigan, Dec. 19, 1999, 2000:6.83

Motor vehicle parts assembly, Michigan, March, 2011, 2012:6.61

Motor vehicle parts distribution, Texas, 2008, 2009:2.25

Motor vehicles, Ohio, Oct., 1998, 1999:6.91

Natural gas and gasoline, California, 1992, 1993:6.29

New York, 2003, 2004:1.16

New York, Jan., 2008, 2009:6.76

Nutritional supplement, Arizona, 2000, 2001:1.23

Nylon, Virginia, Nov., 1992, 1993:6.82

Ohio, Feb., 1998, 1999:6.91

Ohio, Oct. 16, 1999, 2000:6.88

Packaging, North Carolina, Feb., 2007, 2008:6.42

Paint, California, 1991, 1992:4.28

Paper, Florida, Feb., 2008, 2009:6.76

Paper, Illinois, April, 2002, 2003:6.77

Paper, New York, Nov., 1995, 1996:6.62

Paper, Ohio, 1996, 1997:5.24

Paper, Pennsylvania, Sept., 2005, 2006:6.71

Paper, shredded, processing center, Michigan, Dec., 1998, 1999:6.90

Paper, Wisconsin, July, 2008, 2009:5.83

Paper and liner board, Florida, Nov., 1993, 1994:6.94

Paper and pulp products, Iowa, Feb., 1995, 1996:6.63

Paper coating, Ohio, Dec., 2011, 2012:6.63

Paper containers, corrugated, Texas, 1995, 1996:6.23

Paper products, Minnesota, March, 2012, 2013:6.54

Paper recycling, Utah, July, 2004, 2005:6.49

Paraffin, Ohio, Oct., 2012, 2013:6.52

Pennsylvania, July 4, 1997, 1998:6.86

Pennsylvania, Feb., 2001, 2002:5.82

Pennsylvania, Oct., 2002, 2003:6.78

Pens, Illinois, Sept., 1994, 1995:6.107

Pet food, Illinois, Aug., 2006, 2007:6.76

Pet food, Utah, 1993, 1994:3.29

Petroleum products, Texas, 1996, 1997:2.24

Petroleum recycling, Oregon, March, 2004, 2005:6.46

Pharmaceutical, Colorado, 2010, 2011:3.47

Pharmaceutical, New Jersey, Apr. 21, 1995, 1996:5.94

Pharmaceutical, North Carolina, Jan., 2003, 2004:5.71, 2004:6.52

Pharmaceutical packaging, Illinois, 1997, 1998:4.20

Plastic auto bumpers, Michigan, June, 1993, 1994:6.93

Plastic auto parts, Ohio, Oct., 1994, 1995:6.103

Plastic processing, Minnesota, 2011, 2012:1.20

Plastic shower doors, Washington, Jan., 1993, 1994:6.95

Plastics, Alabama, May 11, 1999, **2000:**5.60

Plastics, April, 2004, 2005:5.59

Plastics, Indiana, Mar., 1998, 1999:6.91

Plastics, Indiana, Sept., 2007, 2008:6.42

Plastics, Iowa, 1996, 1997:1.28

Plastics, Massachusetts, Feb., 1994, 1995:6.107

Plastics, Massachusetts, 1998, **1999:**1.19

Plastics, Michigan, Mar., 1998, 1999:6.90

Plastics, Nebraska, 2010, 2011:5.20

Plastics, North Carolina, 1994, **1995**:2.32

Plastics, North Carolina, Dec., 2003, 2004:6.52

Plastics, Ohio, 1999, 2000:5.24

Plastics, Pennsylvania, Oct., 2006, 2007:6.76

Plastics, Texas, 1999, 2000:3.38

Plastics, Texas, June 23, 1999, 2000:6.84

Plastics, Wisconsin, July, 2005, 2006:6.71

Plastics recycling, New York, July 29, 1997, **1998:**6.87

Plastics recycling and shredding, Michigan, 1995, 1996:5.23

Plating, California, 1999, 2000:3.38

Plywood, South Carolina, Jan. 1992, 1993:6.83

Plywood, Washington, Sept. 1, 1996, 1997:6.49

Plywood mill, Oregon, May 25, 1999, 2000:6.84

Polystyrene, California, 2002, 2003:5.18

Polyurethane foam, Arkansas, Aug., 1994, 1995:6.107

Polyurethane foam, North Carolina, 1989, 1991:3.29

Pottery, china, earthenware, Ohio, Oct., 1994, 1995:6.104

Pottery, Ohio, June 16, 1996, 1997:6.52

Poultry processing, Arkansas, Dec., 1993, 1994:6.94

Poultry processing, Arkansas, 1994, 1995:6.106

Poultry processing, Missouri, June, 1993, 1994:6.93

Poultry processing, Pennsylvania, Feb., 1993, 1994:6.95

Poultry processing, Texas, July, 1993, 1994:6.94

Powder coating, Oklahoma, 2012, **2013:**5.28

Powder coating oven, California, 2010, 2011:4.14

Printing, Arkansas, 1992, 1993:4.27

Printing, May, 1993, 1994:6.94

Printing, Missouri, April, 2002, 2003:6.78

Printing, Ohio, June, 1992, 1993:6.84

Printing, Ohio, March, 1995, 1996:6.63

Printing, Oregon, July, 1992, 1993:6.84

Printing, Pennsylvania, Oct., 2012, 2013:6.51

Printing, Wisconsin, 1994, 1995:2.30

Printing, Wisconsin, 2009, 2010:5.34

Printing, Wisconsin, July, 2002, 2003:6.77

Protective materials, Maine, 1994, 1995:5.34

Pyrotechnics, Tennessee, June 5, 1997, 1998:5.53

Railroad cars, Illinois, 1994, 1995:3.38

Rendering plant, Washington, May, 2002, 2003:6.78

Rice milling, California, March 31, 1999, 2000:6.86

Rock processing, Wisconsin, 1993, 1994:6.36

Rubber, California, 1994, 1995:4.40

Rubber, Mississippi, May, 2002, 2003:5.75, 2003:6.77

Rubber products, Georgia, Aug. 24, 1996, 1997:6.52

Sawmill, Wyoming, 1991, 1992:1.26

Shingles, British Columbia, 1992:2.26

Shoe manufacturing, New York, Dec., 1993, 1994:6.98

Silicon wafers, Texas, 2010, 2011:7.22

Soap, Kansas, 1989, 1991:5.30

Solvent distillation, Ontario, Canada, 1992, 1993:6.27

South Carolina, Nov. 4, 1997, 1998:6.87

South Carolina, 2009, **2010:**4.32

South Carolina, 2011, **2012:**1.19

South Dakota, Jan., 2002, 2003:6.77

Sports equipment, Texas, Aug. 28, 1997, 1998:6.87

Steel, Indiana, Oct., 2002, 2003:6.77

Steel, Maine, 1999, 2000:1.21

Steel, Ohio, 1994, 1995:6.37

Steel, Ohio, Jan., 1995, 1996:6.65

Steel, Ohio, 2001, 2002:5.21, 2002:6.75

Steel, Oregon, 1993, 1994:3.29

Steel, Pennsylvania, Aug. 11, 1999, 2000:6.85

Steel, West Virginia, April, 1994, 1995:6.102

Steel and iron powder, Tennessee, May, 2011, 2012:5.74

Steel and metal products, Illinois, May 6, 1999, 2000:6.86

Steel processing, Ohio, Aug. 14, 1997, 1998:6.84

Tannery, Maine, 1997, 1998:1.24

Tennessee, Sept., 2010, 2011:7.58

Texas, June 29, 1997, 1998:6.85

Textiles, Alabama, Feb., 1994, **1995**:6.107

Textiles, Massachusetts, Dec., 1995, 1996:6.62, 2008:6.59

Textiles, North Carolina, 1992, 1993:5.37

Textiles, Pennsylvania, 2003, **2004:**4.19

Tires, California, 2007, 2008:1.24

Tires, Georgia, Nov., 2008, 2009:6.75

Toys, California, Nov. 15, 1997, 1998:5.53

Toys, China, Nov. 19, 1993, 1994:1.48

Toys, Missouri, Sept., 1998, **1999**:6.90

Toys, Thailand, May 10, 1993, **1994:**1.42

Triangle Shirtwaist Co. fire (See TRIANGLE SHIRTWAIST CO. FIRE)

Vessel filters, Texas, 1990, 1991:6.24

Washington, 2009, 2010:3.44

Wax used for candles, cosmetic, medical products, Pennsylvania, 2001, 2002:1.22

Wheel polishing, California, 2002, 2003:1.14

Winery, California, 1997, 1998:4.21

Wire, Florida, May, 1998, **1999:**6.90

Wire, Illinois, 1994, 1995:2.32

Wire, Missouri, 2003, **2004:**2.17

Wisconsin, 2011, 2012:1.20

```
Wood finishing, California, 2003, 2004:3.24
```

Wood finishing, California, 2006, 2007:6.22

Wood plastic products, Arkansas, 2012, 2013:4.24

Wood products, California, 2003, 2004:2.16

Wood products, Colorado, 2008, 2009:4.17

Wood products, Illinois, 2011, 2012:2.19

Wood products, Indiana, March 19, 1996, 1997:6.50

Wood products, Kansas, 2010, **2011:**5.20

Wood products, Minnesota, Dec. 2, 1997, 1998:6.87

Wood products, Minnesota, 2001, 2002:6.75

Wood products, Oregon, 2010, 2011:7.22

Wood products, Oregon, 2012, 2013:6.23

Wood products, Rhode Island, 2011, 2012:3.28

Wood products, South Carolina, Oct., 2006, 2007:6.76

Wood products, Washington, May, 2009, 2010:6.66

Wood products, Wisconsin, 2011, 2012:2.20

Wood products, Wisconsin, Sept. 28, 1999, 2000:6.88

Yarn dyeing, Georgia, 1994, 1995:2.32

MARINAS

Electrical safety requirements, 1995:5.40

MARINA FIRES

Connecticut, 1990, 1991:6.26

Florida, Aug. 20, 1999, 2000:6.91

Illinois, 2012, **2013:**4.18

Kentucky, 2001, 2002:1.21

Maine, Feb. 1, 1999, 2000:6.86

Virginia, Sept. 12, 1999, **2000**:6.90

Washington, 1990, **1992:**1.26

Washington, 2001, 2002:3.34

Washington, 2002, 2003:3.20

Washington, Jan., 2002, 2003:6.78

MARINE CHEMISTS

NFPA-trained marine chemists oversee safe work practices for U.S. vessels and shipyards, **2013:**2.58

MARINE VESSELS. See BARGE FIRES; BOATS; SHIPS

MARYLAND

Apartment building fire, Nov., 1998, **1999:**6.97

Apartment building fire, 2002, 2003:2.24

Apartment building fire, Jan., 2005, **2006:**6.72

Apartment building fire, 2008, 2009:5.23

Apartment building fire, 2010, **2011:**2.23

Apartment building fire, 2012, 2013:1.24

Building-under-construction fire, 2001, 2002:5.18

Building-under-renovation fire, Nov., 2004, 2005:6.45

Catastrophic fires

Apartment building, , Sept., 2001, 2002:5.82

```
Apartment building, Oct., 2002, 2003:5.75
  Apartment building, May, 2007, 2008:5.57
  Apartment building, Dec., 2010, 2011:5.73
  Dwelling, March 1, 1990, 1991:4.67
  Dwelling, July 7, 1992, 1993:5.62
  Dwelling, Apr. 23, 1993, 1994:5.98
  Dwelling, Jan. 9, 1994, 1995:5.54
  Dwelling, Feb. 26, 1994, 1995:5.53
  Dwelling, Jan. 30, 1996, 1997:5.50
  Dwelling, March 3, 1997, 1998:5.45
  Dwelling, Jan. 14, 1998, 1999:5.52
  Dwelling, Sept. 3, 1999, 2000:5.56
  Dwelling, June, 2000, 2001:5.76
  Dwelling, June, 2001, 2002:5.82
  Dwelling, Jan., 2007, 2008:5.58
  Dwelling, Oct., 2012, 2013:5.60
  Railroad train, Feb. 16, 1996, 1997:5.54, 6.59
  School, Oct. 24, 1993, 1994:5.105
  Truck, Jan. 16, 1993, 1994:5.108
Clarice Smith Performing Arts Center, University of Maryland, uses tested fire protection
      system, 2000:5.49
Club fire, Aug., 1993, 1994:6.89
Dwelling fire, 2003, 2004:2.18, 6.16
Dwelling fire, March, 2004, 2005:6.45
Fatal fires
  Apartment building, 1989, 1991:2.29
  Apartment building, 1991, 1992:3.34
  Apartment building, 2005, 2006:3.38, 20
  Apartment building, 2007, 2008:1.19, 3.22, 4.21
  Apartment building, 2012, 2013:4.20
  Dwelling, 1993, 1994:1.31
  Dwelling, 1994, 1995:3.38
  Dwelling, 1997, 1998:5.16
  Dwelling, 1998, 1999:1.18
  Dwelling, 1999, 2000:5.22
  Dwelling, 2007, 2008:1.19
  Dwelling, 2008, 2009:1.21
  Dwelling, 2011, 2012:2.15
  Dwelling, 2012, 2013:1.22
Manufacturing plant fire, March 28, 1990, 1991:6.77
Manufacturing plant fire, Dec., 1992, 1993:6.85
Manufacturing plant fire, Oct., 1998, 1999:6.91
Manufacturing plant fire, July, 2008, 2009:6.75
Montgomery County offers tax credit for residential sprinkler installation, 2000:6.63
Multiple occupancy fire, 2004, 2005:1.18
Museum fire, Sept., 2003, 2004:6.57
```

```
NFPA 1, Uniform Fire Code<sup>TM</sup>, and NFPA 101<sup>®</sup>, Life Safety Code<sup>®</sup>, adopted by state, 2007:2.13
```

Nursing home fire, 2005, **2006:**4.28

Power plant fire, 2003, **2004:**5.20

Prince George's County Fire and Rescue depends on college student firefighters, 2003:5.64

Prince George's County report provides residential sprinkler life safety, property loss, and cost statistics, **2009**:6.16

Restaurant fire, 1999, 2000:1.19

Restaurant fire, 2005, 2006:2.30

Restaurant fire, 2008, 2009:3.43

Storage facility fire, 1992, 1993:1.26

Storage facility fire, 2006, 2006:1.16

Store fire, 1991, **1992:**3.31

Store fire, 2006, **2007:**1.20

Store fire, 2007, **2008:**1.22

Warehouse fire, 2000, 2001:6.22

Warehouse fire, 2001, **2002:**1.19

Warehouse fire, May, 2005, 2006:6.68

Warehouse fire, June, 2007, 2008:6.45

MASS-CASUALTY SHOOTINGS. See TERRORISM

MASSACHUSETTS. See also BOSTON, MASS.

Aircraft fire, 1997, **1998:**4.22

Apartment building fire, 1990, 1991:3.26

Apartment building fire, 1995, 1996:1.22

Apartment building fire, 1998, 1999:1.17

Apartment building fire, 2002, **2003**:3.16

Apartment building fire, 2005, 2006:1.18

Apartment building fire, 2006, 2007:2.20

Apartment building fire, 2007, 2008:5.26

Apartment building fire, 2008, **2009:**1.19

Apartment complex fire, 1989, 1991:3.26

Automobile repair shop fire, 1996, 1997:2.23

Barge fire, 1997, 1998:4.22

Barn fire, 1995, 1996:2.25

Barn fire, 2004, **2005:**1.20

Board and care facility fire, 1995, 1996:2.24

Boat fire, 1994, **1995:**4.39

Building-under-construction fire, Feb., 2005, 2006:6.68

Building-under-renovation fire, 1997, 1998:3.42

Catastrophic fires

Apartment building, March 21, 1994, **1995:**5.59

Apartment building, Dec. 28, 1997, 1998:5.49

Apartment building, Feb. 19, 1998, 1999:5.52

Apartment building, Feb. 24, 1999, **2000:**5.57

Club, June, 2006, 2007:5.61

Dwelling, May 27, 1990, 1991:4.65

Dwelling, Dec. 24, 1994, 1995:5.54

Dwelling, Nov. 24, 1999, 2000:5.58

Dwelling, Oct., 2004, 2005:5.58

Manufacturing plant, Feb. 25, 1999, 2000:5.60

Motor vehicle, March, 2007, 2008:5.62

Office building, Feb., 2000, 2001:5.78

Trailer, Jan. 27, 1998, 1999:5.55

Warehouse, Dec. 3, 1999, 2000:4.54, 2000:5.59

Church fire, 1992, 1993:2.21

Church fire, June, 2005, **2006**:6.73

Church fire, 2009, **2010**:4.23

Club fire, 2003, **2004:**6.18

Condominium fire, 2010, **2011:**1.20

Condominium fire, 2012, 2013:2.19

Dormitory fire, April, 2005, **2006**:6.72

Dormitory fire, 2011, 2012:2.16

Dwelling fire, 1991, **1992:**1.21

Dwelling fire, 1995, 1996:4.21, 1996:6.22

Dwelling fire, 1996, 1997:4.19

Dwelling fire, 1999, **2000:**6.16

Dwelling fire, 2001, **2002:**5.20

Dwelling fire, 2003, 2004:1.14

Dwelling fire, 2007, 2008:5.23

Dwelling fire, 2008, 2009:2.21, 3.39

Dwelling-under-construction fire, 1994, 1995:1.34

Electric generating plant fire, Oct., 2003, 2003:6.80

Electric transformer fire, March, 2012, 2013:6.56

Fatal fires

Apartment building, 1992, **1993:**6.28

Apartment building, 1994, 1995:5.34

Apartment building, 1997, **1998**:4.19

Apartment building, 1998, 1999:6.17

Apartment building, 2000, **2001:**5.24

Apartment building, 2002, 2003:3.14

Apartment building, 2006, **2007**:2.20

Apartment building, 2007, 2008:3.21

Apartment building, 2011, **2012:**3.29

Apartment building, 2012, **2013**:1.18

Automobile, 1998, **1999:**6.20

Dwelling, 1989, **1991:**1.27

Dwelling, 1992, **1993:**1.27, **1993:**5.36

Dwelling, 1993, 1994:6.34

Dwelling, 1995, 1996:2.24, 1996:5.24

Dwelling, 1996, **1997:**1.25

Dwelling, 1997, 1998:5.15

Dwelling, 1999, 2000:5.20

Dwelling, Nov. 5, 1999, 2000:6.93

Dwelling, 2000, **2001**:6.20

Dwelling, 2005, 2006:1.18

Dwelling, 2007, 2008:2.26

Dwelling, 2009, **2010**:6.23

Dwelling, 2010, **2011:**2.22

Dwelling, 2011, 2012:1.17

Garage, residential, fire, 1996, **1997:**6.20

Hotel, 2006, 2007:1.15

Housing for elderly, 1992, **1993**:6.28

Manufactured home, 1990, 1991:2.29

Manufactured home, 2000, 2001:5.25

Manufactured home, 2002, 2003:1.16

Manufacturing plant, Feb. 25, 1999, 2000:6.85

Nursing home, 2008, **2009:**2.26

Office building, Feb., 2000, 2001:6.62

Truck/repair shop fire, 1997, 1997:5.24

Fire-safe cigarettes legislation passed by state, 2006:5.19

Government building, 1991, 1992:6.26

Greenhouse fire, 1991, 1992:4.25

High-rise office building fire, 1991, 1992:5.28

Hospital fire, Jan. 24, 1993, 1993:5.49

Hospital fire, 1995, 1996:5.26

Hospital fire, Oct. 16, 1996, analysis, 1997:3.88

Hospital fire, 2002, 2003:3.14

Kennel fire, 1992, 1993:2.20

Manufacturing plant fire, Jan., 1992, 1993:6.84

Manufacturing plant fire, 1993, 1994:1.29

Manufacturing plant fire, Oct. 25, 1993, **1994:**6.63

Manufacturing plant fire, 1994, **1995**:1.33, **1995**:3.40

Manufacturing plant fire, Feb., 1994, **1995:**6.107

Manufacturing plant fire, Dec., 1995, **1996**:6.62, **2008**:6.59

Manufacturing plant fire, June 6, 1997, 1998:6.86

Manufacturing plant fire, 1998, 1999:1.19

Manufacturing plant fire, 2002, 2003:6.15

Manufacturing plant fire, 2008, 2009:2.26, 3.44

Manufacturing plant fire, 2010, 2011:5.19

Manufacturing plant fire, March, 2011, 2012:6.62

Meeting hall fire, 1997, **1998:**1.21

Middle school fire, 2004, 2005:4.16

Motor vehicle repair shop fire, 1990, 1991:2.31

Multiple-occupancy building fire, 1991, 1992:1.23

Nursing and rehabilitation facility fire, 2009, 2010:4.31

Nursing home fire, Oct. 30, 1992, **1993:**5.49, **2012:**5.96

Nursing home fire, 1994, **1995:**5.33

Nursing home fire, 1997, **1998:**5.17

Nursing home fire, 2005, **2006:**4.28

Office building fire, 1999, 2000:4.16

Office building fires, 1995, 1996:2.24

Pemberton Mill fire, Lowell, Massachusetts, 1860, 2011:2.88

Postal facility under construction fire, 1990, 1991:3.27

Restaurant fires, Wayside Inn, 1955, 1965, 1994:6.75

Restaurant fire, 1996, 1997:4.22, 5.22

Restaurant fire, 2007, 2008:4.19

Rooming house fire, 1996, 1997:1.26, 6.19

School fire, 1991, **1992:**4.27

School fire, 1992, 1993:3.33

School fire, 1998, 1999:2.25

School fire, 2012, 2013:5.27

School fire, April 9, 1999, 2000:6.96

Service station fire, 1995, **1996**:6.21

Sewage treatment facility fire, 2009, 2010:2.28

Shopping mall fire, Feb., 1998, 1999:6.94

Stable fire, 2010, **2011:**4.19

Storage facility fire, 1991, 1992:5.28

Storage facility fire, 1993, 1994:2.27

Storage facility fire, 1996, **1997:**2.23

Store fire, 1989, 1991:1.28

Store fire, 1992, 1993:3.36

Store fire, 1994, 1995:4.39, 1995:5.36

Store fire, May, 1995, **1996:**6.70

Store fire, May 23, 1995, **1998:**1.50

Store fire, 2001, 2002:4.18

Store fire, 2002, 2003:4.16

Store fire, July, 2007, 2008:6.44

Theater fire, 2005, **2006**:4.29

Vacant building fire, Aug. 29, 1999, 2000:6.95

Vacant building fire, 2000, **2001**:6.18

Vacant building fire, 2001, **2002:**2.25, **2002:**6.18

Warehouse fire, Nov., 1993, 1994:6.97

Warehouse fire, 1994, **1995:**1.32

Warehouse fire, June 24, 1999, 2000:6.88

Warehouse fire, Nov. 15, 1999, 2000:6.88

Warehouse fire, 2002, 2003:2.24

Wildland fire, 2002, 2003:2.20

MATCHES. See also CHILDREN AND MATCHES

Bedding ignited by, **1994:**5.97, **2009:**6.20

Draperies ignited by, 1994:5.104

Incendiary fire ignition source, 2010:3.42, 2012:1.22

Paper decorations ignited by, 2007:5.61

MATTERN, JEFFREY

Profile of. 1997:4.34

MATTRESSES. See also BEDDING

Arcing of electric heater, ignited by, **1992:**4.67

Candle, ignited by, **2010:**5.34

Charcoal grill, ignited by, 2001:5.26

Child, ignited by, 1992:4.70, 2010:5.65

Child(ren) with lighter, ignited by, 1993:6.28, 1995:5.34, 2002:3.32, 2002:4.19, 2009:3.39

Child(ren) with matches, ignited by, 1992:5.25, 2001:5.77, 2005:4.16

Cigarette, ignited by, **1995**:6.35, **2003**:6.12, **2008**:6.20, **2009**:5.26, 6.22, **2010**:3.36, 6.21

Cigarette lighter, ignited by, **2012**:6.22

Cigarette lighter, ignited by juvenile playing with, 2007:5.26

Detention center inmate, ignited by, 1997:1.27

Electric baseboard heating unit, fire ignited by, 2009:1.17

Electric heater, ignited by, **2003:**6.14, **2004:**2.18

Fire of undetermined origin, ignited by, **2007**:3.26, 6.17, **2010**:5.32, **2013**:1.20

Heat source near air conditioner power cord, ignited by, 2000:4.19

Home fires starting with, 2005-2009, 2012:1.76

In-rack storage, fire protection criteria for, **2013:**2.42

Incendiary fire, ignited in, 2007:5.57, 2008:5.59, 2009:6.20

Juvenile with cigarette lighter, ignited by, 1991:5.26

Juvenile with rubbing alcohol, ignited by, 1992:4.67

Kerosene heater, ignited by, 1995:1.34

Light bulb, ignited by, 2012:6.26

Match, ignited by, **2009:**6.20

Mercantile building fire ignited by, 2013:4.18

Mercury vapor light fixture, ignited by, 1995:4.39

Smoking materials, ignited by, **2003:**5.20, **2013:**3.28

Smoldering mattress, while in process of being removed, traps person, 2006:2.26, 28

Space heater, ignited by, 2000:5.57

Stored foam mattress ignited by hot light bulb, 2011:5.76

Stored mattress, candle fire spread to, 2006:2.28

Stored mattresses, fire in area of, 2007:6.79

Vacant building fire ignited by, 2012:2.18

MAURY COUNTY, TENN.

Detention facility fire, June 26, 1977, 1994:5.50

MCCROSSEN, BILL

New Orleans fire chief retires, 1993:5.18

MCDANIEL, DANNY

Interview with, **2013:**5.16

MCDANIELS, WARREN

Profile of, **1998:**2.33

MCDEVITT, NEIL

Deaf and hard of hearing emergency preparedness expert, 2010:4.54

MCGUIRE, ANDREW

"Father" of fire-safe cigarette talks about NFPA campaign and future goals, 2010:3.17

MCNABB, NANCY

NFPA Governmental Affairs director describes NFPA efforts in Washington, 2010:1.12

MEDICINES, PRESCRIBED. See DRUGS, PRESCRIBED

MERCANTILE BUILDING FIRES. See also OFFICE BUILDING FIRES; STORE FIRES

West Virginia, 2012, 2013:4.18

MESA, ARIZONA

Federally funded sprinkler projects designed to stabilize troubled neighborhoods and stimulate economy, **2012:**6.14

METALS FIRES

Combustible metals, dangers of, **2001:**1.44

Dust ignites in dust collector and machinery, 2012:1.19

NFPA 484, Combustible Metals, 2012 edition proposed changes address dust issues, 2011:3.80

MGM GRAND HOTEL FIRE

Looking back on, 2005:2.96

Overview of fire, **1996:**2.70

Summary of fire, 2001:2.96

MIAMI, FLORIDA

Ecstasy cruise ship fire, July 20, 1998, fire investigation report, 1999:1.38

MICHIGAN

Apartment building fire, Feb., 1994, 1995:6.99

Apartment building fire, 1998, 1999:5.19

Apartment building fire, 2000, 2001:4.23

Apartment building fire, April, 2008, 2009:6.79

Apartment building fire, 2010, 2011:5.18

Apartment building fire, 2011, 2012:3.29

Apartment building fire, 2012, 2013:6.22

Catastrophic fires

Adult care home, Oct., 2010, 2011:5.78

Aircraft collision, Dec. 3, 1990, 1991:3.69, 1991:4.70

Apartment building, July 31, 1991, 1992:4.68

Apartment building, Feb. 28, 1993, 1994:5.95

Apartment building, Dec., 2000, 2001:5.75

Board and care facility, June 2, 1992, 1993:5.66

Board and care facility, Nov. 11, 1995, 1996:5.97

Dwelling, Feb. 28, 1990, 1991:4.64

Dwelling, Dec. 22, 1990, 1991:4.64

Dwelling, Oct. 3, 1992, 1993:5.62

Dwelling, Dec. 3, 1992, 1993:5.64

Dwelling, Feb. 17, 1993, 1994:5.96

Dwelling, Nov. 30, 1993, **1994:**5.102

Dwelling, July 13, 1994, 1995:5.56

Dwelling, June 17, 1998, 1999:5.51

Dwelling, Aug. 7, 1998, **1999:**5.53

Dwelling, Dec. 27, 1998, 1999:5.50

Dwelling, Dec. 30, 1998, **1999:**5.53

Dwelling, Feb. 4, 1999, **2000:**5.56

Dwelling, April 8, 1999, 2000:5.57

Dwelling, May 23, 1999, 2000:5.56

```
Dwelling, Dec. 2, 1999, 2000:5.57
```

Dwelling, April, 2000, **2001:**5.76

Dwelling, Sept., 2002, 2003:5.75

Dwelling, Jan., 2003, 2004:5.68

Dwelling, July, 2003, 2004:5.68

Dwelling, Dec., 2003, 2004:5.68

Dwelling, Jan., 2004, **2005:**5.57

Dwelling, Sept., 2005, 2006:5.61

Dwelling, May, 2007, 2008:5.58

Dwelling, Feb., 2008, 2009:5.82

Dwelling, April, 2009, 2010:5.65

Industrial power plant, Feb. 1, 1999, 2000:5.59

Manufactured home, Feb. 6, 1990, 1991:4.64

Manufactured home, Dec., 2001, 2002:5.82

Manufacturing plant, Dec. 11, 1998, 1999:5.54

Manufacturing plant, March 29, 1999, 2000:5.59

Motor vehicle, July 12, 1998, **1999:**5.56

Nursing home, Nov. 10, 1999, 2000:5.59

Store, Nov. 12, 1998, **1999:**5.56

Chemical laboratory fire, 1991, 1992:3.33

Country club fire, 1990, **1991**:6.23

Dormitory fire, 2000, 2001:2.20

Dwelling fire, 1991, 1992:6.28

Dwelling fire, Jan. 6, 1996, 1997:6.58

Dwelling fire, Nov. 14, 1996, 1997:6.58

Dwelling fire, 2002, 2003:4.14

Dwelling fire, 2003, 2004:4.16, 2004:4.17

Dwelling fire, July, 2009, 2010:6.68

Electric generating plant fire, Apr. 26, 1996, 1997:6.59

Electric substation fire, Oct., 2003, 2004:6.56

Fatal fires

Apartment building, 1998, **1999:**1.17

Apartment building, 1999, **2000**:2.22

Apartment building, 2008, 2009:6.20

Apartment building, 2009, **2010**:4.30

Automobile repair shop, 1995, **1996:**3.40

Board and care facility, June 2, 1992, 1993:1.29

Camping trailer, 1998, **1999:**1.19

Dwelling, 1991, **1992:**6.28

Dwelling, 1993, **1994:**6.33

Dwelling, Feb. 17, 1993, **1993:**3.57

Dwelling, 1995, **1996:**3.39

Dwelling, 1996, 1997:1.25

Dwelling, 1998, 1999:6.18

Dwelling, 1999, 2000:3.34

Dwelling, 2000, **2001**:3.30, **2001**:4.24

```
Dwelling, 2002, 2003:2.22
```

Dwelling, 2004, 2005:2.18

Dwelling, 2007, 2008:2.24

Dwelling, 2009, 2010:2.24, 2.25, 5.33

Dwelling, 2010, **2011:**5.18

Dwelling, 2011, **2012:**3.28, 36, 5.27

Dwelling, 2012, **2013:**4.22

Manufactured home, 2008, 2009:6.24

Manufactured home, 2009, 2010:5.33

Massage parlor, 1999, 2000:1.19

Motel, 1994, 1995:1.33

Funeral home fire, 1995, 1996:6.24

Hospital fire, 2001, **2002:**5.21

Hotel fire, 1991, 1992:1.22

Hotel fires, 1997, 1998:3.41

Lumberyard fire, May 19, 1999, 2000:6.88

Manufactured home fire, 1992, **1993:**6.28

Manufacturing plant fire, Aug. 12, 1953, 2010:2.80

Manufacturing plant fire, Aug., 1991, 1992:6.78

Manufacturing plant fire, 1992, 1993:5.38

Manufacturing plant fire, Jan. 1993, 1994:6.95

Manufacturing plant fire, June, 1993, 1994:6.93

Manufacturing plant fire, April, 1994, 1995:6.108

Manufacturing plant fire, 1995, 1996:5.23

Manufacturing plant fire, March 1, 1996, 1997:6.50

Manufacturing plant fire, Aug. 6, 1997, **1998:**6.85

Manufacturing plant fire, 1998, 1999:4.20

Manufacturing plant fire, Mar., 1998, 1999:6.90

Manufacturing plant fire, Dec., 1998, 1999:6.90

Manufacturing plant fire, Ford Motor Company Rouge plant, Dearborn, Feb. 1, 1999, **2004:**4.58

Manufacturing plant fire, Aug. 13, 1999, 2000:6.86

Manufacturing plant fire, Dec. 19, 1999, **2000**:6.83

Manufacturing plant fire, Nov., 2005, 2006:6.70

Manufacturing plant fire, Jan., 2008, 2009:6:75

Manufacturing plant fire, 2011, **2012**:2.21, 3.40

Manufacturing plant fire, March, 2011, 2012:6.61

Motor vehicle repair shop fire, 1990, 1991:2.30

Nuclear energy plant fire, 2003, **2004:**1.16

Nursing home fire, 1990, **1991:**4.25

Office building fire, Aug. 4, 1996, **1997**:6.53

Office building fire, Feb. 15, 1999, 2000:6.92

Office building fire, June, 2000, 2001:6.63

Office building fire, 2010, **2011:**5.21

Power plant fire, Feb. 1, 1999, 2000:6.95

Restaurant fire, 1990, 1991:2.32, 1991:6.23

Restaurant fire, 1994, 1995:1.34

Restaurant fire, 1995, 1996:3.35

Restaurant fire, 1998, **1999:**5.21

School fire, 2000, **2001:**1.20

Storage facilities fire, 1996, 1997:5.24

Store fire, 1991, **1992:**6.25

Store fire, 1993, **1994:**4.30

Store fire, Dec., 1995, **1996**:6.69

Store fire, Jan. 25, 1996, **1997**:6.53

Store fire, 1999, **2000:**1.21

Store fire, 2001, 2002:4.18

Store fire, 2006, **2007:**1.20

Truck fire, 1991, **1992:**6.29

Vacant building fire, 1991, **1992:**2.29

Warehouse fire, Dec., 1992, 1993:6.87

Warehouse fire, 1993, **1994:**6.34

Warehouse fire, 1995, 1996:3.39

Warehouse fire, Oct. 16, 1996, 1997:6.56

Warehouse fire, 1997, 1998:6.24

Warehouse fire, 2011, **2012:**2.23

MICKALIDE, ANGELA D.

Profile of, **1998:**5.30

MILL FIRES

Fiber, North Carolina, 1991, **1992:**5.30

Furniture, Virginia, Feb., 1993, **1994:**6.93

Grain, Illinois, Oct., 1995, 1996:6.65

Grain mill and storage facility, Washington, 1991, 1992:4.28

Knitting, Pennsylvania, Sept. 5, 1997, 1998:6.84

Lumber, Washington, 2000, 2001:2.24

North Carolina, Aug., 1998, 1999:6.97

Paper, Florida, April 13, 1994, 1995:5.66, 1995:6.106

Paper, Minnesota, 2012, 2013:6.52

Paper, New York, 2009, 2010:1.26

Paper mill warehouse, Michigan, 1993, 1994:6.34

Pemberton Mill fire, Lowell, Massachusetts, 1860, 2011:2.88

Pennsylvania, July 4, 1997, 1998:6.86

Plywood, Oregon, May 25, 1999, 2000:6.84

Rhode Island, 2011, 2012:3.28

Sawmill, California, Sept., 2009, 2010:6.66

Sawmill, Idaho, July, 1998, 1999:6.90

Sawmill, Louisiana, 1993, **1994:**5.29

Sawmill, Ohio, March, 2004, 2005:6.46

Sawmill, Oregon, Sept., 1998, 1999:6.90

Sawmill, Oregon, July, 2005, **2006**:6.70

Sawmill, Tennessee, **2013:**2.23

Sawmill, Texas, Feb., 2010, 2011:7.58

Sawmill, Washington, June, 2006, 2007:6.76

Sawmill, Washington, Aug., 2012, 2013:6.53

Sawmill, Wyoming, 1991, 1992:1.26

Sawmill and manufacturing plant, California, March, 1991, **1992:**6.79

Shoe manufacturing, New York, Dec., 1993, 1994:6.98

Steel, Maryland, July, 2008, 2009:6.75

Steel, West Virginia, April, 1994, 1995:6.102

Textiles, Georgia, 2008, 2009:4.17

Textiles, Massachusetts, Dec., 1995, **1996**:6.62, **2008**:6.59

Vacant, Connecticut, 1995, 1996:2.25

MILLER, GEORGE D.

Interview with, 1992:3.40, 1995:3.84

Legacy of outgoing NFPA president, 2002:3.56

Selection as new president of NFPA, 1992:3.4

MILLER, STACY

Profile of, 2004:5.38

MINE FIRES. See also COAL MINE FIRES

Catastrophic, West Virginia, Jan., 2003, 2004:5.72

Crushing facility, Montana, June, 1998, 1999:6.95

MINNESOTA

Aircraft crash fire, April, 2004, **2005:**6.48

Apartment building fire, 2005, **2006:**4.27

Apartment building fire, July, 2006, 2007:6.80

Apartment building fire, 2007, 2008:4.24

Apartment building fire, 2011, **2012:**3.30

Apartment building fire, 2012, 2013:5.25

Assisted living facility, fire, 2001, 2002:2.24

Board and care facility fire, 2000, 2001:5.24

Boat fire, 2000, **2001:**1.23

Building-under-construction fire, June, 2003, 2004:6.54

Building-under-construction fire, April, 2008, 2009:6.82

Catastrophic fires

Apartment building, Nov. 10, 1993, **1994:**5.97

Apartment building, Feb. 28, 1994, 1995:5.58

Apartment building, Jan. 14, 1996, **1996:**5.91

Apartment building, April, 2010, 2011:5.73

Dwelling, Jan. 1, 1999, 2000:5.56

Gas pipeline, July 22, 1993, **1994:**5.108

Hotel, July 12, 1991, 1992:4.67

Hotel, July, 2011, 2012:5.72

Manufacturing plant/storage facility, Nov. 17, 1993, 1994:5.105

Motor vehicle, Oct., 2000, 2001:5.79

Motor vehicle, June, 2002, 2003:5.75

Office building, Dec., 2004, 2005:5.60

Restaurant/apartment building explosion, Dec. 11, 1998, 1999:5.55

College building fire, Jan., 2002, 2003:6.81

Dwelling fire, 1991, **1992:**2.28

Dwelling fire, 2006, 2007:1.18

Fatal fires

Apartment building, 2001, **2002:**6.21

Apartment building, 2007, **2008:**4.20

Apartment building, 2009, 2010:2.24, 5.34

Dwelling, 2001, **2002:**3.30, **2002:**5.18

Dwelling, 2005, 2006:4.24

Dwelling, 2011, **2012:**3.34, 5.26, 6.22

Dwelling, 2012, 2013:5.21, 2013:6.19

Garage, 2012, 2013:6.18

Hotel, 2005, 2006:3.34

Manufactured home, 2011, 2012:5.26

Store, 2010:4.31

Fire station fire, 2004, **2005:**1.14

Ice rink fire, 2005, **2006:**1.22

Mall of America, fire protection and life safety systems, 1999:6.66

Manufacturing plant fire, August, 1992, 1993:6.83

Manufacturing plant fire, Dec., 1992, 1993:6.83

Manufacturing plant fire, Feb. 6, 1997, **1998:**6.85

Manufacturing plant fire, May 4, 1997, 1998:6.86

Manufacturing plant fire, Dec. 2, 1997, 1998:6.87

Manufacturing plant fire, Aug., 1998, 1999:6.91

Manufacturing plant fire, 2001, 2002:6.75

Manufacturing plant fire, Dec., 2004, 2005:6.46

Manufacturing plant fire, April, 2009, 2010:6.65

Manufacturing plant fire, 2010, 2011:7.21

Manufacturing plant fire, 2011, 2012:1.20

Manufacturing plant fire, 2012, 2013:6.24

Manufacturing plant fire, March, 2012, 2013:6.54

Mill fire, May, 2012, **2013:**6.52

Office building fire, 2003, 2004:5.19

Refinery fire, July, 2004, **2005**:6.47

Restaurant fire, 1991, 1992:6.25

Restaurant fire, 2001, 2002:5.22

School fire, April, 1994, 1995:6.98

School fire, 2011, **2012:**5.28

School-under-construction fire, 1994, 1995:3.39

Schools, delayed evacuation, evaluated in Minnesota pilot project, 2003:5.42

Stadium fire, 2010, **2011**:4.18

Store fire, 1998, **1999**:6.20

Store fire, 2011, **2012**:2.21

Vacant building fire, Sept., 2002, 2003:6.79

Vehicle fire, 2008, 2009:4.21

Warehouse fire, July, 1995, **1996**:6.66

Warehouse fire, Nov., 2004, 2005:6.47

Warehouse fire, 2005, **2006:**4.27

Warehouse fire, June, 2012, 2013:6.56

MISSISSIPPI

Auditorium/hall fire, Mar., 1998, 1999:6.95

Catastrophic fires

Apartment building, Jan. 26, 1993, 1994:5.95

Apartment building, Dec., 2009, 2010:5.63

Apartment building, Aug., 2011, **2012:**5.72

Dwelling, April 3, 1994, 1995:5.59

Dwelling, Feb. 3, 1996, **1997:**5.49

Dwelling, March 13, 1996, **1997:**5.50

Dwelling, Jan. 2, 1998, 1999:5.51

Dwelling, Jan., 2002, 2003:5.75

Dwelling, Oct., 2003, 2004:5.69

Manufactured home, Jan. 2, 1998, 1999:5.51

Manufactured home, Oct., 2002, 2003:5.75

Manufacturing plant, May, 2002, 2003:5.75

Nursing home, Apr. 9, 1995, 1996:5.96

Service station, Aug. 9, 1998, **1999:**5.55

Storage tank, June, 2006, 2007:5.61

Truck, Jan. 20, 1992, 1993:5.68

Fatal fires

College building, 2004, **2005:**5.32

Dwelling, 2005:2.26

Dwelling, 1994, **1995:**4.38

Dwelling, 1998, **1999:**5.19

Dwelling, 2006, **2007:**5.29

Fireworks plant explosion and fire, 1990, **1991**:4.30

Manufacturing plant, May, 2002, **2003:**6.77

Holmes County works with NFPA on smoke alarm distribution project, 2003:6.42

Hotel fire, 1995, 1996:5.24

NFPA grants target high fire death rate, 2005:2.10

Picayune smoke detector distribution project pays off, **2005**:5.76

School building fire, 1990, 1991:3.27

Store fire, 1993, **1994:**1.32

MISSOURI

Apartment building fire, 2000, **2001:**3.32

Apartment building fire, 2005, **2006**:3.36

Apartment building fire, 2007, 2008:6.21

Apartment building fire, Aug., 2012, 2013:6.55

Board-and-care facility fire, 2009, 2010:6.25

Building-under-construction fire, Oct., 2005, 2006:6.69

Building-under-construction fire, May, 2012, 2013:6.59

Catastrophic fires

Aircraft crash, Aug., 2004, **2005:**5.60

Apartment building, March 12, 1999, 2000:5.56

Apartment building, Nov., 2012, 2013:5.60

Automobile, Feb. 4, 1990, **1991:**4.70

Board and care facility, Nov., 2006, **2007:**5.60

Dwelling, Aug. 19, 1992, 1993:5.64

Dwelling, Dec. 5, 1997, 1998:5.45

Dwelling, Sept., 2000, 2001:5.75

Dwelling, Nov., 2001, 2002:5.82

Dwelling, Jan., 2002, **2003:**5.75

Dwelling, Aug., 2006, 2007:5.59

Dwelling, Aug., 2007, 2008:5.58

Dwelling, Jan., 2010, 2011:5.74

Manufactured home, May, 2009, 2010:5.65

Motor vehicle, Jan, 2000, 2001:5.79

Motor vehicle, Oct., 2006, 2007:5.63

Prison, Sept. 14, 1991, 1992:4.70

Storage facility, Dec., 2002, 2003:5.75

Tank storage facility, Sept. 8, 1992, **1993:**5.67

Truck, April 16, 1990, 1991:4.70

Church fire, 1997, **1998:**2.19

Dwelling fire, 2002, 2003:1.15

Dwelling fire, 2003, 2004:1.15, 2004:5.17

Electric generating plant fire, June, 1993, 1994:6.92

Fatal fires

Apartment building, 1994, **1995:**3.37

Apartment building, 2003, **2004:**2.18

Board-and-care facility, 2002, **2003:**4.17

Dwelling, 1991, **1992:**3.34

Dwelling, 1992, **1993:**4.25

Dwelling, 1994, 1995:5.34

Dwelling, 1998, **1999:**1.18

Dwelling, 2000, 2001:1.21

Dwelling, 2005, 2006:6.23

Dwelling, 2006, 2007:5.26

Dwelling, 2007, 2008:4.19

Dwelling, 2009, 2010:1.26, 3.36

Dwelling, 2010, **2011:**2.26

Dwelling, 2011, 2012:5.28

Fireworks, 2004, 2005:4.20

Fraternity house, 2007, **2008:**1.21

Storage shed fire, 1997, 1998:3.36

Hospital fire, 1997, **1998:**5.17

Housing-for-elderly complex fire, 1989, **1991:**1.30

Manufacturing plant fire, June, 1993, 1994:6.93

Manufacturing plant fire, Oct., 1994, 1995:6.104

Manufacturing plant fire, Sept., 1998, 1999:6.90

Manufacturing plant fire, 2001, **2002:**1.22, **2002:**6.22

Manufacturing plant fire, 2002, 2003:3.18

Manufacturing plant fire, April, 2002, 2003:6.78

Manufacturing plant fires, 2003, 2004:2.17

Meeting hall fire, 1997, 1998:2.19

Nursing home (elderly facility) fire, 2000, 2001:3.28

Power plant fire, Feb. 17, 1999, 2000:6.96

Restaurant fire, 2010, 2011:4.18

Rooming house fire, 2002, **2003:**2.23

St. John's Regional Medical Center, Joplin, destroyed in 2011 tornado, builds new facility better able to withstand tornadoes, **2013:**1.44

School fire, 2001, 2002:5.22

School fire, April, 2010, 2011:7.57

Shopping mall fire, 1997, **1998:**2.20

Shopping mall fire, 2010, 2011:5.14

Storage building fire, 1997, **1998:**5.18

Store fire, 1996, **1997:**6.22

Store fire, 2002, 2003:2.24

Underground SubTropolis storage/manufacturing facility, Kansas City, requires unique fire protection measures, **1998:**6.68

Warehouse fire, 1991, 1992:6.26

Warehouse fire, March, 1992, 1993:6.85

Warehouse fire, Feb. 24, 1997, 1998:6.88

Warehouse fire, March 16, 1997, 1998:6.87

MITCHELL, ERNEST, JR.

U.S. Fire Administrator, interview with, 2012:2.24

MIXED-USE OCCUPANCIES. See also MULTIPLE OCCUPANCIES

NFPA 101®, *Life Safety Code*®, and NFPA 5000, *Building Code*TM, respond to mixed use and multiple use building needs, **2002:**3.38

NFPA 101®, *Life Safety Code*®, provisions to differentiate mixed-use and incidental occupancies, **2002:**3.46

MIXED-USE OCCUPANCY FIRES

California, 2011, 2012:4.22

MOBILE HOME FIRES. See RECREATIONAL VEHICLE FIRES

MODELS, FIRE. See FIRE MODELS

MODULAR HOMES. See also MANUFACTURED HOMES

Fire, Massachusetts, 2008, 2009:2.21

MONCADA PEREZ, JAIME

Profile of, **2000:**3.62

MONTANA

Building-under-construction fire, March, 2005, 2006:6.69

Building-under-renovation fire, March, 2009, 2010:6.64

Catastrophic fires

Aircraft crash, Sept., 2004, **2005:**5.61

Dwelling, Sept. 7, 1991, 1992:4.68

Dwelling, Sept. 24, 1994, 1995:5.60

Electrical substation fire, July, 1998, 1999:6.95

Fatal fires

Apartment building, 1999, 2000:5.23

Dwelling, 2006, 2007:1.20

Manufacturing plant fire, 2012, 2013:4.24

Mine crushing facility fire, June, 1998, 1999:6.95

Warehouse fire, 2009, 2010:4.32

Wildland fire, Mann Gulch, 1949, 1995:2.42

Wildland fire, July, 2000, **2001**:6.64

MOORE, WAYNE D.

Profile of, **1994:**4.23

MORGAN, CHARLES S.

General manager and past president of NFPA, 1996:1.66

MOSES, THOMAS M.

Profile of, 1991:1.14

MOTEL FIRES. See HOTEL FIRES

MOTION PICTURE STUDIOS

NFPA 140, Motion Picture and Television Production Studio Soundstages and Approved Production Facilities, proposed changes, 1999:2.80

NFPA 140, Motion Picture and Television Production Studio Soundstages and Approved Production Facilities, provides standards for soundstages and facilities, **2004:**1.36

Rowe, Alan, International Alliance of Theatrical Stage Employees Local 728, on NFPA's role in entertainment industry, **2013:**4.14

MOTION PICTURE STUDIO FIRES

Arizona, April, 1995, **1996:**6.73

California, Nov. 6, 1990, 1991:6.74

California, June, 2008, **2009:**6.82

Convention center, motion picture set at, Arizona, Dec., 2004, 2005:6.49

MOTOR HOME FIRES. See RECREATIONAL VEHICLE FIRES

MOTOR VEHICLE FIRES. See VEHICLE FIRES

MOTOR VEHICLE REPAIR SHOPS. See AUTOMOBILE REPAIR SHOP FIRES

MOTORSPORTS VENUES

Circuit of Americas Formula One racetrack complex, Travis County, Texas, mass notification system at, **2013**:4.42

As major sports venue, Bristol Motor Speedway, Tennessee, relies on NFPA codes, 2004:6.72

NFPA 610, Safety at Motorsports Venues, adopted as recommended practice, 2004:6.73

NFPA 610, Safety at Motorsports Venues, provides safety criteria for motorsports venues, **2002:**1.54

MOULTON, ROBERT S.

Remembering NFPA's chief technician, 2008:1.80

MOVIE STUDIOS. See MOTION PICTURE STUDIOS

MOYLE, BERNARD

Profile of. **2000:**1.39

MULCH

Fire problems caused by mulch, especially in areas prone to wildfires, **2011:**6.77

MULTI-AGENCY RESPONSE

Ship fire, **1994:**6.98

MULTIPLE DEATH FIRES. See CATASTROPHIC FIRES, U. S (MULTIPLE-DEATH FIRES) MULTIPLE OCCUPANCIES

Airport emergency planning should include various occupancies, 2002:5.28

NFPA 101®, *Life Safety Code*®, and NFPA 5000, *Building Code*TM, respond to mixed use and multiple use building needs, **2002:**3.38

MULTIPLE OCCUPANCY FIRES

California, 1990, **1991**:6.25

California, 2000, **2001:**3.28

Catastrophic, New York, Jan. 16, 1990, 1991:4.65

Florida, 1996, **1997:**3.29

Georgia, 2008, 2009:4.17

Illinois, 1992, 1993:3.34

Illinois, 2000, **2001:**3.26

Indiana, 1992, 1992:6.31

Kansas, June, 1991, 1992:6.78

Maryland, 2004, 2005:1.18

Maryland, 2005, 2006:1.16

Massachusetts, 1991, 1992:1.23

Minnesota, 2005, 2006:4.27

Ohio, 2004, **2005:**2.20

Protecting mixed occupancies, 1997:3.38

Tennessee, July, 1992, 1993:6.81

Vermont, 1989, 1991:1.27

MUSEUMS

Life safety system for Winterthur, 1992:5.63

NFPA 909, Protection of Cultural Resources Including Museums, Libraries, Places of Worship, and Historic Properties, provides fire protection guidance for historical, cultural properties, **2000:**6.28

Property loss in cultural facilities, 2003:1.11

Russia's Hermitage Museum presents fire protection challenges, 2003:1.46

Udvar-Hazy Center, Smithsonian Air and Space Museum, Dulles Airport, presented unique fire safety issues, **2004:**5.40

MUSEUM FIRES

Arizona, 2003, 2004:1.14

Maryland, Sept., 2003, 2004:6.57

Oregon, 1994, **1995:**6.35

Tennessee, July, 1992, 1993:6.81

Wisconsin, June, 1994, 1995:6.98

MUTUAL AID RESPONSE

Apply mutual aid to fire investigations, 1993:1.14

Boat fire, **2012**:6.66

Cardboard box manufacturing plant fire, 1998:6.86

Chemical plant fire, 1993:4.27

Church fire, 2012:6.66

Cotton warehouse, Missouri, Feb. 24, 1997, 1998:6.88

Dwelling fire, **2011:**7.62

Making mutual aid agreements work, 1991:2.49

Manufacturing plant fires, **1995**:6.104, 107, **2012**:6.61

Open-air flea market fire, 1998:6.89

Records storage facility fire, 1998:6.91

Rural fire, 1991:4.26

Simultaneous incendiary fires, 1993:3.34

Warehouse/retail showroom fire, 1999:3.43

Wood products plant fire, 1998:6.87

N

NACHBAR, MARY

Profile of, **1994:**5.21

NAPERVILLE, ILLINOIS

Study of causes and history of commercial system alarms, 1999:4.86

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

Apollo I spacecraft fire, 1996:1.68

Fire protection and prevention at Kennedy Space Center and Cape Canaveral Air Force Station present unique challenges, **2004**:3.54

Space program technology applied to tank truck fires by NFPA, Chicago Fire Dept., NASA partnership, **1998:**2.52

NATIONAL ELECTRICAL CODE®. See also ELECTRICAL SAFETY COLUMNS

1993 edition, changes in, 1992:5.50

1996 edition, development of, **1995:**5.73

1999 edition incorporates technological changes supported by consensus process, **1998:**5.66

2004 edition, development of, **2004:**3.48

2005 edition, expands GFCI, AFCI requirements, 2005:2.14

2005 edition adopted by numerous states, **2006:**1:12

2008 edition, changes in, 2007:2.13

2008 edition, expands combination AFCI requirements to more areas of home, 2008:5.74

2008 edition, proposed changes reviewed by NFPA electrical staff, 2007:3.76

2008 edition offers greater protection against electrical fires, 2007:6.14

2011 edition, preview available at NEC® web site, 2010:5.26

2011 edition, proposed changes, address renewable energy technology, **2010**:3.72

2014 edition, proposed changes, address home rooftop wiring, renewable energy, RV parks, and more, **2013**:3.59

2014 edition accepted at NFPA Association Technical Meeting, 2013:4.9

2014 edition and companion resources debut, **2013:**5.12

Aging electrical infrastructure impacts fire safety, 2006:2.22

Arc fault-circuit interrupter requirement for bedrooms targets residential fires, 2000:2.69

Arc fault-circuit interrupter requirements, questions answered, 2007:6.15

Arc fault-circuit interrupters required in dwelling unit bedrooms, 2001:2.31

Boat repair safety requirements for wiring, equipment, 1995:5.40

Electrical room fire protection and enclosure requirements, 2008:5.38

Experts answer questions on code, 1996:1.28

Fire alarm installations assessed for workmanlike quality, 1999:2.37

Fire alarm system replacement and abandonment requirements, 2008:4.34

Fire Protection Research Foundation research connects the *NEC*®, alternative energy technologies, and firefighter safety, **2010**:4.34

Fire Protection Research Foundation study addresses new energy forms and energy-saving technologies for code revision, **2009:**3.46

Fire pumps, electrical, requirements for, **2000:**3.112

Global marketplace and, 1991:3.120

High voltage equipment safety, 1995:2.34

Hot tub and spa accident prevention, 1992:4.22

Interpreting the code, **1992:**5.12

Main service disconnect terms and requirements, 1991:6.88

necplusTM is Web-based NEC[®] subscription service, **2007:5**.84

NFPA 70E, *Electrical Safety in the Workplace*®, and *NEC*® team up to minimize energized equipment risk, **2010:**5.48

NFPA 70E, *Electrical Safety in the Workplace*®, and *NEC*® work together for electrical safety, **2009:**5.42

NFPA 1600, Disaster/Emergency Management and Business Continuity Program, referenced in NEC® Article 708, **2008:**1.49

OSHA, NEC®, NFPA 70E, Electrical Safety in the Workplace, work together for worker safety, **2005**:2.66

Questions answered, 1997:6.25

Spanish speaking countries using code, **1996:**1.28

U. S. cable/wire manufacturers promote NEC over IEC as European standard, 1998:4.64

Underwriters Laboratories report compares code to IEC 60364, **1999:**6.112

Websites, code promoted by, 2013:4.10

Work space requirements for energized electrical equipment, 1995:1.37

NATIONAL FIRE ALARM AND SIGNALING CODE. See also NATIONAL FIRE ALARM CODE®

2010 edition, changes approved for, 2009:4.11

2010 edition, overview of changes being developed for, **2008**:3.86

2010 edition, overview of changes in, 2009:3.68

2010 edition changes highlighted, 2009:5.69

2013 edition changes focus on unwanted alarms, testing, and maintenance requirements, **2012:**3.61

Alarm system/computer system connectivity concerns addressed in proposed code changes, **2013:**6.46

Mass notification systems include voice, radio, computer networks and texting, **2009:**4.50 NATIONAL FIRE ALARM CODE®. *See also* BUZZ WORDS COLUMNS; NATIONAL FIRE

ALARM AND SIGNALING CODE 1996 edition, questions answered, **1997**:4.25

1999 edition, Appendix B, performance-based design of detector spacing, 2000:1.24

1999 edition, improvements in, **1999:**5.60

1999 edition, industry experts discuss changes in code and alarm technology, 1999:2.46

1999 edition, proposed changes, **1999:**2.80

1999 edition, proposed fire alarm system design improvements, **1999:**2.32

2002 edition, proposed changes, 2002:3.92

2002 edition, proposed voice intelligibility testing requirements, **2002:**1.50

2007 edition, proposed changes, **2006:**2:58, 3.73

Acceptance testing of alarm systems, 2004:6.28

Americans with Disabilities Act requirements and code, **2005**:4.70

Building code requirements not added to or deleted by NFPA 72®, 2003:2.40

Committee considers changes to code, 2001:4.36

Coordinating homeland security and code requirements for mass notification, 2004:1.29, 1.40

Designers, installers, AHJs should help building owners to comply with National Fire Alarm Code, **2001**:2.36

Enforcement requires education of authority have jurisdiction (AHJ), 1999:6.30

False alarms, using code to prevent, 2002:1.34

Fire alarm system requirements for 'best' design, 2001:6.31

Fire Detection and Alarm Research Council formed by Fire Detection Institute, Fire Protection Research Foundation, **2006:**1:14

Fire Protection Research Foundation smoke detection and alarm research reflected in code, **2008**:1.26

High-rise building emergency communications systems, **2001:**3.50

High-rise speaker circuit survivability requirements, 2001:3.76

Icon standardization on fire alarm panels, proposal for, 2000:5.66

Industrial facility alarm installation requirements, 2001:5.40

Industry experts discuss alarm technology and NFPA 72 changes, 1999:2.46

Integrating fire alarm and fire protection systems, **2004:**2.32

Integrating fire alarm system with building management system, 2008:6.62

Mass notification enhances life safety, **2006:**3.76

Mass notification requirements in 2007 edition, and possible future changes, 2007:3.82

Mass notification system requirements proposed to aid homeland security, 2004:6.30

Meeting the code in system installations, 1999:4.36

New telephone/voice system technologies require NFPA 72 update, 2009:3.129

NFPA technical interpretations of code available to members, 2001:1.34

Previous standards combined into NFPA 72, 1991:5.86

Questions answered, 2002:3.45

Record-keeping requirements, 2002:2.40

Residential fire alarm system requirements updated, 2003:4.34

Safe elevator recall, requirements for, 1993:3.28

Signaling standards consolidated, 1993:5.70

Sprinkler system alarm requirements, **2000:**5.26

UL standards and NFPA 72 provide comprehensive equipment and installation requirements, **1993:**5.25

Visual signaling occupant notification in large spaces study supports code requirement, **2006:**3.22

Voice alarm use and testing, **1999:**6.72

Workmanlike quality, installations assessed for, 1999:2.37

NATIONAL FIRE INCIDENT REPORTING SYSTEM (NFIRS)

History and use of data, 1998:3.80

NFIRS Version 5.0 promises better data on sprinkler system reliability, 2003:2.30

NATIONAL FUEL GAS CODE

Proposed changes, 1999:2.80

Technical Committee strengthens gas purging requirements, 2010:2.20

TIA on gas purging restricts use, 2010:5.23

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NFPA and NIOSH form emergency responder safety alliance, 2006:1:11

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

Congress pushes for World Trade Center collapse study by NIST, 2002:5.34

Fire Dynamics Simulator software provides safest atrium smoke control design for real world enforcement, **2008:**1.50

Free NFPA codes and standards offered by NIST, 2011:5.10

NIST evaluates positive pressure ventilation tactics at retired high school, 2008:5.78

Personal alert safety system (PASS) devices research aims to standardize wireless technology, **2011:7.**11

The Station nightclub fire investigation summary, 2005:3.44

World Trade Center investigation may aid code revisions to prevent structural collapse, **2002:**5.44

World Trade Center Report's controversial recommendations for changes in high-rise design, **2007:**3.160

NATIONAL INTERAGENCY INCIDENT MANAGEMENT SYSTEM (NIMS)

Discussion, **1991:**3.123

NATIVE AMERICANS

First Nations Remembering WhenTM program released by NFPA, **2006:**2:40

Navajo Nation and NFPA Center for High-Risk Outreach cooperate for fire safety, **1997:**2.74 Navajo Nation fire safety awareness campaign, **1996:**5.71

NFPA and Navajo Nation Fire and Rescue installed smoke alarms in Navajo, Hopi Nations, **2008:**4.15

NFPA grants provide smoke alarms, fire safety education for Navajo Nation, 2005:2.10

NFPA installing smoke alarms in Navajo, Hopi households, 2006:5.23

Smoke detector nuisance alarms: field study in Native American community, 1996:5.65

NATURAL GAS. See also COMPRESSED NATURAL GAS; LIQUEFIED NATURAL GAS

Chemical Safety Board and NFPA cooperate to change practice of intentional gas releases in industrial settings, **2011**:3.11

Compressed natural gas and liquefied natural gas filling station service becomes more common, **2002:**6.46

Firefighter injuries related to gas explosion, **2010**:6.75

Home structure fires, 2003-2007, **2010:**3.112

NFPA 30A, *Automotive and Marine Service Station*, expanded to cover alternative fuels, **2000:**4.83

NATURAL GAS FIRES

Aircraft parts made of resin ignited by gas, 1994:4.31

Boiler ruptured, ignited when, 1993:6.83

Burners ignite hydraulic oil, 1992:4.70

Burning rubbish, ignited by, 1991:4.25

Ceiling space heater hit by forklift, fuel feed line dislodged, 2001:2.24

Cigarette, ignited by, 1993:1.25

CNG vehicle fueling station fire, Wisconsin, 1999, 2000:2.23

Cooking oil heating unit explosion ignites natural gas supply, 2012:6.63

Distribution pipe fails during fire, contributes to fire intensity, 2007:2.22

Flame from LP-Gas fire causes natural gas regulator to fail, leaking gas ignites, 1998:3.36

Flash fire, ignited by, **1991:**3.26

Furnace fire sweeps through steel manufacturing plant, 2003:6.77

Furnace ignites leaking gas, 2013:6.56

Gas accumulation in boiler ignites catastrophic fire, 2000:5.59

Grill gas line improperly connected, gas ignited by pilot, 2003:1.12

Heater, ignited by, when piping accidentally ruptured, 1994:1.30

Heater ignites gasoline vapors, 1997:2.23

Heater line leak ignited by homeowner, 1999:3.48

Heating unit intake leak ignited during meter change, **2011:**1.20

Hydraulic oil from split line, ignited by, 1994:3.29

Ignition source unknown, 1992:4.71

Infrared heater, ignited by, 1996:6.65

Leak from pipe to commercial oven ignited by open flame, **2011:**4.21

Leak in furnace enclosure fuels catastrophic fire, 1997:5.52

Leaks in pipe and fittings ignite apartment building fire, 2005:5.32

Lines ruptured, ignited when, 1995:6.103

Meter fails in fire, gas fills house, intensifies fire, 2011:1.24

Oil fire, ignited by, **1992:**1.29

Oven/broiler malfunctions, ignites kitchen wall, 1997:5.52

Pilot light, ignited by, 1991:4.64, 1992:4.68, 1992:6.25, 1995:3.39

Pilot light ignites gasoline, 1996:5.91

Pilot light ignites gasoline vapors, 1992:5.26

Pipeline supplying kiln fails, gas ignited by pilot flame, 1997:6.52

Pressure surge caused by vehicle accident causes manufactured homes fire, 1996:3.36

Production and storage facility fire, 1993:6.29

Regulator near wall furnace leaks, ignites carpet, 2000:5.22

Roof fire, ignited by, **1994:**6.35

Space heater, ignited by, 1991:4.66

Spark, ignited by, **1991:**6.74

Stove burners, ignited by, 1991:4.65

Stove line, not properly capped, ignites kitchen fire, 2008:1.23

Supply and gas line valves opened, incendiary fire fueled by, 2009:5.24

Water heater ignites gas leaking from connection, 2004:4.16

Water heater ignites gasoline vapors, 2005:4.18

Water heater ignites stored combustibles, 2012:4.24

Water heater ignites uncontrolled gas release, 2008:5.23

Well, release from, ignited, **2005:**5.59

NATURAL GAS FIRES AND EXPLOSIONS

Boiler section, gas ignited in, 2000:6.96

Buildup of gas in boiler ignited by undetermined source, 2000:6.95

Construction crew ignites explosion, 2000:5.61

Distribution main over-pressured causes flare-ups, explosions, 1993:5.68

Electrical appliance ignites gas from broken riser, 2003:6.81

Electrical equipment ignites gas built up in drilling platform structure, 5.53, 1998:6.91

Flexible appliance connector leak ignites dwelling fire, 2001:4.24

Gas remaining in structure during purging ignited, **2010:5**.67

Lacquer thinner vapors ignited by, 1994:5.104

Leak from distribution main ignited by furnace timer, 2000:1.21

Leak from pipeline seeps into basement, ignites catastrophic explosion, 1999:5.55

Leak from service line, ignited by refrigeration compressor, **1995:**5.62

Leak ignited, **1994:**5.108, **1995:**1.33, **1995:**6.103

Leak in basement ignites catastrophic explosion, 2012:5.71

Pipe leaks underground, seeps into building, 2005:5.60

Pipe ruptured by sewer "snake," leaks into basement, 2007:4.27

Pipe ruptures, produces fireball, 2001:5.79

Pipeline leak ignited by gas-fired water heater, 2002:6.18

Pipeline ruptures, produces fireball, 2011:7.59

Pipeline ruptures, release ignited by undetermined source, 2011:5.79

Pipeline struck by mooring device, produces fireball, 2007:5.62

Pipes, blowout being used to clean, 2011:5.78

Pressure regulator bypassed, auto igniter ignites gas buildup, 2011:4.14

Spark, ignited by, 1993:5.94

Storage tank fire ignited by youth with cigarette lighter, 2001:1.23

Unknown source ignites gas, fatal apartment fire, 2005:4.16

Unknown source ignites gas, fatal dwelling fire, 2009:3.33

Valve left open and uncapped, ignited in building-under-construction fire, 2006:6.69

Water heater malfunctions, gas escapes, ignites, 2003:3.18

Well blows out, gas ignited, 1999:5.54

Windows opened to vent fire leads to gas ignition, 1994:6.64

NEBRASKA

Aircraft hangar fire, May, 2002, 2003:3.18, 2003:6.78

Apartment building fire, 1996, 1997:5.22

Assisted living facilities fire, 2008, 2009:4.18

Building-under-construction fire, Jan., 2004, 2005:6.44

Catastrophic fires

Grassland, April, 2011, 2012:5.75

Manufactured home, July, 2006, 2007:5.59

Recreational vehicle, May, 2003, 2004:5.73

Dormitory fire, 2006, 2007:2.21

Dwelling fire, 2003, 2004:4.17

Fatal fires

Apartment building, 2001, 2002:6.18

Apartment building, 2005, **2006:**1.18

Apartment building, 2006, 2007:4.25

Boat, 1990, 1991:4.31

Dwelling, 2007, 2008:5.29, 6.23

Dwelling, 2009, 2010:6.24

Fraternity, 2006, 2007:6.17

Health care occupancy fire, 2008, 2009:6.26

Manufacturing plant fire, July 20, 1996, **1997**:6.49

```
Manufacturing plant fire, Jan., 1998, 1999:6.90
  Manufacturing plant fire, 2007, 2008:2.28
  Manufacturing plant fire, 2010, 2011:5.20
  Office building fire, May, 2011, 2012:6.64
  Office building fire, 2013, 2013:1.27
  Sprinkler system retrofit, Beverly Healthcare facility, Sargent, 2006:1.54
  Storage facility fire, March, 1995, 1996:6.69
  Warehouse fire, April 12, 1996, 1997:6.57
  Warehouse fire, 2011, 2012:2.20
NELSON, HAROLD E.
  Profile of, 1993:1.21
NELSON, JENNIFER L.
  Profile of, 1993:2.17
NEVADA
  Apartment building fire, 2004, 2005:5.32
  Building-under-construction fire, Jan., 2003, 2004:6.55
  Building-under-construction fire, Sept., 2003, 2004:6.54
  Catastrophic fires
     Automobile/truck, June 27, 1999, 2000:5.61
     Hotel, Oct., 2006, 2007:5.57
     Manufacturing plant, Jan. 7, 1998, 1999:5.55
     Wildland fire, Sept., 2008, 2009:5.84
  Chemical manufacturing plant fire, 2001, 2002:6.75
  City Center, Las Vegas, fire protection systems, 2010:3.62
  Fatal fires
     Dwelling, 2003, 2004:2.19
     Dwelling, 2009, 2010:1.24
     Dwelling, 2011, 2012:4.26
     Manufactured home, 2008, 2009:3.34
     Shopping mall, 1992, 1993:2.19
  Hotel and casino fire, 1998, 1999:2.24
  Hotel and casino fire, Jan., 2008, 2009:6.77
  Hotel and casino fire, June, 1998, 1999:6.95
  Hotel fires, 1997, 1998:5.16
  Mandalay Bay Hotel and Casino construction faced fire protection challenges, 2005:3.108
  Manufactured home fire, 2009, 2010:6.26
  MGM Grand Hotel fire, Las Vegas, Nov. 21, 1980, 1996:2.70, 2001:2.96, 2005:2.96
  Monte Carlo Hotel Casino fire, Las Vegas, Jan. 25, 2008, fire investigation report, 2008:3.67
  Monte Carlo Hotel Casino fire, Las Vegas, Jan. 25, 2008, led to new inspection and training
         procedures in Clark County, NV, 2010:3.82
  Stratosphere Mall and Tower, Las Vegas, fire protection systems, 2001:6.66
  Theater fire, 1998, 1999:3.44
  Vacant building fire, Feb. 19, 1999, 2000:6.95
NEW BRUNSWICK, CANADA
  Detention facility fire, June 21, 1977, 1994:5.50
NEW HAMPSHIRE
```

Apartment building fire, 2003, **2004:**4.17

Apartment building fire, 2008, 2009:2.25

Apartment building fire, 2012, **2013:**1.25

Building-under-construction fire, 2002, 2003:1.14

Catastrophic fires

Aircraft, Sept., 2002, 2003:5.75

Dwelling-under-construction, Dec. 12, 1990, 1991:4.68

Church fire, 2003, **2004:**6.19

College building fire, 2006, **2007:**1.16

Dwelling fire, 2010, 2011:4.17

Electrical apprentices now required to completed personal safety training, 2010:6.37

Fatal fireworks display fire, 1995, 1996:4.24

Fire-safe cigarettes required by new legislation, **2006:**4.18

Fireworks plant explosion and fire, 1992, 1993:3.35

Group home fire, 1990, **1992:**1.26

Homeless shelter fire, 2003, 2004:3.20

Laboratory fire, 2007, 2008:1.24

Manufacturing plant fire, Aug. 22, 1996, **1997:**6.52

Manufacturing plant fire, March 27, 1997, 1998:6.86

Manufacturing plant fire, 2002, 2003:4.16

Manufacturing plant fire, 2003, 2004:3.24

Nursing home fire, 1991, **1992**:6.29

Nursing home fire, 2002, **2003:**1.12

Office building fire, 2012, 2013:3.31

Restaurant fire, 2010, **2011:**7.20

Storage facilities fire, Jan. 8, 1996, 1997:6.56

Store fire, 2007, **2008:**2.30

Town hall fire, 2000, **2001**:2.20

Warehouse fire, May, 2000, **2001**:6.62

NEW JERSEY

Amusement center fire, Dec., 1992, **1993:**6.79

Apartment building fire, 1996, 1997:5.22

Apartment building fire, 1998, **1999:**2.24

Apartment building fire, 2002, 2003:5.16

Apartment building fire, 2004, **2005**:2.22

Apartment complex fire, 1993, **1994:**1.32

Building-under-construction fire, Aug., 2000, 2001:6.63

Catastrophic fires

Apartment building, Feb. 13, 1991, **1992:**4.69

Apartment building, May 6, 1997, 1998:5.45

Apartment building, July, 2012, **2013:**5.59

Dwelling, June 11, 1991, **1992:**4.69

Dwelling, June 16, 1991, 1992:4.69

Dwelling, Feb. 13, 1992, 1993:5.62

Dwelling, Dec. 28, 1994, 1995:5.53

Dwelling, Jan. 22, 1995, 1996:5.92

Dwelling, July 22, 1996, 1996:5.92

Dwelling, March, 2001, 2002:5.82

Dwelling, July, 2002, 2003:5.75

Dwelling, Feb., 2012, 2013:5.59

Electric/thermal energy generating plant, Dec. 25, 1992, **1993**:2.44, **1993**:5.67, **1993**:6.82

Manufacturing plant, Apr. 21, 1995, 1996:5.94

Motor vehicle, Feb. 17, 1997, 1998:5.55

Motor vehicle, April, 2009, 2010:5.68

Condominium fire, Sept., 2005, **2006**:6.72

Dormitory fire, Jan. 19, 2000, 2009:5.62

Dwelling fire, 1999, **2000:**6.17

Dwelling fire, Aug., 2005, 2006:6.72

Dwelling fire, 2006, **2007:**4.27

Fatal fires

Apartment building, 1997, 1998:3.41

Dwelling, 1994, **1995:**6.37

Dwelling, 1998, 1999:4.19

Dwelling, 2004, 2005:2.20

Dwelling, 2006, 2007:4.27

Dwelling, 2007, 2008:6.17

Dwelling, 2010, 2011:1.24

Dwelling, 2012, 2013:1.20, 2013:5.22

Hotel, 2001, 2002:6.21

Manufactured home, 1997, 1998:2.16

Funeral home fire, 1996, **1997:**2.21

Garage fire, 2011, **2012:**2.22

Hospital fire, 2002, 2003:2.202

Hotel/conference center fire, 1993, 1994:2.30

Manufacturing plant fire, 1990, **1991:**5.30, **1991:**6.25

Manufacturing plant fire, 1992, 1993:2.20, 1993:3.34

Manufacturing plant fire, 2002, 2003:3.18

Manufacturing plant fire, Jan., 2005, 2006:5.63

Manufacturing plant fire, 2006, 2007:5.32

Restaurant fire, May, 1998, 1999:6.95

Restaurant fires, 2001, 2002:2.26, 2002:6.22

Restaurant fire, 2003, 2004:4.19

Restaurant fire, 2012, 2013:5.20

School fire, 2011, 2012:1.22

Shopping mall fire, 1997, **1998**:6.21

Shopping mall fire, May, 2006, 2007:6.80

Store fire, 1990, **1992:**1.21

Store fire, Jan., 1991, **1992:**6.78

Store fire, April 17, 1997, 1998:6.89

Warehouse fire, 1989, 1991:2.33

Warehouse fire, Jan. 10, 1996, **1997**:6.56

Warehouse fire, Iron Mountain records storage facility, South Brunswick, March, 1997, **1998:**2.68

Warehouse fire, 2004, 2005:6.22

Warehouse/retail showroom fire, 1998, 1999:3.43

Wildland fire, 1995, **1996:**2.26

NEW LONDON, TEXAS

School explosion, March 18, 1937, 1993:5.94

NEW MEXICO

Aircraft fire and crash, Sept., 1993, 1994:6.98

Apartment complex fire, July, 1995, **1996**:6.74

Catastrophic fires

Aircraft, April, 2011, 2012:5.74

Motor vehicle, March, 2002, 2003:5.75

Natural gas pipeline, Aug., 2000, 2001:5.79

Fatal fires

Dwelling, 2009, 2010:6.20

Dwelling, 2010, **2011:**7.19

Gas storage tank fire, 2000, **2001:**1.23

Grass fire, 2012, **2013:**3.32

Manufacturing plant fire, March, 1992, 1993:6.85

Storage building fire, 1999, 2000:6.14

Storage facility fire, 2001, **2002:**1.18

Storage facility fire, June, 2010, 2011:7.57

Store fire, May, 1995, **1996:**6.70

Wildland fire, Bandelier National Monument, May, 2000, kept from Los Alamos nuclear facility by aggressive suppression effort, **2001:**5.64

Wildland fire, May, 2000, 2001:6.63

Wildland/urban interface fire, March, 2002, 2003:6.80

NEW ORLEANS, LA.

Fire department profile, 1992:2.61

NEW YORK

Aircraft fire, March, 1991, **1992:**6.79

Aircraft fire, Sept. 5, 1996, **1997:**6.60

Aircraft fire, Sept., 1992, 1993:6.88

Apartment building fire, 1993, **1994:**5.27

Apartment building fire, May, 1993, 1994:6.90

Apartment building fire, March 28, 1994, 1995:6.85

Apartment building fire, 2006, 2007:1.18

Building-under-construction fire, April, 2003, 2004:6.53

Building-under-renovation fire, 2003, 2004:2.19

Building-under-renovation fire, Dec., 2010, 2011:7.59

Catastrophic fires

Aircraft, March 22, 1992, 1993:5.68

Apartment building, Aug. 4, 1990, 1991:4.66

Apartment building, March 13, 1991, 1992:4.67

Apartment building, Jan., 2001, 2002:5.82

```
Apartment building, Nov., 2001, 2002:5.82
```

Apartment building, June, 2002, **2003:**5.75

Apartment building, March, 2003, **2004:**5.69

Apartment building, April, 2004, **2005:**5.57

Apartment building, Jan., 2005, 2006:5.61

Apartment building, Oct., 2008, 2009:5.81

Apartment building, Jan., 2010, 2011:5.74

Automobile, Jan., 2001, 2002:5.82

Board and care facility, Oct. 17, 1990, 1991:4.68

Board and care facility, March, 2009, 2010:5.66

Club, March 25, 1990, 1991:4.61, 67

Dwelling, Dec. 27, 1990, 1991:4.65

Dwelling, Feb. 8, 1991, **1992:**4.68

Dwelling, April 10, 1991, 1992:4.67

Dwelling, April 21, 1991, 1992:4.69

Dwelling, Nov. 22, 1991, 1992:4.68

Dwelling, Dec. 22, 1991, 1992:4.68

Dwelling, June 7, 1993, 1994:5.98

Dwelling, Aug. 28, 1993, 1994:5.100

Dwelling, Dec. 21, 1993, **1994:**5.102

Dwelling, Jan. 28, 1994, 1995:5.58

Dwelling, Feb. 10, 1994, 1995:5.54

Dwelling, June 28, 1994, 1995:5.60

Dwelling, Dec. 4, 1994, **1995:**5.62

Dwelling, June 23, 1995, 1996:5.92

Dwelling, Dec. 18, 1995, 1996:5.93

Dwelling, Jan. 9, 1999, 2000:5.57

Dwelling, Nov., 2001, 2002:5.82

Dwelling, March, 2003, 2004:5.69

Dwelling, Aug., 2004, 2005:5.56

Dwelling, March, 2007, 2008:5.57

Dwelling, Jan., 2009, 2010:5.63

Dwelling, June, 2010, **2011:**5.73

Dwelling, July, 2011, **2012:**5.70

High-rise complex, Feb. 26, 1993, **1993**:6.91, **1994**:5.104, **1994**:6.90, **1995**:2.59

Hospital, Sept. 1, 1993, 1994:5.105

Manufactured home, April 13, 1999, 2000:5.58

Manufactured home, Dec., 2000, 2001:5.77

Motor vehicle, May 20, 1991, 1992:4.72

Motor vehicle, Mar. 11, 1998, 1999:5.56

Motor vehicle, June, 2005, **2006:**5.63

Motor vehicle, Nov., 2006, 2007:5.63

Motor vehicle repair shop fire, March, 2000, 2001:5.78

Multiple-occupancy/dwelling, Jan. 16, 1990, 1991:4.65

Office building, Sept., 2001, **2002:**5.82, **2002:**6.75 (*See also* WORLD TRADE CENTER, N. Y., N. Y.)

Store, Dec. 8, 1995, 1996:5.94

Store, June, 2001, **2002:**5.82

Store/apartment building fire, Aug. 22, 1994, 1995:5.66

Wharf/boardwalk, Feb. 12, 1997, 1998:5.53

Dumpster fire, 1995, 1996:5.26

Dwelling fire, 1999, 2000:5.22

Dwelling fire, Dec. 18, 1999, **2000:**6.93

Dwelling fire, Sept., 2005, 2006:6.69

Dwelling fire, 2008, **2009:**6.24

Electric generating plant fire, May, 1992, 1993:6.82

Electric generating plant fire, March, 1993, 1994:6.91

Fatal fires

Aircraft, March, 1992, 1993:6.88

Apartment building, 1996, **1997:**6.20

Apartment building, 1997, 1998:2.18

Apartment building, Dec. 18, 1998, fire investigation report, 1999:3.84

Apartment building, Dec. 23, 1998, fire investigation report, 1999:3.84

Apartment building, 1999, 2000:5.22

Apartment building, 2000, 2001:1.21, 2001:5.25

Apartment building, 2009, 2010:2.22

Apartment building, 2011, **2012:**2.15

Camp, New York, 2010, 2011:3.44

Dwelling, 1991, **1992:**5.25

Dwelling, 1992, 1993:2.22

Dwelling, 1993, 1994:1.31

Dwelling, 1994, 1995:4.37

Dwelling, 1998, 1999:2.23, 1999:3.48

Dwelling, 2002, 2003:3.16

Dwelling, 2006, 2007:1.20

Dwelling, 2008, 2009:4.17

Dwelling, 2009, 2010:4.25

Garage, 2004, **2005:**3.26

Group home, March 21, 2009, **2010:**1.58

Manufactured home, 2012, 2013:1.25

Subway token booth, 1995, **1996**:6.24

Hotel fire, Nov., 2008, 2009:6.79

Laboratory fire, 1995, **1996:**3.40

Manufacturing plant fire, 1992, 1993:6.27

Manufacturing plant fire, 1995, **1996:**5.23, **1996:**5.26

Manufacturing plant fire, Aug., 1995, 1996:6.65

Manufacturing plant fire, Nov., 1995, 1996:6.62

Manufacturing plant fire, July 29, 1997, 1998:6.87

Manufacturing plant fire, Jan. 19, 1999, 2000:6.85

Manufacturing plant fire, 2003, 2004:1.16

Manufacturing plant fire, Jan., 2008, 2009:6.76

Manufacturing plant fire, May, 2008, 2009:6.77

Manufacturing plant fire, 2009, 2010:1.26

Medical center complex fire, July 21, 1990, **1991:**6.78

Mill complex fire, Dec., 1993, 1994:6.98

Office building/apartment building fire, Aug., 1994, 1995:6.100

Office building fire, New York, 1996, 1997:6.22

Passenger terminal fire, Sept., 1991, 1992:6.76

Shopping mall fire, May, 1991, 1992:6.77

Storage complex fire, June 12, 1990, **1991:**6.74

Storage facility fire, March, 1995, 1996:6.69

Storage facility fire, July, 1995, 1996:6.68

Store fire, April, 1993, 1994:6.91

Store fire, 2001, **2002:**6.75

Store fire, Nov., 2005, 2006:6.69

Store fire, 2006, 2007:2.17

Store fire, Oct., 2012, 2013:6.56

Vacant building fire, 2000, 2001:5.26

Vacant building fire, May, 2007, **2008:**6.42

Warehouse fire, 1993, **1994:**1.30

Warehouse fire, 2002, **2003:**3.20

Warehouse fire, April, 2003, 2004:6.57

Wildland/urban interface fire, Aug., 1995, 1996:6.74

NEW YORK, N. Y. See also HAPPY LAND SOCIAL CLUB FIRE

Apartment building fatal fires, Dec., 1998, fire investigation report, 1999:3.84

Asbestos exposure response policy, 1992:1.42

Backdraft incident model, apartment building fire, March 28, 1994, 1995:6.85

Empire State Building aircraft crash and fire, July 28, 1945, 2013:4.88

Japan Airlines' performance-based design approach to Kennedy Airport air cargo facility, **2002:**5.62

Manufacturing plant fire, March 25, 1911, **1993:**3.72

New York-Presbyterian Hospital conducts self-examination of fire walls/barriers to improve fire safety, **2007:**5.76

NFPA 5000TM, *Building Construction and Safety Code* TM, adoption urged by fire service, tenants, others, **2005:**1.10

Statue of Liberty renovation incorporates fire/life safety improvements while maintaining historical components, **2012:**4.60

World Trade Center (See WORLD TRADE CENTER, N. Y., N. Y.)

NEW ZEALAND

Fire service operation and code development, 1996:3.43

NEWARK, N. J.

Fatal electrical generating plant fire, Dec. 25, 1992, 1993:2.44

NEWTON, MASSACHUSETTS

Metals processing plant fire, Oct. 25, 1993, 1994:6.63

NFPA. See also FIRE SAFETY EDUCATION; IN A FLASH COLUMNS; INS AND OUTS COLUMNS; ON THE AGENDA COLUMNS

100th anniversary supplements, **1995:**3.83, **1995:**4.68, **1995:**5.81

```
America Burning report, published in 1973, transformed fire and life safety but challenges
      remain, 2013:3.52
Americas' Fire Expo, 2002, 2002:3.26
Americas' Fire Expo, 2003, 2002:6.14, 2003:3.22
Association plans for its second century, 1996:3.57
Board of Directors chair Philip Stittleburg, interview with, 2012:5.18
Board of Directors new member profiles, 1995:3.122, 1996:3.108, 2006:4.12
Board of Directors view of future of fire protection, 1992:1.47
Cade, Gregory, named as new director, 2010:6.17
Center for High-Risk Outreach and Navajo Nation cooperate for fire safety, 1997:2.74
Center for High-Risk Outreach task force addresses fire safety needs of disabled, 2004:6.34
Certificate programs
  Certificate of Educational Achievement program, 2011:4.13
  Fire Inspector Certification program, 1991:3.57
  Fire Inspector I Certification Program introduced, 1998:3.116
  Online programs, 2002:6.27
  Professional certification programs now offered by NFPA, 2001:3.99
Commitment to Learn Not to Burn programs, 1993:4.4
Defining NFPA's mission for year 2000, 1994:5.4
Disability Access Review and Advisory Committee members, including Toby Olson, develop
      public outreach efforts and disabilities-related provisions in codes and standards,
      2010:4.60
Document coordination project questions answered, 2003:4.28
Emergency Evacuation Planning Guide for People with Disabilities covers accessibility of
      built environment and programs, 2007:3.102
Emergency Response Planning Workshop, 2002:5.14
EuroCon 2012 conference targets European risk market, 2012:5.16
Facebook page has 50,000 likes, Linked-In discussion groups have 50,000 members, 2013:5.15
Facebook page is hit with fans, 2010:5.27
Fall Education Conference consolidated with World Safety Conference & Exposition<sup>TM</sup>,
      2004:3.46
Fall Education Conference preview, 2000:5.89, 2001:5.89, 2002:4.12, 2002:5.14, 2003:4.20,
      2003:5.22, 2004:1.62, 2004:4.21, 2004:5.22
Fall meeting preview
  1991, 1991:5.79
  1992, 1992:5.73
  1993, 1993:5.75
  1994, 1994:5.77
  1995, 1995:5.122
  1997. 1997:5.85
  1998, 1998:5.92
  1999, 1999:5.97
Financial report (See also subentry: Treasurer's report)
  1992, 1993:5.42
  1993. 1994:4.47
  1994, 1995:3.115
```

1995, **1996:**3.120

Fire Analysis and Research Division's One-Stop Data Shop offers statistical and data services, **2004**:4.26

Fire and Life Safety Conference, 2010, preview, 2010:6.15, 6.58

Fire and Life Safety Conference, 2011, preview, **2011:5**.11

Fire Protection Handbook, 17th edition, overview, 1991:3.106

Fire Protection Handbook, 18th edition, overview, 1997:1.66

Fire Safety Exhibit, 1993, 1993:3.98

Fire service training seminars introduced at 1997 Fall Meeting, 1998:2.64

Fire Technology and Fire Journal publications, 1996:1.67

First NFPA public service announcement campaign, 1950, 1995:6.74

Foam Technical Committee report on foam and environment, 1995:3.67

Founders of NFPA, 1995:3.97

General manager Percy Bugbee's fire safety efforts, 1995:6.77

Google+ business page created by NFPA, **2012:**2.11

Government Affairs Director Nancy McNabb describes NFPA efforts in Washington, **2010**:1.12

International outreach by the organization, 1996:2.69

Jaeger, Tom, Board of Directors chair, interviewed on future of organization, 2010:5.17

Latin American fire safety, NFPA contribution to, 2005:2.50

Long-range plan developed by Board of Directors, 1993:3.4

Media and advocacy profile of organization increased, 2004:5.34

Member Advisory Council, 1993:2.78

Membership campaign, 1990-91, 1991:1.33

Metropolitan Fire Chiefs section proposed, 1996:4.33

Middle East representative Drew Azzara, interview with, 2013:4.12

Miller, George D., selected as new president, 1992:3.4

NFPA bylaws, proposed amendments to, 2004:6.15

NFPA/Fire Protection Research Foundation study to help emergency responders handle alternative fuel situations, **2009:**6.52

NFPA joins fight against smoking, 1994:4.4

NFPA Journal Centennial

Assembly occupancy fires covered by *Quarterly* and *NFPA Journal*, **2007:**2.96

Centennial celebration for NFPA Journal, 2007:1.72

Fire alarm industry, history of, **2007**:Fall.152

Fire protection engineers as authors, 2007:Fall.138

History of *Quarterly*, **2007:**Fall.10

"In a Flash" columns, examples of entries in, 2007:Fall.162

Large-loss fires covered in Quarterly, 2007:Fall.34

Looking Back: cover themes, 2007:Fall.176

NFPA Journal sets standard for fire and life safety discussions, 2007:Fall.96

People behind NFPA Journal, 2007:Fall.144

Quarterly becomes Fire Journal, 2007:Fall.58

Voice of NFPA members for a century, 2007:Fall.4

NFPA Journal launches app and digital editions, 2012:3.14

NFPA Update, e-mail newsletter, questions answered, 2003:6.24

NFPA World Headquarters opening, June 14, 1981, 2001:3.160

100th anniversary supplements, **1996:**1.65, **1996:**2.63

Online learning center provides cost-effective certificate courses, 2003:6.17

Organization must balance tradition, transition, 1994:6.4

Presidency changes hands, profiles of incoming/outgoing presidents, 2002:3.56

Qatar Civil Defense Agency hosts NFPA training seminars, 2012:1.11

Quarterly

Assembly occupancy fires covered by, **2007:**2.96

Fire protection engineers as authors, 2007:Fall.138

History of, **2007:**Fall.10

Large-loss fires covered in, 2007:Fall. 34

Quarterly becomes Fire Journal, 2007:Fall.58

Rail Transportation Systems, rail fires survey, 1991:1.101

Risk Watch® (See FIRE SAFETY EDUCATION)

Rolf H. Jensen Award nominees, call for, 2011:1.38

Rolf H. Jensen Award presented to North Charleston, South Carolina, for Smoke Alarm Assistance Program, **2007:**5.20

Rolf H. Jensen Award presented to Springfield, Massachusetts, for Multi-Language Public Education Fire Safety Initiative, **2013:**2.12, 4.36

Rolf H. Jensen Award presented to Tuscaloosa, Alabama, for smoke alarm installation and educational campaign, **2007**:4.72

Rolf H. Jensen Award used by College Station, Texas, to develop fire safety program for property managers, landlords, building owners, **2012:**4.42

Seminars offered at international locations at urging of Dutchman Tom de Nooij, **2010:**4.18 Service to members, editorial, **1991:**1.5

Summer intern Jonathan Hart recounts his experiences at NFPA, 2010:5.25

Technical Advisory Services answers technical questions on code requirements, 2003:5.30

Technical Committee develops EMS System Guidelines, 2002:4.54

Technical Committee on Assembly Occupancies strives to make places of assembly safer, **2003:**4.64

Technical Committee on Cultural Resources hosts workshop on standard changes, **2003:**1.32 Technical Committee on Vehicular Alternative Fuel Systems works to regulate alternative fuels, **2003:**2.42

Technical committees now working online, 2002:3.76

Treasurer's report

2001, **2002:**4.13

2002, 2003:4.18

2003, 2004:4.20

2004, **2005:**3.22

2005. **2006:**3.28

2006, 2007:3.36

2007, 2008:3.48

2008, 2009:3.60

2009, 2010:3.60

2010, **2011:**3.64

2011, 2012:3.58

2012, **2013:**3.50

U. S. fire departments, survey, **1993:**4.59

Webinars (Internet seminars) start in September, 2008, 2008:5.20

Website, redesign of, 2001:6.78, 2009:3.24

Website and online catalog improved based on consumer feedback, 2004:2.36

Websites promote 2014 *National Electrical Code*® and underscore the *NEC*'s relevance, **2013:**4.10

Websites provide free community outreach materials, 2009:4.34

Wildland Fire Management Section survey, 1992:1.74, 1992:2.66, 1992:5.96

Wildland Fire Operations Division works with international partners to address global wildfire problem, **2011:**6.22

Wildland Fire Protection Division manager Dave Nuss's vision for newly created division, **2010:**2.13

Zippo cigarette lighter "tricks" Web site shut down by NFPA, others, 2003:6.18

NFPA ANNUAL MEETINGS. See also NFPA CONFERENCE AND EXPO®; NFPA WORLD SAFETY CONFERENCE AND EXPOSITIONTM

NFPA ANNUAL MEETING, NINETY-FIFTH

Highlights of 1991 meeting, **1991:**4.73

Preview, 1991:2.83

NFPA ANNUAL MEETING, NINETY-SIXTH

Highlights of 1992 meeting, 1992:4.74

Preview, 1992:2.49

NFPA ANNUAL MEETING, NINETY-SEVENTH

Highlights of 1993 meeting, 1993:4.64

Preview, 1993:2.51

NFPA ANNUAL MEETING, NINETY-EIGHTH

Highlights of 1994 meeting, **1994:**4.71

Preview, 1994:2.71

NFPA ANNUAL MEETING, NINETY-NINTH

Highlights of 1995 meeting, **1995**:4.94

Preview, 95, **1995**:2.75

NFPA ANNUAL MEETING, ONE HUNDREDTH

Highlights of 1996 meeting, **1996:**4.90

Preview, **1996:**1.73, **1996:**2.73, **1996:**3.103

NFPA ANNUAL MEETING, ONE HUNDREDTH FIRST

Annual meeting documents, 1997:2.96

NFPA ANNUAL MEETING, ONE HUNDRED SECOND

Annual meeting documents, 1998:2.75

NFPA CODES AND STANDARDS. *See also* BUILDING CONSTRUCTION AND SAFETY CODE® (NFPA 5000®); IN COMPLIANCE COLUMNS; INS AND OUTS COLUMNS; LIFE SAFETY CODE®; NATIONAL ELECTRICAL CODE®; NATIONAL FIRE ALARM CODE®; ON THE AGENDA COLUMNS; UNIFORM FIRE CODE™; UP TO CODE COLUMNS

Alliances bring codes/standards to Spanish- and Portuguese-speaking world, 1996:5.36

Annex information in codes provides explanatory material, **2008:**1.30

Annual meeting documents, 1997, 1997:2.96

Annual meeting documents, 1998, 1998:2.75

Asian countries encouraged to recognize codes, standards, 1997:1.38

Assembly occupancy codes substantially changed after Station Nightclub fire., 2004:1.52

Authentication of downloadable PDF versions of codes and standards, 2013:1.11

Changes to codes and standards, 2008 World Safety Conference & Exposition® overview, **2008:**3.77

Changes to codes and standards, 2009 NFPA Conference & Expo overview, 2009:3.84

Changes to codes and standards, 2013 NFPA Conference & Expo overview, 2013:3.58

Changes to codes and standards procedure approved as part of meeting consolidation, **2004**:3.46

Chinese translations of codes will aid 2008 Olympic Games preparation, 2005:1.11

Code compliance effectiveness measurements developed by NFPA researchers, 2008:6.12, 24

Comprehensive Consensus CodesTM (C3) IAPMO/NFPA partnership creates new opportunities for cooperation, **2002:**6.56

Comprehensive Consensus CodesTM (C3) is first fully integrated ANSI-approved codes set for built environment, **2002:5**.70

Consensus process central to NFPA code development, 1996:1.42

Consensus requirement can slow adoption of innovations, 1996:2.29

Elevator recall and shut down requirements increase safety, 1997:5.64

Fall meeting documents, 1997, **1997:**5.85

Federal agencies slow to update regulatory references to NFPA standards, despite Technology Transfer Act, **1997:**6.29

Federal government turns to NFPA for new and updated codes and standards, 1999:1.26

Federal law requires agencies to use voluntary consensus standards, **1996:**6.40

Fire apparatus standards, development of, 1992:2.41

Fire Protection Research Foundation studies helps integrated latest technology into codes and standards, **2010**:3.46

Fire risk assessment improves safety level of codes and standards, 2007:2.24

Fire service role in code-making, 1996:1.27

Fire service staffing levels and response times addressed by proposed standards, 2000:6.51

General questions answered, 1996:3.44

Global standards, effect of national standards strategy on NFPA standards as, 2001:1.32

Global standards, NFPA standards often used as, 2001:4.54

Hazardous materials classification and containment issues, 1996:2.30

Hazardous materials response, 1992:1.45

Hazardous materials response standards 472, 473, development of, 1991:2.110

High-rise building requirements address fire risk concerns, 1997:6.84

High-rise building standards useful worldwide, 1996:2.36

High-rise buildings, standards for, **1992:**1.12

History of first standard, 1995:4.68

Hotels worldwide are safer by using NFPA best standards, **2001:**2.72

ICC and NFPA collaborate to develop one national model fire code, 1997:4.36

Importance of standards to fire service, 1992:3.36

Industrial painting process requirements customized by General Motors for its vehicle paint shops, **2001:**5.52

International Code Council and NFPA settle copyright infringement lawsuits, **2006:5**.19

International Code Council/NFPA collaboration on national fire code, 1996:5.46

International use of codes and standards, 1996:3.66

Kingdom Centre, Saudi Arabia, and Jin Mao Tower, China, used NFPA codes and standards in design and construction, **2002**:3.66

Listing of codes and standards being updated, **1996:**5.120

Maritime codes and standards aid marine industry life safety, 2004:4.38

Members encouraged to participate in code-making and adoption process, 2001:3.89

Model building codes, 1992:3.42

Myths and facts about NFPA codes and standards, 1999:3.90

Informed consensus's value in NFPA codes and standards development process, 2010:6.30

National Institute of Standards and Technology (NIST) offers free codes and standards,

2011:5.10

New regulations for codes and standards process, primer on, 2011:3.22

NFPA and ANSI support *United States Standards Strategy* (USSS), 2007:1.50

NFPA board chair Tom Jaeger talks about effect of health care changes on codes and standards, **2010:**5.17

NFPA Consensus Codes initiative embraces change to meet fire safety goal, 2000:4.38

NFPA discusses code changes with Brazilian fire officials in wake of Kiss nightclub fire, **2013:**2.9

NFPA health care summit examines how codes can address health care trends, 2010:5.26

NFPA partners with International Code Council in coalition to promote code adoption, **2012:**4.12

NFPA to develop *Consensus Codes* building code set, **2000:**3.66

Notice of Intent to Make a Motion (NITMAM) process explained, 2006:3.65

Olympics Winter Games, 2002, fire protection based on NFPA standards, 2002:1.44

Online review of all documents, 2005:5.18

OSHA standards NFPA codes/standards references need updating, 2000:1.28

Performance-based code development, 1995:2.16, 1996:1.46

Performance-based codes based on existing codes, 1995:3.24

Post 9/11 code changes follow NFPA's regular process, 2002:5.51

Premises security standard considered by NFPA, 2001:4.48

Provisional standard development process demonstrates standards organizations' ability to move quickly to safeguard lives and property, **2011:**7.42

Quality vs. cost struggle in applying NFPA codes and standards, 2002:4.34

Re-engineering the codes-and standards-making process, 1998:1.68

Regional fire code development committees provide input to NFPA, 1996:6.27

Relationship to international standards, 1994:1.36

Retail consumer fireworks facilities, NFPA develops standard to protect, 2001:3.94

ROPs and ROCs replaced by simpler, faster, easier to use standards-development process, **2013:**3.74

Social media's role in code development researched by Fire Protection Research Foundation, **2010**:5.36

Spanish language codes and standards, 1996:1.34, 1996:4.34

Sprinkler system requirements, history of, **2007:**6.112

Sprinkler system requirements to be consolidated in NFPA 13, 1998:1.26

Standards Council decisions on code appeals, including NFPA 99, 2009:5.17

Standards Council's history, 1995:5.89

Stevens, Richard E.: remembering architect of NFPA standards systems, 2008:2.104

Technical Advisory Services answers technical questions on code requirements, **2003:5**.30

Technology Transfer Act increases federal use of NFPA codes and standards, **2000**:4.32

Training in codes and standards provided by NFPA, 2000:5.92

- U. S. Appeals Court decision on copyright law leaves future of code writing unclear, 2003:1.34
- U. S. Homeland Security Department adopts 8 NFPA standards for first responder personal protective equipment, **2007:**3.18
- U. S. Homeland Security Department adopts 11 NFPA standards for emergency responders, **2007**:6.14
- U. S. Homeland Security Department is using NFPA codes and standards for consistent approach to standards, **2009:**4.46

Voluntary standards development process wins ANSI Audited Designator status, 1999:2.70

Volunteer participation in NFPA standards development process researched by Fire Protection Research Foundation, **2010**:2.19

Voting procedures for NFPA consensus standards, 1992:6.4

Water mist suppression standard under development, 1994:3.53

Website upgraded to ease access to online resources, 2009:6.19

Wildfire personnel qualifications, 1994:1.33

Wildland-urban interface managed through NFPA standards development, 2011:6.60

World Trade Organization standards criteria met by NFPA standards development process, **2002:**1.65

NFPA 1, Fire Prevention Code, adopted by California, 2003:5.24, 2003:6.38

NFPA 1, Fire Prevention Code, adopted by Hawaii, 2010:3.28

NFPA 1, Fire Prevention Code, development and use as national model code, 1996:1.38

NFPA 1, Fire Prevention Code, fall meeting review, 1999:5.97

NFPA 1, Fire Prevention Code, questions answered, 1998:2.22

NFPA 1, Fire Prevention Code, revision and adoption by communities, 1996:5.46

NFPA 1, Fire Prevention Code, use with existing regulations, **1996:**3.97

NFPA 1, Fire Prevention Code, users like open consensus codes/standards process, 1998:4.40

NFPA 1, *Uniform Fire Code*TM (See UNIFORM FIRE CODETM)

NFPA 3, Commissioning and Integrated Testing of Fire Protection and Life Safety Systems, being developed to address testing and start-up problems, **2009**:3.62

NFPA 3, Commissioning and Integrated Testing of Fire Protection and Life Safety Systems, colleges can demonstrate value of new code, **2011:**5.24

NFPA 10, Portable Fire Extinguishers, 1997 edition, 1997:5.85

NFPA 10, Portable Fire Extinguishers, 2007 edition, 2006:6.56

NFPA 10, Portable Fire Extinguishers, common questions answered, 1996:4.28

NFPA 10, Portable Fire Extinguishers, questions answered, 2001:6.26

NFPA 10, *Portable Fire Extinguishers*, revised to address issues regarding cylinder recharging, **2004:**1.60

NFPA 10, Portable Fire Extinguishers, revised to include water mist extinguishers, 2005:6.70

NFPA 11, Low Expansion Foam, questions answered, 2002:5.31

NFPA 11A, Medium- and High-Expansion Foam Systems, fall meeting review, 1998:5.92

NFPA 13, Installation of Sprinkler Systems, 1991 edition overview, 1991:5.12

NFPA 13, Installation of Sprinkler Systems, 1994, changes in, 1994:3.14

- NFPA 13, *Installation of Sprinkler Systems*, 1999 edition, consolidates sprinkler criteria from storage standards, **1999:**6.22
- NFPA 13, *Installation of Sprinkler Systems*, 1999 edition incorporates storage facility information, **2000:**4.26
- NFPA 13, *Installation of Sprinkler Systems*, 2002 edition, allows computerized water delivery predictions in dry-pipe systems, **2002**:4.24
- NFPA 13, Installation of Sprinkler Systems, 2002 edition, proposed revisions, 2002:2.35
- NFPA 13, *Installation of Sprinkler Systems*, 2002 edition, proposed revisions end standard sprinkler designation, **2002:**2.30
- NFPA 13, *Installation of Sprinkler Systems*, 2007 edition, includes rules to improve system/component identification, **2007**:2.26
- NFPA 13, Installation of Sprinkler Systems, 2007 edition, proposed changes, 2006:1.34
- NFPA 13, Installation of Sprinkler Systems, 2010 edition, changes approved for, 2009:4.11
- NFPA 13, Installation of Sprinkler Systems, 2010 edition, proposed changes, 2009:3.84
- NFPA 13, *Installation of Sprinkler Systems*, 2013 edition, clarifies when and how to run service piping under buildings, **2013:**6.26
- NFPA 13, Installation of Sprinkler Systems, 2013 edition, proposed changes, 2012:3.67
- NFPA 13, *Installation of Sprinkler Systems*, 2013 edition, requires removed sprinklers not be reinstalled, **2013:**5.30
- NFPA 13, *Installation of Sprinkler Systems*, all sprinkler requirements to be centralized in, **1998:**1.26
- NFPA 13, *Installation of Sprinkler Systems*, and NFPA 24 requirements are coordinated, **2002**:1.26
- NFPA 13, Installation of Sprinkler Systems, changes in 1996 edition, 1997:1.34
- NFPA 13, Installation of Sprinkler Systems, changes in 1999 edition, 1999:5.72
- NFPA 13, *Installation of Sprinkler Systems*, does not require sprinklers in all building spaces, **2001:**3.38
- NFPA 13, *Installation of Sprinkler Systems*, earthquake protection coordinated with ASCE/SEI 7, **2006:**5.36
- NFPA 13, Installation of Sprinkler Systems, earthquake protection important, 2013:3.36
- NFPA 13, *Installation of Sprinkler Systems*, earthquake protection provisions endorsed in International Building Code amendment cycle, **2007**:4.32
- NFPA 13, *Installation of Sprinkler Systems*, elevator and elevator machine room sprinkler protection requirements, **2011:**7.30
- NFPA 13, *Installation of Sprinkler Systems*, includes revised earthquake protection standards, **2000:**4.72
- NFPA 13, *Installation of Sprinkler Systems*, incorporates new products as appropriate, **2006**:4.30
- NFPA 13, *Installation of Sprinkler Systems*, integrating fire alarm systems with sprinkler systems, **2004:**2.32
- NFPA 13, Installation of Sprinkler Systems, looking back at earlier editions, 2004:2.96
- NFPA 13, Installation of Sprinkler Systems, maximum time limit for audible alarms, 2011:2.34
- NFPA 13, *Installation of Sprinkler Systems*, new edition to use SI or non-SI metric units, **2000:**2.24
- NFPA 13, *Installation of Sprinkler Systems*, NFPA technical committees respond to material incompatibility, leak concerns, **2013:**6.44

- NFPA 13, *Installation of Sprinkler Systems*, proposed sprinkler identification system, **1999:**2.28
- NFPA 13, Installation of Sprinkler Systems, questions answered, 1997:5.27
- NFPA 13, Installation of Sprinkler Systems, shelf storage protection, 2006:6.26
- NFPA 13, Installation of Sprinkler Systems, small room rule clarified, 2011:4.30
- NFPA 13, *Installation of Sprinkler Systems*, sprinkler caps and straps addressed by TIA, **2004**:3.28
- NFPA 13, Installation of Sprinkler Systems, sprinkler pipe pitch requirements, 2006:3.40
- NFPA 13, Installation of Sprinkler Systems, sprinkler system alarm requirements, 2000:5.26
- NFPA 13, *Installation of Sprinkler Systems*, TIA bans antifreeze use for new residential systems, **2010:**5.23, **2010:**6.11
- NFPA 13, *Installation of Sprinkler Systems*, TIA requires increased residential sprinkler density, **2004:**3.68
- NFPA 13, Installation of Sprinkler Systems, unprotected spaces requirements, 2011:7.50
- NFPA 13, *Installation of Sprinkler Systems*, committee considers exterior protection options, **2001:**4.26
- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 2010, changes approved for, **2009**:4.12
- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 2010, proposed changes, 2009:3.85
- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, questions answered, **2003:**1.24
- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, requires increased residential sprinkler density, **2004:**3.68
- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, TIA bans antifreeze use for new residential systems, **2010**:5.23, **2010**:6.11
- NFPA 13R, Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height, 20 years experience with code from 1989 through 2010 edition, **2010**:1.30
- NFPA 13R, Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height, 2010, proposed changes, **2009**:3.85
- NFPA 13R, Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height, requires increased density for residential sprinklers, 2004:3.68
- NFPA 13R, Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height, TIA bans antifreeze use for new residential systems, **2010:**5.23, **2010:**6.11
- NFPA 14, *Installation of Standpipe Systems*, has jurisdiction over hose-to-sprinkler system connections, **2007:**5.36
- NFPA 15, Water Spray Fixed Systems for Fire Protection, annual meeting review, 2001:2.81
- NFPA 17, *Automotive Ambulances*, new standard establishes EMS vehicle requirements, **2011**:4.24
- NFPA 18, Wetting Agents, to be reconsidered by committee, 2003:6.34
- NFPA 20, *Installation of Stationary Pumps for Fire Protection*, 2010, proposed changes, **2009:**3.85

- NFPA 20, *Installation of Stationary Pumps for Fire Protection*, 2013 edition, changes debated, **2012:**6.56
- NFPA 20, *Installation of Stationary Pumps for Fire Protection*, permits variable speed pumps, **2004:**5.26
- NFPA 20, Installation of Stationary Pumps for Fire Protection, proposed changes, 1999:2.80
- NFPA 24, *Private Fire Service Mains and Their Appurtenances*, and NFPA 13 requirements are coordinated, **2002:**1.26
- NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 1997 edition, 1997:5.85
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2008 edition, proposed changes, **2007:**3.70
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2011 edition, proposed color-coded tagging scheme for system inspections, **2010**:2.32
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2014 edition, proposed changes, **2013:**3.77
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, aids regular maintenance activities, **2001:**3.72
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, discussions address questions on scope of standard, **2013:**6.40
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, dry sprinkler sample-testing requirements, **2001**:2.26
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* focuses on changes in sprinkler inspection and maintenance, **2002:**3.40
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* inspections should focus on system or component functionality, **2013**:1.30
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 'obstruction inspection' and 'obstruction investigation' distinguished, **2010:**5.38
- NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, proposed changes, **2006:**3.83
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, questions answered, **2000:**6.22, **2008:**1.16
- NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, record retention requirements, **2006:**2:32
- NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, sprinkler system alarm requirements, **2000:**5.26
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, third-party administration programs for enforcement, **2012**:2.30
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, wet-pipe sprinkler system minimum temperature requirements, **2011:**1.30
- NFPA 30, *Flammable and Combustible Liquids Code*, palletized 55-gal drum storage requirements, **2000:**1.66
- NFPA 30, *Flammable and Combustible Liquids Code*, promotes safe dispensing and use of liquids outside of storage, **2011:**3.56
- NFPA 30, *Flammable and Combustible Liquids* requirements for service station design, **1998:**4.76

- NFPA 30A, *Automotive and Marine Service Station*, expanded to cover alternative fuels, **2000:**4.83
- NFPA 30A, Automotive and Marine Service Station requirements for station design, 1998:4.76
- NFPA 31, Installation of Oil-Burning Equipment, fall meeting review, 2000:5.91
- NFPA 51B, Fire Prevention During Welding, Cutting, and Other Hot Work, 1999 edition, change in scope of, **1999:**5.78
- NFPA 51B, Fire Prevention During Welding, Cutting, and Other Hot Work, 2009 edition, changes previewed, **2008:**6.14
- NFPA 51B, Fire Prevention During Welding, Cutting, and Other Hot Work, fall meeting review, 1998:5.92
- NFPA 52, Vehicular Gaseous Fuel Systems Code, 2010 changes, 2009:3.86
- NFPA 54, National Fuel Gas Code (See NATIONAL FUEL GAS CODE)
- NFPA 56 (PS), Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, development process, **2011:**7.42
- NFPA 58, Liquefied Petroleum Gas Code, 1997 edition, 1997:5.86
- NFPA 58, *Liquefied Petroleum Gas Code*, 2001 edition, revised to reflect federal safety rules, **2002:**1.32
- NFPA 58, Liquefied Petroleum Gas Code, fall meeting review, 2000:5.91
- NFPA 58, *Liquefied Petroleum Gas Code*, overfill prevention device requirement cuts gas grill fires, **2006:**3.19
- NFPA 58, *Liquefied Petroleum Gas Code*, proposed changes for indoor use of composite cylinders, **2007**:2.61
- NFPA 59A, *Production, Storage, and Handling of Liquefied Natural Gas (LNG)*, 2009 edition, proposed changes, **2008:**3.78
- NFPA 70 (See NATIONAL ELECTRICAL CODE®)
- NFPA 70E, Electrical Safety in the Workplace (See also ELECTRICAL SAFETY COLUMNS; 70E CONNECTION, THE)
 - "Qualified person" definition tightened, **2010:**3.79
- NFPA 70E, Electrical Safety in the Workplace, 2009 edition, proposed changes, 2008:3.79
- NFPA 70E, *Electrical Safety in the Workplace*, *NEC*®, OSHA work together for worker safety, **2005:**2.66
- NFPA 70E, Electrical Safety in the Workplace, PPE requirements, 2006:6.100
- NFPA 72® (See NATIONAL FIRE ALARM CODE®)
- NFPA 75, *Protection of Information Technology Equipment*, provides guidance for fire protection and business continuity, **2006:**4.64
- NFPA 76, Standard for the Fire Protection of Telecommunications Facilities, proposed to replace Recommended Practice, **2004:**5.46
- NFPA 76, Telecommunications Facilities, addresses fire requirements, 2000:4.62
- NFPA 80, Fire Doors and Fire Windows, fall meeting review, 1998:5.92
- NFPA 80, Fire Doors and Fire Windows, modifications to fire doors under, 1992:6.12
- NFPA 80, *Fire Doors and Fire Windows*, provides installation and maintenance guidelines, **2001:**3.79
- NFPA 80, Fire Doors and Fire Windows, requirements, 2008:1.29
- NFPA 80, Fire Doors and Other Opening Protectives, 2010 changes, 2009:3.86
- NFPA 80A, *Protection of Building from Exterior Fire Exposure*, addresses building-to-building fire exposure issues, **2001:**6.74

- NFPA 85, Boiler and Combustion Systems Hazards, aids industrial facility safety, 2001:5.33
- NFPA 85, Boiler and Combustion Systems Hazards, fall meeting review, 2000:5.91
- NFPA 90A, *Installation of Air Conditioning and Ventilating Systems*, questions answered, **1999:**3.52
- NFPA 91, Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids, fall meeting review, 1998:5.92
- NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Equipment, application to nursing home cooking operations, **2013:**5.36
- NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, 2001 edition, reflects industry advances, **2002:**1.60
- NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, 2007, proposed changes focus on technology advances, **2007:3.86**
- NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, common questions answered, **1997:**1.33
- NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, revision moves toward unified test standard, **2004:**3.74
- NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, use mandated by Life Safety Code® Section 9.2.3, **2009:**6.33
- NFPA 99, *Health Care Facilities*, 1999 edition, reflects new technology and health care delivery systems, **2000:**2.55
- NFPA 99, Health Care Facilities, 2010, not approved at 2009 Technical Session, 2009:4.11
- NFPA 99, *Health Care Facilities*, 2010, Technical Session decision upheld by Standards Council, **2009:**5.17
- NFPA 99, Health Care Facilities, 2010 changes, 2009:3.86
- NFPA 99, *Health Care Facilities*, 2010 edition to address high-tech procedures and decentralized provider system, **2009:**1.40
- NFPA 99, Health Care Facilities, 2012 changes, 2011:1.52, 3.68
- NFPA 99, *Health Care Facilities*, and NFPA 99C, *Gas and Vacuum Systems*, outline gas and vacuum system use requirements, **2001:**3.43
- NFPA 99, Health Care Facilities, common questions answered, 1996:6.28
- NFPA 99, Health Care Facilities, hyperbaric chamber requirements, 2000:2.27
- NFPA 99, *Health Care Facilities*, needs to be reinvented to reflect modern health care delivery system, **2007:5**.70
- NFPA 99, *Health Care Facilities*, operating room designation as wet locations debated, **2010:**1.56
- NFPA 99, Health Care Facilities, emergency power for hospitals, issues addressed, 2013:1.48
- NFPA 101® (See LIFE SAFETY CODE®)
- NFPA 101A, Alternative Approaches to Life Safety, 2010 changes, 2009:3.86
- NFPA 101A, Alternative Approaches to Life Safety, Fire Safety Evaluation System, 1995:6.22
- NFPA 101B, Means of Egress for Buildings and Structures, fall meeting review, 1998:5.92
- NFPA 101B, *Means of Egress for Buildings and Structures*, new document scheduled for 1998 NFPA Fall Meeting, **1998:**1.28
- NFPA 105, *Installation of Smoke-Control Doors*, recommended practice considered for upgrading to standard, **2001:**5.59
- NFPA 105, Smoke Door Assemblies and Other Opening Protectives, 2010 changes, 2009:3.87
- NFPA 110, Emergency and Standby Power Systems, 2010 changes, 2009:3.87

- NFPA 110, *Emergency and Standby Power Systems*, emergency power for hospitals, issues addressed, **2013:**1.48
- NFPA 110, *Emergency and Standby Power Systems*, emergency power source installation and operation requirements, **2013:**2.38
- NFPA 111, Stored Electrical Energy Emergency and Standby Power Systems, 2010 changes, **2009:**3.87
- NFPA 111, Stored Electrical Energy Emergency and Standby Power Systems, emergency power source installation and operation requirements, **2013:**2.38
- NFPA 130, Fixed Guide way Transit and Passenger Rail Systems, 2010 changes, 2009:3.88
- NFPA 130, Fixed Guideway Systems, 1997 edition, 1997:2.96
- NFPA 130, Fixed Guideway Transit and Passenger Rail Systems, 2000 edition includes passenger rail systems, **2000:**3.82
- NFPA 130, Fixed Guideway Transit and Passenger Rail Systems, provides fire protection guidance, **2003:**3.56
- NFPA 130, Fixed Guideway Transit Systems, fall meeting review, 1999:5.97
- NFPA 140, Motion Picture and Television Production Studio Soundstages, Approved Production Facilities, and Production Locations, Annoted Edition links users to expert commentary, **2013:**4.15
- NFPA 140, Motion Picture and Television Production Studio Soundstages and Approved Production Facilities, proposed changes, 1999:2.80
- NFPA 140, Motion Picture and Television Production Studio Soundstages and Approved Production Facilities, provides standards for production soundstages and facilities, **2004:**1.34
- NFPA 150, Fire and Life Safety in Animal Housing Facilities, 2013 edition, proposed changes, **2012:**3.72
- NFPA 150, Fire and Life Safety in Animal Housing Facilities, 2013 edition, sprinkler requirements, **2012:**5.13
- NFPA 150, *Fire and Life Safety in Animal Housing Facilities*, Technical Committee addresses human and animal life safety issues, **2005**:4.24
- NFPA 150, *Racetrack Stables*, proposed changes for human and animal fire and life safety; questions answered, **2004:**6.22
- NFPA 160, *Flame Effects Before An Audience*, used by amusement parks and resorts, **2002:**3.78
- NFPA 160, Flame Special Effects Before a Proximate Audience, 1997 edition, 1997:5.86
- NFPA 204M, Guide for Smoke and Heat Venting, 1997 edition, 1997:2.96
- NFPA 232, Protection of Records, defines vital records and how to protect them, 2002:2.53
- NFPA 232, Protection of Records, result of Burlington Building fire, Chicago, 1922, 2002:2.96
- NFPA 232A, Guide for Fire Protection for Archives and Records Centers may need updating for larger facilities, **1998:**2.68
- NFPA 266, Fire Characteristics of Upholstered Furniture Exposed to Flaming Ignition, 1997 edition, 1997:5.86
- NFPA 267, Fire Characteristics of Mattresses and Bedding Assemblies Exposed to Flaming Ignition Source, 1997 edition, 1997:5.86
- NFPA 286, Standard Methods of Fire Test for Evaluating Room Fire Growth Contribution of Wall and Ceiling Interior Finish, fall meeting review, **1999:**5.97

- NFPA 287, Standard Test Methods for Measurement of Flammability Materials in Cleanrooms Using a Fire Propagation Apparatus, fall meeting review, **2000:**5.93
- NFPA 288, Fire Tests of Floor Fire Door Assemblies Installed in Fire Resistance Rated Floor Systems, annual meeting review, 2001:2.81
- NFPA 295, Wildfire Control, current edition, 1998:2.44
- NFPA 299, Protection of Life and Property from Wildfire, 1997 edition, 1997:2.96
- NFPA 299, *Protection of Life and Property from Wildfires* considered for adoption by Ormond Beach, Florida, fire authorities, **1998:**6.99
- NFPA 301, Safety to Life from Fire on Merchant Vessels, annual meeting review, 2001:2.80
- NFPA 301, Safety to Life from Fire on Merchant Vessels, requirements for fire-safe design, operation, and maintenance, **2001:**1.28
- NFPA 302, Fire Protection for Pleasure and Commercial Motor Craft, 2004 edition, requires detectors on boats, **2004**:4.36
- NFPA 306, *Control of Gas Hazards on Vessels*, 1997 edition, represents 75 years of marine fire protection, **1997:**2.90
- NFPA 326, Safeguarding Tanks and Containers for Entry, Cleaning, or Repair covers entry, cleaning, repair work procedures, **1999:**6.76
- NFPA 400, Hazardous Materials Code, will aid safe storage of hazardous materials, 2009:3.80
- NFPA 402, Manual for Aircraft Rescue and Fire Fighting Operations, international use, 1996:3.50
- NFPA 403, Aircraft Rescue and Fire Fighting (ARFF) Services at Airports, questions answered, **2003:**3.30
- NFPA 405, Recommended Practice for the Recurring Proficiency Training of Aircraft Rescue and Fire Fighting addresses ARFF training issues, **1999:**3.78
- NFPA 414, *Airport Rescue and Fire Fighting Vehicles*, addresses changes in firefighting and agent vehicles, **2000:**1.96
- NFPA 415, Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways, fire alarm and communication requirements, **2004**:5.32
- NFPA 415, Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways, questions answered, 1998:4.24
- NFPA 418, Heliports, addresses hospital heliport safety issues, 2012:1.54
- NFPA 472, Competence of Responders to Hazardous Materials Emergencies, specifies training levels, **2001:**4.31
- NFPA 472, Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition, can be used to develop emergency responder training program, **2008:**2.54
- NFPA 484, Combustible Metals, 2012 edition proposed changes address dust issues, 2011:3.80
- NFPA 495, Explosive Materials, annual meeting review, 2001:2.81
- NFPA 497A, Classification of Class I Hazardous Locations for Electrical Installations in Chemical Process Areas, 1997 edition, 1997:2.97
- NFPA 501, Manufactured Housing, 2010 changes, 2009:3.88
- NFPA 501, Manufactured Housing, proposed changes, 1999:2.80
- NFPA 501, Manufactured Housing, updated to address new fire safety challenges, 2001:2.49
- NFPA 502, *Road Tunnels, Bridges, and Other Limited Access Highways*, 2008 edition, changes in, **2008:**4.65

- NFPA 502, *Road Tunnels, Bridges, and Other Limited Access Highways*, guides Boston's "Big Dig" Central Artery/Tunnel Project fire safety, **2003:**3.42
- NFPA 502, Road Tunnels, Bridges, and Other Limited Access Highways, provided fire protection guidance, 2003:3.56
- NFPA 600, Industrial Fire Brigades, fall meeting review, 1999:5.97
- NFPA 600, Private Fire Brigades, 1992:2.41
- NFPA 610, Safety at Motorsports Venues, adopted as recommended practice, 2004:6.73
- NFPA 610, Safety at Motorsports Venues, overview, 2013:4.45
- NFPA 610, Safety at Motorsports Venues, provides safety criteria for motorsports venues, **2002:**1.54
- NFPA 654, Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, 2011 edition, proposed changes, **2010**:2.54
- NFPA 654, Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, process hazard assessment requirement, **2010:**2.50
- NFPA 664, Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities, 2012 edition proposed changes address dust issues, **2011:**3.80
- NFPA 704, *Identification of the Hazards of Materials for Emergency Response*, labeling guidelines differ from new OSHA provisions, **2013:**3.70
- NFPA 720, Installation of Household Carbon Monoxide Warning Equipment in Dwelling Units, 2009 edition, proposed changes, **2008:**3.83
- NFPA 720, Recommended Practice for Installation of Household Carbon Monoxide Warning Equipment, 1997 edition, **1997:**5.86
- NFPA 720, Recommended Practice for Installation of Household Carbon Monoxide Warning Equipment questions answered, **1998:5**.20
- NFPA 720, Recommended Practices for the Installation of Household Carbon Monoxide Warning Equipment, provides installation guidelines, **1999:**1.68
- NFPA 730, Guide for Premises Security, and NFPA 731, Installation of Electronic Premises Security Systems, aid quality and reliability of security installations, **2005**:1.40
- NFPA 730, Guide for Premises Security, and NFPA 731, Installation of Electronic Premises Security Systems, bring first installation standard and design guide to industry, **2006**:6.48
- NFPA 730, Guide for Premises Security, and NFPA 731, Installation of Electronic Premises Security Systems, focus on contemporary issues, **2006:**1:10
- NFPA 750, *Water Mist Fire Protection Systems*, 2000 edition, to aid correct use, maintenance of evolving technology, **1999:**6.58
- NFPA 750, Water Mist Fire Protection Systems, fall meeting review, 1999:5.97
- NFPA 750, Water Mist Fire Protection Systems, questions answered, 1999:4.26
- NFPA 801, Fire Protection for Facilities Handling Radioactive Materials, 1997 edition, 1997:5.86
- NFPA 803, Fire Protection for Light Water Nuclear Power Plants, 1997 edition, 1997:5.88
- NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plant, applied to Bruce Power nuclear power plant, **2003:**3.90
- NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, fall meeting review, 2000:5.91
- NFPA 820, Fire Protection in Wastewater Treatment Plants, development of, 1991:1.44

- NFPA 850, Recommended Practice for Fire Protection of Electrical Generating Plants and High-Voltage Direct Converter Stations, fall meeting review, **1999:**5.97
- NFPA 900, Building Energy Code, questions answered, 2004:3.32
- NFPA 909, Protection of Cultural Resources, 1997 edition, 1997:2.97
- NFPA 909, Protection of Cultural Resources, 2010 changes, 2009:3.88
- NFPA 909, *Protection of Cultural Resources*, 2010 changes address sprinkler system corrosion issues, **2013:**5.16
- NFPA 909, Protection of Cultural Resources, questions answered, 2008:5.20
- NFPA 909, Protection of Cultural Resources Including Museums, Libraries, Places of Worship, and Historic Properties, provides fire protection guidance for historical, cultural properties, **2000:**6.28
- NFPA 914, Fire Protection in Historic Structures, questions answered, 2003:2.34
- NFPA 914, *Recommended Practice for Fire Protection in Historic Structures*, changes to standard, **2000:**6.75
- NFPA 914, Recommended Practice for Fire Protection in Historic Structures, fall meeting review, **2000:**5.91
- NFPA 921, Fire and Explosion Investigations, 1997 edition, 1997:5.88
- NFPA 921, Fire and Explosion Investigations, 2001 edition, changes in, 2001:4.58
- NFPA 921, Fire and Explosion Investigations, 2008 edition overview, 2008:3.84
- NFPA 921, Fire and Explosion Investigations, as authoritative treatise for litigation, 1996:2.40
- NFPA 921, Guide for Fire and Explosion Investigation, fall meeting review, 2000:5.93
- NFPA 921, *Guide for Fire and Explosion Investigations* provide guidelines for investigators, **2005:**3.64
- NFPA 1001, Fire Fighter Professional Qualifications, 1997 edition, 1997:2.99
- NFPA 1006, *Rescue Technician Professional Qualifications*, aids World Trade Center search and rescue effort, **2001:**6.41
- NFPA 1006, Rescue Technician Professional Qualifications, fall meeting review, 1999:5.97
- NFPA 1021, Fire Officer Professional Qualifications, 1997 edition, 1997:2.99
- NFPA 1033, Fire Investigator Professional Qualifications sets standards for investigators, **2005:**3.64
- NFPA 1051, Wildland Fire Fighter Professional Qualifications, approved, 1995:5.39
- NFPA 1123, Fireworks Displays, used by amusement parks and resorts, 2002:3.78
- NFPA 1123 and 1124, fireworks codes, questions answered, 1998:3.44
- NFPA 1124, Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles, used by amusement parks and resorts, **2002:**3.78
- NFPA 1126, Use of Pyrotechnics Before a Proximate Audience, fall meeting review, 2000:5.93
- NFPA 1126, *Use of Pyrotechnics Before a Proximate Audience*, used by amusement parks and resorts, **2002:**3.78
- NFPA 1141, Fire Protection in Planned Building Groups, 2008 edition, changes to reduce wildfire losses, **2007:**6.36
- NFPA 1144, *Protection of Life and Property from Wildfire*, 2008 edition, changes to reduce wildfire losses, **2007:**6.36
- NFPA 1144, *Protection of Life and Property from Wildfire*, provides home owners and developers with tools to improve fire and life safety, **2003:**2.46
- NFPA 1200, Organization, Operation, Deployment, and Evaluation of Public Fire Protection and Emergency Medical Services, fall meeting discussion, 1997:5.88

- NFPA 1221, Installation, Maintenance, and Use of Emergency Services Communications Systems, 2010 changes, **2009**:3.89
- NFPA 1221, Public Emergency Services Communications, 1999:2.80
- NFPA 1231, Water Supplies for Suburban and Rural Fire Fighting, current edition, 1998:2.44
- NFPA 1250, Recommended Practice in Emergency Service Organization Risk Management, fall meeting review, **1999:**5.97
- NFPA 1403, *Live Fire Training Evolutions*, has sections dealing with different types of training fires, **2003**:3.62
- NFPA 1500, Fire Department Occupational Safety and Health Program, 1997 edition, 1997:2.99, 4.74
- NFPA 1500, Fire Department Occupational Safety and Health Program, 2013 edition, proposed changes, **2012**:3.64
- NFPA 1500, Fire Department Occupational Safety and Health Program, minimum staffing issue, 1992:4.96
- NFPA 1500, Fire Department Occupational Safety and Health Program, questions answered, 1999:1.22
- NFPA 1500, Fire Department Occupational Safety and Health Program, risk vs. benefit in determining imminent life hazard, **2011:**7.32
- NFPA 1500, Fire Department Occupational Safety and Health Program, two-in/two-out rule exception, **2006:**6.30
- NFPA 1521, Fire Department Safety Officer, questions answered, 1999:1.22
- NFPA 1561, Emergency Services Incident Management System, provides IMS guidance, 2005:4.28
- NFPA 1582, Medical Requirements for Fire Fighters, 1997 edition, 1997:2.99
- NFPA 1582, *Medical Requirements for Fire Fighters*, 2013 edition, proposed changes, **2012**:3.64
- NFPA 1582, Medical Requirements for Fire Fighters, questions answered, 1999:1.22
- NFPA 1583, *Health-Related Fitness Programs for Fire Fighters*, fall meeting review, **1999:**5.97
- NFPA 1600, *Disaster/Emergency Management and Business Continuity Program*, adopted by Canadian Standards association as basis for its standard, **2008**:6.13
- NFPA 1600, Disaster/Emergency Management and Business Continuity Program, available as iPhone app, **2009:**5.21
- NFPA 1600, Disaster/Emergency Management and Business Continuity Program, designated by Department of Homeland Security as "Qualified Anti-Terrorism Technology," **2010:**1.19
- NFPA 1600, Disaster/Emergency Management and Business Continuity Program, implementation case study: Goodyear Global Business Continuity Program, **2008:**1.44
- NFPA 1600, Disaster/Emergency Management and Business Continuity Program, referenced in NEC® Article 708, **2008:**1.49
- NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, 2007 edition, available at no cost, **2007**:3.20
- NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, compliance workshops, **2004:**6.32
- NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, fall meeting review, **1999:**5.97

- NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, is important tool for response and recovery, **2002:**4.88
- NFPA 1600, Disaster/Emergency Management and Business Continuity Programs, proposed as National Preparedness Standard basis by 9/11 Commission, **2004:5**.58
- NFPA 1600, Disaster Management, 1995:4.49
- NFPA 1600, *National Preparedness Standard*, manual explains implementation of disaster/emergency management programs, **2008:**1.16
- NFPA 1670, Operations and Training for Technical Rescue Incidents, guides World Trade Center operations, 2001:6.41
- NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, 2010 changes, **2009:**3.89
- NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, annual meeting review, **2001:**2.80
- NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, fire service staffing levels validated by science and experience, 2011:2.36
- NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, frequently asked questions reviewed, 2008:4.16
- NFPA 1720, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, annual meeting review, 2001:2.80
- NFPA 1851, Selection, Care, and Maintenance of Structural Fire Fighting Protective Ensembles, fall meeting review, **2000:**5.91
- NFPA 1901, Automotive Fire Apparatus, proposed changes, 1999:2.80
- NFPA 1911, Service Tests of Pumps on Fire Department Apparatus, 1997 edition, 1997:2.99
- NFPA 1914, Testing Fire Department Aerial Devices, 1997 edition, 1997:2.99
- NFPA 1951, *Protective Ensemble for USAR Operations*, adopted by U. S. Homeland Security Department, **2004:**2.34
- NFPA 1971, *Protective Ensemble for Structural Fire Fighting*, 1997 edition, consolidates testing, performance requirements for structural fire fighting ensemble, **1997:**6.62
- NFPA 1981, Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services, adopted by U. S. Homeland Security Department, 2004:2.34
- NFPA 1982, *Personal Alert Safety Systems*, 2007 edition addresses performance issues, **2007:**2.15
- NFPA 1982, Personal Alert Safety Systems, sets PASS requirements, 1999:4.62
- NFPA 1991, *Vapor-Protective Ensembles for Hazardous Materials Emergencies*, adopted by U. S. Department of Homeland Security, **2004**:2.34
- NFPA 1991, Vapor-Protective Suits for Hazardous Chemical Emergencies, fall meeting review, 1999:5.97
- NFPA 1994, *Protective Ensembles for Chemical/Biological Terrorism Incidents*, adopted by U. S. Homeland Security Department, **2004:**2.34
- NFPA 1999, Protective Clothing for Emergency Medical Operations, 1997 edition, 1997:2.99

NFPA 1999, *Protective Clothing for Emergency Medical Operations*, adopted by U. S. Department of Homeland Security, **2004:**2.34

NFPA 2001, *Clean Agent Fire Extinguishing Systems*, 2007 edition, proposed changes, **2007**:4.42

NFPA 2001, *Clean Agent Fire Extinguishing Systems*, revised rules for safe human exposure, **2004:**5.60

NFPA 2112, Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire, annual meeting review, **2001:**2.81

NFPA 5000 (See BUILDING CONSTRUCTION AND SAFETY CODE® (NFPA 5000®)) NFPA CONFERENCE AND EXPO®

2009 congress

Code and standard decisions at, 2009:4.11

Preview, **2009:**1.65, 2.60, 3.67

2010 congress

Code and standard decisions at, 2010:4.17

Education sessions, 2010:3.88

"Green" sessions, **2010:**3.76

Preview, 2010:1.72, 2.63

2011 congress

Code and standard decisions at, **2011:**4.9

Education sessions, 2011:3.84

Preview, **2011:**1.70, 2.69, 3.71

2012 congress

Code and standard decisions at, 2012:4.11

Education sessions, **2013:**3.80

Preview, 2012:1.70, 2.63, 3.60

2013 congress

Code and standard decisions at, 2013:4.9

Education sessions, **2012:**3.76

Preview, **2013:**1.57, 2.65, 3.58

NFPA FIRE PROTECTION RESEARCH FOUNDATION. *See also* RESEARCH COLUMNS For 25 years, FPRF has provided fire and life-safety research to support NFPA mission,

2008:1.60

25th anniversary conference considers future challenges in fire protection, **2009:**2.50

25th anniversary conference covers fire protection/environmental interactions, 2009:6.28

Code compliance effectiveness measurements developed, 2008:6.12, 24

Cost-effective protection for solid shelf rack storage researched by, 2003:4.24

Emergency communications project researches strategies for buildings and building campuses, **2010:**5.53

Federal Emergency Management Agency awards major grant to FPRF, 2007:6.15

FPRF and Underwriters Laboratory complete Smoke Characterization Project, 2007:3.17

FPRF conducts fire detection seminar in Beijing, 2007:3.20

FPRF/NFPA research to help emergency responders handle alternative fuel situations, **2009:**6.52

Home fire sprinkler systems cost report released, 2008:6.14

Lithium-ion battery report released by FPRF, **2013:**4.12

```
National Electrical Grounding Research Project, 2006:2.22
```

Occupant notification in large spaces by direct visual signaling study supports NFPA 72 requirements, **2006:**3.22

President Kathleen Almand presents organizational goals, 2005:1.30

"Quantitative Evaluation of Fire and EMS Mobilization Times" report released, **2010:**4.14 Regulations' effect on community wildfire risk, study of, **2012:**2.42

Research Foundation and Center for High-Risk Outreach support NFPA mission, **1996:**2.65 Sprinkler system single-point *vs.* density/area curve design systems reviewed, **2007:**1.24

Suppression, Detection, and Signaling Research and Applications Technical Working Conference presentations and workshops, **2011:**1.17

Tunnel environments, international research report on performance of detection systems in, **2008:**4.62

Volunteer participation in NFPA standards development studied, **2010**:2.19

NFPA MEETINGS COLUMN, 2002:1.14, 2.16, 3.26, 4.12, 5.14, 6.14

NFPA WORLD SAFETY CONFERENCE AND EXPOSITION $^{\text{TM}}$. See also NFPA CONFERENCE AND EXPO $^{\otimes}$

1999 congress, preview, **1999:**2.80

2000 conference, exhibitors, **2000**:3.134

2000 congress, preview, **2000**:2.81, **2000**:3.125

2001 conference, exhibitors, **2001:**3.108

2001 congress, preview, **2000**:6.38, **2001**:2.79

2002 conference, exhibitors, 2002:2.16, 2002:3.118

2002 conference, preview, 2002:2.16, 2002:3.96

2003 conference, exhibitors, **2003**:3.104

2003 conference, preview, **2002**:6.14, **2003**:1.17, **2003**:2.26

2003 conference, to host World Organization of Building Officials' congress, 2003:3.38

2004 conference, exhibitors, 2004:3.96

2004 conference, preview, **2004**:1.18, **2004**:1.76, **2004**:2.20, **2004**:2.88, **2004**:3.26

2005 conference, exhibitors, **2005**:3.114

2005 conference, preview, **2005**:2.16, 3.97

2006 conference, preview, **2006:**3.50

2007 conference, exhibitors, **2007**:3.108

2007 conference, preview, **2007:**1.58, 2.78, 3.50

2008 conference, preview, **2008:**1.64, 2.74, 3.72

Fall Education Conference consolidated with World Safety Conference, 2004:3.46

New name and format for meeting, 1999:1.66

NIGHT CLUB FIRES. See CLUB FIRES

911 SERVICE

Callers give incorrect address, factor in fire spread, 1999:2.23, 1999:6.97

E911 fails in telephone exchange fire, **1995:**5.109

Federal Communications Commission (FCC) establishes 311 non-emergency number, **1997:**4.29

Fire alarm not automatically sent to 911, alarm delayed, 2002:1.21

NORSTROM, GAIL P.

Profile of, 1997:5.38

NORTH CAROLINA

Aircraft fire, June, 1994, 1995:6.110

Apartment building fire, 2002, 2003:1.15

Catastrophic fires

Aircraft, March 23, 1994, 1995:5.67

Aircraft, July 2, 1994, 1995:5.68

Aircraft, May, 2011, 2012:5.75

Aircraft, March, 2012, 2013:5.63

Apartment building, Sept. 5, 1993, **1994:**5.100

Board and care facility, March 17, 1996, **1997:**5.52

Camper trailer, Nov., 2004, 2005:5.61

Detention facility, May, 2002, 2003:5.75

Dwelling, Nov. 13, 1992, 1993:5.64

Dwelling, Feb. 28, 1994, 1995:5.58

Dwelling, Feb. 23, 1996, 1997:5.49

Dwelling, Feb. 17, 1997, 1998:5.49

Dwelling, April 1, 1998, 1999:5.52

Dwelling, Nov., 2000, 2001:5.75

Dwelling, June, 2002, 2003:5.75

Dwelling, March, 2006, 2007:5.58

Dwelling, Oct., 2007, 2008:5.58

Fraternity house, May 12, 1996, 1997:5.50

Manufactured home, April 8, 1999, 2000:5.58

Manufactured home, July, 2003, 2004:5.69

Manufacturing plant, Sept. 3, 1991, **1992:**1.29, **1992:**4.70

Manufacturing plant, Jan., 2003, **2004:**5.71

Manufacturing plant, June, 2009, **2010:**5.67

Motor vehicle, Aug., 2003, 2004:5.73

Recreational vehicle, Oct., 2003, 2004:5.73

Truck, July, 2009, **2010:**5.68

Condominium complex fire, Sept., 1993, **1994:**6.90

Detention facility fire, 1996, 1997:1.27

Dormitory fire, 2003, **2004:**1.15

Fatal fires

Aircraft, July, 1994, **1995:**6.110

Apartment building, 1994, **1995**:4.38, **1995**:5.34

Apartment building, 2005, 2006:6.22

Apartment building, 2011, **2012**:4.28

Board and care facility, March 17, 1996, fire investigation report, 1998:5.37

Camping trailer, 2006, **2007:**5.25

College building, May 12, 1996, 1996:5.61

Dwelling, 1994, 1995:1.34

Dwelling, 2000, 2001:1.22

Dwelling, 2001, 2002:2.25

Dwelling, 2004, **2005:**1.17

Dwelling, 2006, 2007:1.19

Dwelling, 2007, 2008:3.26, 4.22

Dwelling, 2008, **2009:**4.18

Dwelling, 2009, **2010:**1.20, 1.21, 4.24, 5.30, 32, 34

Dwelling, 2010, **2011:**1.22

Dwelling, 2011, 2012:1.14, 4.20, 27

Dwelling, 2012, 2013:2.22, 2013:6.20

Elder-care facility, 2008:3.32

Manufactured home, 1997, 1998:2.16

Manufactured home, 2004, 2005:6.20

Manufactured home, 2006, 2007:6.19

Manufactured home, 2009, **2010**:3.33

Manufactured home, 2010, 2011:2.22

Gibsonville learns value of fire protection systems and disaster planning after high school burns, **2009:**5.64

Hazardous waste facility explosion and fire, Environmental Quality Co., Apex, N. Carolina, Oct. 5, 2006; U.S. Chemical Safety and Hazard Investigation Board investigation, **2008:**6.68

Laboratory fire, 2011, **2012:**2.19

Manufacturing plant fire, 1989, 1991:3.29

Manufacturing plant fire, 1992, 1993:5.37

Manufacturing plant fire, May, 1992, 1993:6.84

Manufacturing plant fires, 1994, **1995**:2.32, **1995**:3.40

Manufacturing plant fires, Oct., 1994, 1995:6.103

Manufacturing plant fire, 1995, 1996:3.39, 1996:4.24

Manufacturing plant fire, 1996, 1997:3.33

Manufacturing plant fire, March 28, 1999, 2000:6.85

Manufacturing plant fire, 2000, 2001:6.22

Manufacturing plant fire, Dec., 2003, 2004:6.52

Manufacturing plant fire, Feb., 2007, 2008:6.42

Mill fire, 1991, **1992:**5.30

Mill fire, Aug., 1998, 1999:6.97

Nursing home fire, 2003, **2004:**5.14

Nursing home fire, 2005, **2006**:3.32

Office building fire, July, 2011, 2012:6.64

Sara Lee Knitwear Products "green" building, Winston-Salem, protected with performance based design, fire models, **2005**:2.40

School fire, 2004, 2005:1.14

Store fire, 1997, **1998:**6.22

Store fire, 1999, **2000:**3.32, **2000:**3.34

Theater fire, 2008, **2009:**1.17

Warehouse fire, 1992, 1993:2.21

Warehouse fire, April, 1992, **1993:**6.87

Warehouse fire, 1994, 1995:6.38

Warehouse fire, Aug. 12, 1997, **1998:**6.88

Warehouse fire, Sept.. 29, 1997, 1998:6.87

Warehouse fire, Oct., 1998, 1999:6.92

Warehouse fire, 2001, **2002**:3.36

Warehouse fire, 2008, 2009:5.27

Warehouse fire, April, 2009, 2010:6.67

NORTH CHARLESTON, SOUTH CAROLINA

City receives Jensen Award for Smoke Alarm Assistance Program, 2007:5.20

NORTH DAKOTA

Apartment building fire, 2010, 2011:7.14

Catastrophic dwelling fire, Oct. 7, 1994, 1995:5.53

Fatal fires

Apartment building, 1998, **1999:**2.23

Apartment building, 2009, 2010:6.24

Dwelling, 2011, **2012:**3.38

Manufactured home, 1995, 1996:2.23

Manufactured home, 2006, 2007:6.19

Office building fire, April 19, 1997, 1998:6.88

Restaurant fire, 1993, 1994:3.28

Stadium fire, 2011, **2012:**4.29

Storage facility fire, 1993, 1994:1.30

Warehouse fire, June 11, 1999, 2000:6.88

NORTHRIDGE, CALIF. EARTHQUAKE

Relief agencies pick up pieces, 1995:3.52

NOVA SCOTIA, CANADA

Munitions ship explosion, Dec. 6, 1917, **1992:**3.96

School fire, 1991, **1992:**5.30

NUCLEAR ENERGY PLANTS

Bruce Power, Ontario, Canada, applies fire protection advances and NFPA 805 to plant design, **2003:**3.90

NUCLEAR ENERGY PLANT FIRES

Alabama, May 23, 1996, 1997:6.58

Illinois, April, 1994, **1995:**6.102

Michigan, 2003, 2004:1.16

NUCLEAR FACILITIES

Fermi National Accelerator Laboratory fire protection challenges include tunnels, ultra-high voltage, antimatter; tour of facility, **2009:**3.74

NFPA codes help keep current/future nuclear facilities fire-safe, 2009:6.56

NUCLEAR FACILITY FIRES

Wildland fires kept from Los Alamos National Laboratory and Hanford Site nuclear waste-processing facility by aggressive suppression efforts, **2001**:5.64

NURSING HOMES. See also HEALTH CARE OCCUPANCIES

Cooking operations, application of NFPA 101®, *Life Safety Code*®, and NFPA 96, *Ventilation Control and Fire Protection of Commercial Cooking Equipment*, **2013:5**.36

History of fires in, **2007:**5.112

Life Safety Code® changes required by culture change toward more home-like, resident-centered care, **2010:**1.50

Medicare rules on smoke alarms, hand sanitizers, 2005:3.16

NFPA Standards Council issues sprinkler requirements, 2005:5.14

Pre-incident plans needed by nursing homes, 2004:1.22

Preparation, training, and sprinkler system limit Connecticut nursing home fire, 2010:1.66

Sprinkler system retrofit, Beverly Healthcare facility, Sargent, Nebraska, 2006:1.54

Sprinkler systems needed in all nursing homes, as called for by federal regulations, 2005:6.24

Sprinkler systems needed in all nursing homes, NFPA president says, 2004:1.12

Sprinkler systems reduce fire fatalities, 2006:1.50

Sprinkler systems to be required in all U.S. nursing homes, and the history of fires that led to this result. **2013:**1.62

NURSING HOME FIRES

Arizona, 1993, 1994:4.29

California, 2010, 2011:3.49

Catastrophic

Arkansas, March 13, 1990, 1991:4.67

Connecticut, Feb., 2003, 2004:5.70

Michigan, Nov. 10, 1999, 2000:5.59

Mississippi, Apr. 9, 1995, 1996:5.96

Tennessee, Sept., 2003, 2004:5.70

Connecticut, 1999, 2000:2.21

Connecticut, 2003, 2004:2.17

Connecticut, 2003, investigation report, 2005:5.14

Connecticut, Feb. 26, 2003, 2003:3.80

Connecticut, March 5, 2009, Regency House, Wallingford, 2010:1.66

Florida, 2002, **2003:**5.20

Florida, 2005, 2006:3.32

Illinois, 1997, 1998:1.24

Illinois, 2001, 2002:1.21

Illinois, 2006, **2007:**5.32

Illinois, 2010, **2011:**4.22

Illinois, 2011, **2012:**1.18

Katie Jane Memorial Home for the Aged, Warrenton, Missouri, fire, 1957, 2010:1.80

Knox County, Tenn., April 25, 1994, 1995:2.85

Maryland, 2005, 2006:4.28

Massachusetts, 1991, 1992:2.26

Massachusetts, Oct. 30, 1992, **1993:**5.49, **2012:**5.96

Massachusetts, 1994, 1995:5.33

Massachusetts, 1995, 1996:2.25

Massachusetts, 1997, 1998:5.17

Massachusetts, 2005, 2006:4.28

Massachusetts, 2008, 2009:2.26

Massachusetts, 2009, 2010:4.31

Michigan, 1990, 1991:4.25

Missouri, 2000, 2001:3.28

New Hampshire, 1991, **1992:**6.29

New Hampshire, 2002, 2003:1.12

North Carolina, 2003, 2004:5.14

North Carolina, 2005, 2006:3.32

North Carolina, 2007, 2008:3.32

Ohio, 2005, **2006:**4.28

Ohio, 2012, **2013:**5.20

Overview, 1982-1987, 1991:2.42

South Carolina, 2003, **2004:**4.19

Tennessee, 2010, **2011:**7.20

Utah, 1991, 1992:4.27

Virginia, 2012, 2013:6.23

Washington, 1995, 1996:4.24

NUSS, DAVE

NFPA Wildland Fire Protection Division manager's vision for newly created division, **2010**:2.13

O

OBSERVATORY FIRES

Catastrophic, Hawaii, Jan. 16, 1996, 1997:5.52, 6.59

OCCUPANCY CLASSIFICATIONS

Knowing building's occupancy is key to developing firefighting strategy and tactics, **2009:**3.50 Uses of, and alternatives to, **1997:**5.28

OCCUPANT LOAD

Calculating occupant load in assembly uses, 1999:3.54

Evaluating occupant load for egress, 1994:1.14

Myths of occupant load calculation, 1996:6.30

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Chemical Safety Board, NFPA, and OSHA collaborate on code changes to address dust safety issues, **2011**:3.80

Confined space incidents target of new regulation, 1994:5.80

Congress no longer exempts itself from OSHA laws, 1999:3.56

Fire safety review urged, 1992:1.34

NFPA partners with American Petroleum Institute and OSHA for petroleum and petrochemical industry safety, **2004**:4.32

OSHA, National Electrical Code®, NFPA 70E, Electrical Safety in the Workplace, work together for worker safety, **2005:**2.66

OSHA and NFPA 70E "qualified person" requirements, 2008:5.44

OSHA and NFPA 70E requirements for energized work go beyond mere convenience, **2010**:2.42

OSHA and NFPA working to reconcile NFPA 704, *Identification of the Hazards of Materials* for Emergency Response, labeling guidelines and OSHA's new labeling provisions, **2013:**3.70

OSHA standards NFPA codes/standards references need updating, 2000:1.28

OSHA's NFPA-based fire-safety standard for shipyards nears finalization, 2003:3.34

Proposed OSHA Subpart E updates reflect NFPA 101®, *Life Safety Code*®, 2009 edition, changes, **2010:**6.34

OFFICE BUILDINGS

Business continuity planning protects against service interruptions, 2000:1.54

Fire safety protection methods, **2000:**1.48

High rise building fires, study examines deployment and tactics for, 2012:2.32, 2012:3.46

```
NFPA 101, Life Safety Code, office building requirements, 2000:1.26 Office building structure fires, statistical summary of, 2002:2.20 Pre-incident planning for flow rates based on compartmentation, 2002:2.32 Rearranged space can affect egress, 2002:2.36 Renovations can lead to code-compliance problems, 1997:4.26
```

Statistics on U.S. fires, 2004-2008, 2011:1.74

Statistics on U.S. fires, 2007-2011, **2013:**5.72

OFFICE BUILDING FIRES. See also HIGH-RISE BUILDING FIRES

Alaska, 2000, **2001:**4.20

Business continuity management, United Airlines Operations Control Center fire, Elk Grove, Aug. 11, 1999, **2001:**1.55

California, 1991, 1992:1.23

California, March, 1991, **1992:**6.78

California, 1993, 1994:5.30

California, 1994, **1995:**5.35

California, 1995, 1996:1.21

California, Feb., 1998, **1999**:6.96

California, Feb. 20, 1999, 2000:6.92

California, 2002, 2003:6.16

California, 2004, 2005:6.16

California, 2012, 2013:4.18

Catastrophic

Florida, Dec., 2007, 2008:5.61

Georgia, Jan. 12, 1995, 1996:5.100

Illinois, Oct., 2003, 2004:5.71

Massachusetts, Feb., 2000, 2001:5.78

Minnesota, Dec., 2004, 2005:5.60

New York, Feb. 26, 1993 (World Trade Center), **1993:**6.91, **1994:**5.104, **1994:**6.90, **1995:**2.59

Oklahoma, Apr. 19, 1995, 1995:4.51, 1996:1.50, 1996:1.59, 1996:5.94, 1996:6.69

Pennsylvania, Feb. 23, 1991, 1992:4.71

Texas, March, 2007, 2008:5.61

Colorado, Sept. 28, 1992, **1993:**2.33

Connecticut, 2008, 2009:3.45

Florida, June, 2005, **2006**:6.74

Georgia, Aug., 1995, 1996:6.73

Georgia, Jan. 12, 1997, 1997:3.52

Georgia, 2000, **2001:**3.26

Georgia, 2003, 2004:1.14

Hawaii, July, 1993, 1994:6.91

Hawaii, April, 2000, 2001:6.63

Hawaii, 2012, 2013:4.24

Illinois, Aug. 11, 1999, **2000:**6.93

Illinois, 2000, **2001**:3.26

Illinois, 2008, **2009:**6.27

Indiana, July 16, 1996, **1997:**6.53

Iowa, 1992, **1993:**1.26

Iowa, April, 2003, 2004:6.53

Iowa, Jan., 2011, **2012:**6.65

Kentucky, 2001, 2002:6.75

Los Angeles, Calif., May 4, 1988, 1992:5.56

Los Angeles, Calif., Feb. 15, 1992, 1992:5.56

Massachusetts, 1991, 1992:5.28

Massachusetts, 1995, 1996:2.24

Massachusetts, 1999, 2000:4.16

Massachusetts, Feb., 2000, 2001:6.62

Michigan, Aug. 4, 1996, 1997:6.53

Michigan, Feb. 15, 1999, 2000:6.92

Michigan, June, 2000, 2001:6.63

Michigan, 2010, 2011:5.21

Minnesota, 2003, 2004:5.19

Modern office environments increase fire hazards, 1992:5.56

Nebraska, May, 2011, 2012:6.64

Nebraska, 2012, 2013:1.27

New Hampshire, 2012, 2013:3.31

New York, Aug., 1994, **1995:**6.100

New York, 1996, **1997:**6.22

New York, April, 2003, 2004:6.53

North Carolina, July, 2011, 2012:6.64

North Dakota, April 19, 1997, 1998:6.88

Ohio, May, 1998, 1999:6.92

Oklahoma, Jan., 1994, 1995:6.98

Pennsylvania, Feb., 1991, 1992:6.74

Pennsylvania, Feb. 23, 1991, 1991;5.64, 1992;5.56

Pennsylvania, June, 2003, **2004:**6.55

Pentagon (See PENTAGON ATTACK AND FIRE)

South Carolina, 2012, **2013:**3.30

Tennessee, May 23, 1999, 2000:6.92

Texas, Oct., 1994, **1995**:6.99

Texas, 2012, **2013:**5.28

Utah, 1990, **1991:**2.30

Utah, 1994, **1995:**3.40

Vermont, 2011, 2012:6.18

Virginia, 1991, 1992:2.25

Virginia, April, 1995, **1996:**6.63

Washington, 1993, 1994:2.29

Washington, 2012, **2013**:2.18

Washington, D. C., U. S. Treasury Building fire, June 26, 1996, 1996:6.52, 1997:6.53

West Virginia, March, 1995, 1996:6.70

Wisconsin, 1996, 1997:2.23

World Trade Center, New York (See WORLD TRADE CENTER, N. Y., N. Y.)

OHIO

Airport fire, Akron Airdock, May 18, 2006, 2008:4.56

Apartment building fire, 1993, **1994:**2.29

Apartment building fire, 1995, **1996:**5.24

Apartment building fire, 2000, 2001:2.22, 2001:4.24

Apartment building fire, 2004, 2005:2.20, 4.18

Apartment building fire, March, 2012, 2013:6.56

Apartment complex and boat fire, March, 1992, 1993:6.81

Barn fire, 2010, 2011:7.23

Bowling alley fire, 2006, 2007:4.24

Building-under-construction fire, March, 1994, 1995:6.110

Catastrophic fires

Apartment building, Dec. 11, 1993, 1994:5.102

Apartment building, Jan. 12, 1994, 1995:5.58

Apartment building, Sept., 2004, **2005:**5.56

Apartment building, Oct., 2004, 2005:5.56

Apartment building, Dec., 2008, 2009:5.82

Automobile repair shop, Nov. 11, 1991, **1992:**4.70

Boat, May 9, 1993, 1994:5.106

Camping trailer, Nov. 29, 1997, 1998:5.56

Dwelling, Oct. 21, 1990, 1991:4.66

Dwelling, Dec. 25, 1990, 1991:4.66

Dwelling, Dec. 15, 1991, 1992:4.69

Dwelling, Jan. 26, 1992, **1993:**5.62

Dwelling, Feb. 14, 1993, 1994:5.98

Dwelling, Dec. 22, 1993, 1994:5.96

Dwelling, Jan. 26, 1994, 1995:5.56

Dwelling, Dec. 28, 1995, 1996:5.91

Dwelling, March, 2000, **2001:**5.76

Dwelling, Jan., 2002, **2003:**5.75

Dwelling, Dec., 2003, 2004:5.68

Dwelling, May, 2005, 2006:5.60

Dwelling, Dec., 2006, 2007:5.59

Dwelling, Sept., 2007, 2008:5.60

Dwelling, Jan., 2008, 2009:5.80

Dwelling, March, 2008, 2009:5.79

Dwelling, Oct., 2010, 2011:5.76

Dwelling, June, 2011, **2012:**5.70

Dwelling, Nov., 2012, 2013:5.61

Limited care facility, Dec. 5, 1990, **1991:**4.69

Manufactured home, April, 2008, 2009:5.82

Manufactured home, Nov. 17, 1996, 1997:5.51

Manufacturing plant explosion, April 20, 1994, 1995:5.64

Manufacturing plant, May 27, 1994, 1995:5.66

Oil well, Oct. 10, 1991, 1992:4.71

Rooming house, Feb. 18, 1991, 1992:4.67

Rooming house, April, 2003, 2004:5.69

```
Rooming house, Nov., 2009, 2010:5.67
  Store, July 3, 1996, 1997:5.52
  Tractor, July, 2001, 2002:5.82
  Truck, Dec. 4, 1992, 1993:5.68
Church fire, 1994, 1995:3.39
Church fire, 1999, 2000:3.38
Cleveland Clinic fire, Cleveland, 1929, led to hazardous materials storage standards, 2012:1.80
Club fire, 2005, 2006:1.22
College building fire, 2002, 2003:6.14
College building fire, Feb., 2009, 2010:6.69
College building fire, 2011, 2012:1.23
Columbus fire service addresses ason threat of foreclosure-swelled inventory of vacant homes,
      2009:5.44
Crown Coliseum, Cincinnati, updates fire protection system, 1998:3.120
Detention facility fire, April 21, 1930, 1994:5.54, 1995:5.84, 2011:5.96
Dwelling fire, 2004, 2005:4.16
Electrical substation fire, Nov., 2005, 2006:6.75
Fatal fires
  Aircraft, Jan., 1994, 1995:6.110
  Apartment building, 1996, 1997:4.20
  Apartment building, 2000, 2001:2.22
  Apartment building, 2005, 2006:6.18
  Apartment building, 2006, 2007:3.34
  Apartment building, 2007, 2008:6.17
  Apartment building, 2008, 2009:1.22, 3.35
  Apartment building, 2009, 2010:6.21
  Apartment building, 2010, 2011:4.15, 16
  Apartment building, 2011, 2012:6.22
  Camping trailer, 1996, 1997:6.20
  College building, 1996, 1997:6.21
  Dwelling, 1992, 1993:2.22, 1993:5.36, 1993:6.28
  Dwelling, 1993, 1994:1.31, 1994:5.28
  Dwelling, 1996, 1997:5.21, 6.19
  Dwelling, 1999, 2000:2.22, 2000:6.16
  Dwelling, 2000, 2001:2.23
  Dwelling, 2001, 2002:2.22
  Dwelling, 2002, 2003:3.18
  Dwelling, 2004, 2005:1.16
  Dwelling, 2005, 2006:2.28, 6.21
  Dwelling, 2006, 2007:3.26, 4.24, 27, 5.25, 28
  Dwelling, 2007, 2008:1.21
  Dwelling, 2008, 2009:1.20, 3.42, 5.24
  Dwelling, 2009, 2010:3.33, 4.25, 6.20
  Dwelling, 2011, 2012:1.14, 6.24
  Dwelling, 2012, 2013:1.20, 2013:3.24, 2013:4.21
  Fireworks explosion, 1989, 1991:1.31
```

Garage, residential, 2010, **2011:**4.14

Hospital, 1994, 1995:2.31

Manufacturing plant, Aug., 2003, 2004:6.53

Nursing home, 2012, **2013:**5.20

Rooming house, 2000, **2001**:6.21

Gas distribution facility fire, 1996, 1997:4.20

Gas line fire, 2002, **2003:**2.20

Grandstand fire, 2000, 2001:5.22

Hospital fire, 2001, 2002:5.21

Hotel fire, 1996, **1997**:6.19

Lumber store fire, 1989, **1991:**1.28

Manufactured home fire, 1997, **1998:**3.38

Manufacturing plant fire, 1990, 1991:3.31

Manufacturing plant fire, July 19, 1990, 1991:6.74

Manufacturing plant fire, June, 1992, 1993:6.84

Manufacturing plant fire, 1993, 1994:5.29

Manufacturing plant fire, 1994, 1995:6.37

Manufacturing plant fires, Oct., 1994, 1995:6.103, 104

Manufacturing plant fire, Jan., 1995, 1996:6.65

Manufacturing plant fire, March, 1995, 1996:6.63

Manufacturing plant fire, 1996, 1997:5.24

Manufacturing plant fire, June 16, 1996, 1997:6.52

Manufacturing plant fire, Sept. 13, 1996, 1997:6.52

Manufacturing plant fire, Oct. 12, 1996, 1997:6.49

Manufacturing plant fire, Nov. 1, 1996, **1997:**6.49

Manufacturing plant fire, Aug. 14, 1997, 1998:6.84

Manufacturing plant fire, Feb., 1998, **1999:**6.91

Manufacturing plant fire, Oct., 1998, 1999:6.91

Manufacturing plant fire, 1999, 2000:5.24

Manufacturing plant fire, June 16, 1999, **2000**:6.85

Manufacturing plant fire, Oct. 16, 1999, 2000:6.88

Manufacturing plant fire, 2000, 2001:2.24

Manufacturing plant fire, 2001, **2002:**5.21, **2002:**6.75

Manufacturing plant fire, Aug., 2003, 2004:6.52

Manufacturing plant fire, March, 2005, 2006:6.70

Manufacturing plant fire, Dec., 2011, 2012:6.63

Manufacturing plant fire, 2012, 2013:3.29

Manufacturing plant fire, Oct., 2012, 2013:6.52

Motor vehicle fire, 1998, **1999:**6.20

Nursing home fire, 2005, **2006:**4.28

Restaurant fire, 1995, **1996:**3.35

Restaurant fire, 1997, 1998:6.21

Restaurant fire, 2010, 2011:5.14

Riverfront Stadium, Cincinnati, concert disaster, Dec. 3, 1979, 2002:1.80

Sawmill fire, March, 2004, 2005:6.46

School fire, Collinswood, March 4, 1908, **2008**:5.64

```
Service station fire, 2004, 2005:5.32
  Storage facility and office building fire, May, 1998, 1999:6.92
  Storage facility fire, 1993, 1994:2.27
  Storage facility fire, July, 2005, 2006:6.73
  Storage facility fire, Sept., 2005, 2006:6.75
  Storage facility fire, May, 2009, 2010:6.67
  Store fire, Nov. 13, 1996, 1997:6.54
  Store fire, 1998, 1999:4.22, 1999:6.20
  Store fire, 2002, 2003:2.25, 2003:5.20
  Store fire, 2010, 2011:4.21
  Warehouse fire, Feb., 2000, 2001:6.62
  Warehouse fire, 2004, 2005:1.20
OHIO STATE PENITENTIARY FIRE
  Columbus, Ohio, April 21, 1930, 1994:5.54, 1995:5.84, 2011:5.96
OIL
  Accumulated oil ignited by burning polystyrene, 2004:5.20
  Air compressor oil ignited by unit malfunction, 2010:3.43
  Contaminated waste oil ignited by smoking materials, 1996:3.40
  Cooking oil in deep fat fryer ignites, 2006:3.30, 2009:2.27, 2011:5.14
  Cooking oil in hood, duct ignited by grill, 1996:5.25
  Cooking oil overheats, ignites, 1992:4.26, 1993:1.27, 4.25, 5.35, 36, 1995:5.58, 1996:1.22,
          6.22, 1998: 5.15, 49, 6.23, 2000: 2.22, 6.16, 17, 2003: 2.20, 5.75, 2004: 1.15, 3.18, 3.20,
          2006:1.18, 2.28, 5.34, 6.22, 2008:4.22, 6.19, 2009:1.19, 2.23, 2011:3.45, 4.16, 5.16,
          2012:5.74, 6.27
  Coolant oil ignited by hot transformers, 2007:6.83
  Coolant oil ignited by sparks, 2006:6.70
  Coolant oil ignites, fuels fire, 1994:6.94
  Crude oil
     Separation storage tank explosion, 1999:5.55
     Sprayed onto furnace, ignites, 1996:6.63
     Vapors ignited by cigarette lighter, 1991:4.69, 1994:5.104
     Vapors ignited by open flame, 1991:4.68
     Vapors ignited by welding, 2007:5.61
     Vapors ignited in catastrophic fire, 1996:5.97
  Cutting oil, ignited by hot metal, 1998:6.84
  Electrical turbine start-up causes explosion, oil fire, 2003:6.80
  Finishing oil ignited by friction sparks, 1993:6.82
  Floor saturated with, increased fire spread, 1994:6.98
  Hot pressurized oil atomizes, ignites oil residue, 1996:6.62
  Hydraulic oil
     Leak, ignited by electric motor, 1997:3.33
     Leaking, ignited by hot steam pipe, 1999:3.44
     Natural gas burners, ignited by, 1992:1.29, 1992:4.70
     Overheated transformer, ignited by, 1996:5.26
     Residue factor in fire spread, 1992:3.32
     Sprayed onto furnace ignites gas, 1994:3.29
```

Sprayed onto space heater, ignites, 1995:6.102

Leaking oil atomized, ignites, possible fire cause, **1995**:6.103

Leaking oil ignited by furnace, 1997:6.49

Leaking oil ignited in vehicle collision, **2006:**5.63

Lubricating oil

Deposits ignited by molten glass, 1993:6.27

Fire spread, ignited by, 1993:6.85

Leaks, fuels fire, **1994:**6.92

Power plant fire, ignited in, 1995:6.100

Spray from failed pipe ignites and explodes, 1993:2.44, 1993:5.67, 1993:6.82

Welder ignites lubricant, stored lubricant fuels fire, 2011:3.46

Mineral oil, released from tank, ignited by heating pipe, 2010:3.44

Mineral oil, released from transformer, ignites, 2004:6.56, 57

Mineral oil, released from transformer, ignites, confined to diked area, 1999:4.22

Mineral oil barrels ignite and rupture in manufacturing plant fire, 2012:6.62

No. 2 fuel oil, leaked, ignites, **1995:**1.33

No. 6 fuel oil

Fire fueled by, **1993:**6.86

Leaked, ignites, 1993:6.82

From ruptured line ignited by burners, 1996:6.72

Oil lamp, possible cause of dwelling fire, 2004:1.15

Oil lamp fuel, involved in catastrophic manufactured home fire, 2009:5.81

Oil on compressor ignited by heat, **1995:**3.40

Oil on electrical cord ignited by spark, **1993:**5.37

Oily mops in dryer ignited by heat, 2001:5.26

Overheated oil in transformer explodes, ignites, 1994:6.92

Rags soaked with linseed oil ignite, 1993:6.79

Rags soaked with oil-based stain ignite, 2012:4.23, 2013:4.24

Rags soaked with oil ignite, 1998:6.21, 2007:6.22, 2008:5.26

Spills, chemical countermeasures to control, 1999:2.74

Superheated oil and water cause steam explosion, catastrophic fire, 1992:4.70

Vapors ignited by air compressor, 2013:6.52

Vegetable oil in supply drum ignited in food plant fire, **2007:6.77**

OIL DEPOT FIRES

Buncefield Oil Depot, Hertfordshire, England, Dec. 11, 2005, 2006:3.86

OIL DRILLING FIELDS

Catastrophic tank fire, Tennessee, July 1, 1999, 2000:5.60

OIL PIPELINES

Grinding operation ignites vapors, Louisiana, 2009, 2010:2.28

Trans-Alaska pipeline officials face fire protection challenges, 2000:4.96

OIL-PROCESSING FACILITIES. See also REFINERIES, OIL

NFPA partners with American Petroleum Institute and OSHA for petroleum and petrochemical industry safety, **2004:**4.32

Petroleum products manufacturing and distribution facility fire, 1997:2.24

Petroleum recycling plant fire, 2005:6.46

Suncor Energy Inc. oil sands operation addresses fire prevention challenges, 2004:6.36

At Suncor Energy Inc. oil sands operation, teamwork helps fight dangerous cold weather fire, **2005**:6.58

Total-flooding and local-application water-mist systems protect ConocoPhillips Alaska Alpine project, **2003:**6.52

OIL REFINERIES. See REFINERIES, OIL

OIL RIGS, OFFSHORE

NFPA and oil industry work to resolve dueling federal fire standards, 2001:5.46

NFPA partners with American Petroleum Institute and OSHA for petroleum and petrochemical industry safety, **2004**:4.32

Piper Alpha North Sea oil rig explosion and fire, July 6, 1988, 2010:4.88, 2013:5.80

OIL TANK STORAGE FACILITIES. See OIL DEPOT FIRES; TANK STORAGE FACILITIES OIL WELL FIRES

Catastrophic, Louisiana, June 16, 1997, **1998:**5.53

Catastrophic, Ohio, Oct. 10, 1991, 1992:4.71

OKLAHOMA

Apartment building fire, 2007, 2008:3.28

Apartment building fire, 2009, **2010:**5.31

Apartment building-under-construction fire, June, 1998, 1999:6.97

Building-under-construction fire, Oct., 2009, 2010:6.65

Catastrophic fires

Aircraft, Aug. 21, 1990, **1991:**4.70

Aircraft, Dec. 21, 1995, 1996:5.99

Apartment building, Feb. 5, 1997, 1998:5.49

Dwelling, Feb. 1, 1991, **1992:**4.68

Dwelling, Aug. 31, 1991, **1992:**4.69

Dwelling, Sept. 21, 1993, **1994:**5.100

Dwelling, Nov. 20, 1994, 1995:5.62

Dwelling, Sept., 2004, 2005:5.56

Dwelling, March, 2005, 2006:5.60

Dwelling, July, 2006, 2007:5.57

Dwelling, Aug., 2010, **2011:**5.73

Dwelling, Dec., 2012, 2013:5.61

Manufactured home, Apr. 20, 1996, 1997:5.49

Office building, Apr. 19, 1995, 1995;4.51, 1996;1.50, 1996;1.59, 1996;5.94, 1996;6.69

Storage tank facility, May 16, 1990, **1991:**4.69

Tank storage facilities, Apr. 23, 1995, 1996:5.97

Courthouse fire, 2012, **2013**:2.25

Fatal fires

Apartment complex, 2006, **2007:**1.19

Dwelling, 1991, 1992:6.28

Dwelling, 1996, 1997:3.29

Dwelling, 1997, 1998:3.38

Dwelling, 2001, **2002:**5.20

Dwelling, 2002, 2003:1.16

Dwelling, 2010, 2011:1.21, 2.25, 3.34

Dwelling, 2011, 2012:1.16

Grass/warehouse fire, 1990, 1991:4.26

Manufacturing plant fire, 1992, 1993:5.37

Manufacturing plant fire, 2004, 2005:6.22

Manufacturing plant fire, 2012, 2013:5.28

Motor vehicle fire, 1996, 1997:3.33

Office building fire, June, 1994, 1995:6.98

Restaurant fire, 2003, 2004:3.22

OKLAHOMA CITY, OKLA.

Alfred P. Murrah Federal Building bombing and fire, April 19, 1995, **1995**:4.51, **1996**:5.94, **1996**:6.69

Alfred P. Murrah Federal Building fire, Apr. 19, 1995, NFPA documentation of response, **1996:**1.50

USAR task force response to Murrah Federal Building bombing, **1996:**1.59

OLIVER, DAVID

Profile of. **1997:**4.35

OLSON, TOBY

Disabilities policy advocate works with other NFPA Disability Access Review and Advisory Committee to develop public outreach and disabilities-related provisions in NFPA codes and standards, **2010**:4.60

OLYMPIC GAMES

Summer Games, Beijing, 2008, Bird's Nest venue incorporates performance-based design to provide fire and earthquake safety, **2008**:2.44

Summer Games, Beijing, 2008, NFPA codes to be translated into Chinese to aid in site preparation, **2005**:1.11

Summer Games, Beijing, 2008, Water Cube venue balances design and safety, 2008:2.51

Summer Games, Sydney, Australia, 2000, safety and security for, 2002:1.48

Winter Games, 2002, fire protection based on NFPA standards, 2002:1.44

ON THE AGENDA COLUMNS

Facility Safety Compliance Conference to be held in Charlotte, North Carolina, 2004:6.23

NFPA Fall Education Conference, 2003, 2003:5.22

NFPA Fall Education Conference, 2004, 2004:5.22

NFPA offers electrical systems and health care facility life safety seminars; World Safety Conference and ExpositionTM information, **2004:**1.18

NFPA offers seminars on various codes; World Safety Conference and Exposition™ information, **2004:**3.26

NFPA online learning center provides cost-effective certificate courses, 2003:6.17

NFPA training and professional seminars; World Safety Conference and ExpositionTM information, **2004**:2.20

NFPA training and professional seminars resume; Fall Education Conference, **2004**:4.21 ONG, Y. S.

Profile of, **1997:**6.36

ONTARIO. CANADA

Aircraft crash fire, runway overshoot, Toronto Pearson International Airport, Aug. 2, 2005, **2005**:6.34

Brockville uses *Risk Watch* to promote child safety, **2000:**1.82

Bruce Power applies fire protection advances and NFPA 805 to nuclear power plant design, **2003:**3.90

Fatal board and care facility fire, March 21, 1995, fire investigation report, 1998:5.38

Firefighters accreditation to be offered for training using NFPA qualification standards,

2013:6.13

Hamilton Emergency Services consulted with high-risk populations to improve fire prevention efforts, **2010**:6.19

Hospital fire, 1992, 1993:2.20

Manufacturing plant/laboratory fire, 1992, 1993:6.27

Motor vehicle repair shop fire, 1989, 1991:1.28

Residential facility for disabled, fire, 2005, 2006:2.28

Store fire, 2001, 2002:4.18

Tire fire, 1990, **1991:**1.50

Vaughn, Ontario, fire service smoke alarm education program publicized on community access television, **2007**:4.40

OPEN FLAME DEVICES

Assembly occupancies, use in, 2003:6.26

Child playing with charcoal lighter ignites fatal fire, 1998:4.19

Child playing with grill lighter ignites fatal fire, 1999:3.46

Children playing with grill lighter ignite gasoline from ruptured pipeline, 2000:6.96

Children use gas grill/pilot lighter to ignite cushions in store fire, 1998:4.49

Incendiary fire ignited by, 1998:5.45, 46, 1998:6.22, 1999:5.54, 2002:3.36, 2003:6.16,

2007:3.32, **2008:**3.32, **2011:**1.27, 7.59, **2012:**6.64

OPENINGS. See also STAIRWAYS

Fire spread through, **1994:**6.93, **1995:**5.33, **1995:**6.104, **1998:**6.86, 92

In fire wall, fire spread through, 1998:6.92

Firefighter injuries related to, 1999:6.56

NFPA 80, Fire Doors and Other Opening Protectives, 2010 changes, 2009:3.86

NFPA 105, Smoke Door Assemblies and Other Opening Protectives, 2010 changes, 2009:3.87

Through-penetration protection systems, 1994:1.54

Unprotected

Store fire, factor in, 1992:6.78

Warehouse fire, factor in, 1993:6.86

ORANGE COUNTY, FLA.

Orange County Fire and Rescue Service operates as a consolidated force, **1993:**2.63 OREGON

Apartment building fire, 1996, **1997:**3.30

Apartment building fire, 2012, 2013:5.26

Assisted living facility fire, 2010, **2011:**4.22

Building-under-construction fire, March, 2003, 2004:6.54

Building-under-construction fire, 2004, 2005:4.19

Building-under-construction fire, Aug. 19, 1999, 2000:6.95

Catastrophic fires

Apartment building, June 28, 1996, 1997:5.49

Board and care facility, Jan. 12, 1995, 1996:5.96

Motor vehicle, March 25, 1997, 1998:5.55

Motor vehicle, Aug., 2003, 2004:5.72

Store, Nov., 2002, 2003:5.75

Travel trailer, March, 2007, 2008:5.63

Dumpster fire, 1999, **2000:**4.19

Fatal fires

Apartment building, 2005, **2006:**6.21

Apartment building, 2009, 2010:4.28

Dwelling, 2003, 2004:3.20

Dwelling, 2004, 2005:5.26

Dwelling, 2008, 2009:2.22

Dwelling, 2009, 2010:3.34

Dwelling, 2010, 2011:3.38, 7.16

Dwelling, 2012, **2013:**1.23

Manufactured home, 2007, 2008:5.24

Manufactured home, 2012, 2013:2.22

Shed, 2011, **2012:**4.23

Wildland/urban interface, Aug., 1994, 1995:6.111

Fire-safe cigarettes legislation passed by state, 2007:2.15

Manufacturing plant fire, Feb. 19, 1990, 1991:6.75

Manufacturing plant fire, July, 1992, 1993:6.84

Manufacturing plant fire, 1993, 1994:3.29

Manufacturing plant fire, July, 1995, 1996:6.64

Manufacturing plant fire, Nov. 18, 1996, 1997:6.50

Manufacturing plant fire, May 25, 1999, 2000:6.84

Manufacturing plant fire, March, 2004, 2005:6.46

Manufacturing plant fire, 2006, 2007:6.22

Manufacturing plant fire, 2010, 2011:7.22

Manufacturing plant fire, 2012, 2013:6.23

Mill fire, Sept., 1998, **1999:**6.90

Mill fire, July, 2005, **2006:**6.70

Museum fire, 1994, **1995**:6.35

School fire, 1991, **1992:**2.25

School fire, 1993, **1994:**5.28

School fire, 2009, **2010:**4.31

Storage facility fire, 2011, **2012**:2.22

Store fire, 1996, **1997:**3.33

Store fire, 1999, **2000:**5.23

Store fire, Aug., 2006, 2007:6.79

Store fire, 2009, **2010:**1.27

Store fire, 2011, **2012:**5.30

Warehouse fire, 1993, **1994:**3.27

Warehouse fire, 1998, 1999:3.44

Wildland fire, Oct., 1991, **1992:**6.76

Wildland fire, Aug., 1992, 1993:6.89

ORLANDO, FLA.

Disney World Animal Kingdom Lodge design used equivalency provisions in NFPA 101® and NFPA 5000™, **2003:**5.38

Disney World fire- and life-safety overseen by Reedy Creek Improvement District's authority having jurisdiction, **2010:**6.58

Disney World fire protection systems, **1996:**3.119

Orlando Fire Department offers innovative service to tourist center, 1993:2.59

Orlando International Airport's new air traffic control tower incorporates new fire safety features, **2003:**3.68

O'SULLIVAN, JOHN J.

Profile of, **1997:**1.42

OUR LADY OF THE ANGELS SCHOOL FIRE

Arson fire, Chicago, IL, 1958, 1996:1.72

Looking Back column, 2003:5.104

OUTREACH COLUMNS, 2006:1.30

At 50, Sparky still central to NFPA's safety message, **2001:**2.39

After Worcester tragedy, children learn about firefighters' role, 2000:3.58

Alliance with SafeUSA aids NFPA safety goals, 2000:6.33

Arson threat and how communities can fight it, 2009:3.56

Candle safety important in holiday season, 2008:6.34

Candle use requires vigilance to avoid fires, 2004:2.38

Carbon monoxide detectors necessary for household protection, 2001:6.34

Child/infant car seat installation information, 2005:4.34

Children, throughout world, are at heart of NFPA safety message, 2004:1.32

Coalition for Fire-Safe Cigarettes website provides information, on-line petition, 2006:4.38

College students and parents should discuss fire safety, 2008:4.36

College students need fire safety education, 1997:5.34

Community access television publicizes Vaughn, Ontario, fire service smoke alarm education program, **2007**:4.40

Cooking fire prevention tips, **2005:**3.42

Cover the Bases & Strike Out Fire is 2001 Fire Prevention Week theme, 2001:5.44

FEMA announces NFPA Risk Watch® as first affiliate of Citizen Corps initiative, 2003:1.33

Fire drills: The Great Escape, theme of Fire Prevention Week 1998, 1998:4.32

Fire fighters need to prepare to help people with developmental disabilities, 2011:4.38

Fire Prevention Week 2006 theme: Prevent Cooking Fires, 2006:5.44

Fire Prevention Week 2007 theme, "Practice Your Escape Plan" supported by "Great American Fire Drill," **2007:**5.44

Fire Prevention Week 2008 theme: Prevent Home Fires, 2008:5.42

Fire Prevention Week 2010 focuses on smoke alarms and how they save lives, 2010:4.44

Fire Prevention Week 2011 theme: Protect Your Family from Fire, 2011:5.38

Fire Prevention Week activities should include business community, 1999:3.64

Fire Prevention Week classroom materials developed by NFPA and Scholastic, Inc., 2012:5.42

Fire Prevention Week is successful grassroots campaign, 2004:5.36

Fire Prevention Week to include People with Disabilities Day, 2005:5:42

Fire-safe cigarette state laws threatened by proposed U.S. Farm Bill amendment, 2013:6.34

Fire safety education benefits from teamwork, including Risk Watch, 1998:2.30

Fire safety educators gaining budgetary recognition, 2000:2.40

Fire safety educators strive for gold, **2001:**1.37

Fire safety progress check and call for new Faces of Fire, 2013:2.36

First Nations Remembering WhenTM program released by NFPA, **2006:**2:40

Focus groups used to determine outreach initiatives' effectiveness, 2009:3.52

"Great Escape" campaign has inspired change over three years, 2000:5.42

"Great Escape" training saves family from fire, 1999:5.36

Home Fire Sprinkler Coalition and NFPA provide sprinkler water supply facts to counter myths, **2012**:6.38

Home Fire Sprinkler Coalition offers quality educational materials on residential sprinkler systems, **2007**:2.34

Home fire sprinkler use nationwide encouraged by NFPA "Fire Sprinkler Initiative—Bringing Safety Home" program, **2009:**2.38

Home heating safety campaign kits for fire department community outreach, 2009:1.32

Home heating safety campaigns launched by NFPA, 2008:1.31

Home security when you're away from home, 2003:4.37

Home sprinkler community outreach programs include local fire departments, 2009:5.40

Immigrant communities, how fire safety professionals can reach, 2011:3.60

Jensen Award winner, College Station, Texas, Fire Department, creates fire safety programs for property managers, landlords, building owners, **2012**:4.42

Jensen Award winner, Springfield, Massachusetts, Fire Department program reaches out to high-risk immigration groups, **2013**:4.36

Learn not to Burn[®] fire safety messaging for preschoolers revamped, **2013:**3.44

Life safety messages linked to FIRE Act funding, 2004:4.34

Live-fire demonstration provides clear comparison of sprinklered/non-sprinklered fire extinguishment, **2007:**6.34

NFPA Center for High-Risk Outreach task force addresses fire safety needs of disabled, **2004**:6.34

NFPA Champion Award Program discourages juvenile firesetting, 1997:2.34

NFPA Champion Award Program provides age-appropriate fire safety education, 1997:3.45

NFPA Champion Management Teams work with local groups to introduce *RiskWatch*®, **2002:**4.37

NFPA Consensus Codes initiative embraces change to meet fire safety goal, 2000:4.38

NFPA electric vehicle training will prepare emergency responders for incidents, 2010:6.36

NFPA joins LEGOLAND® Florida in fire safety partnership, 2012:2.38

NFPA members should encourage seat belt use, 1999:1.32

NFPA members should use their expertise to be safety role models, 1997:6.32

NFPA partners with American Society of Heating, Refrigeration, and Air-Conditioning Engineers on heating safety brochure, **2007:**1.32

NFPA preschool education programs developed to be age-appropriate, 2012:1.38

NFPA programs promote college dormitory fire safety, 2002:1.38

NFPA public education awards recognize fire departments and educators working to improve community safety, **2010**:1.38

NFPA Public Education Division uses strategic planning sessions and research to refocus its efforts, **2008**:2.42

NFPA Public Educator Network will provide fire/safety information to public educators, **2010**:2.40

NFPA Risk Watch addresses eight preventable injuries most threatening to children, 1997:4.33

NFPA web sites provide free community outreach materials, 2009:4.34

NFPA-Weekly Reader Fire Prevention Week initiative provides students with home escape planning tools, **2003:**5.40

NFPA-Weekly Reader Fire Prevention Week initiative results from team work with outside funding partners, **2003:**3.40

NFPA's Urban Fire Prevention Initiative addresses challenges of urban fire prevention, **2008:**3.44

Proactive approach to family fire safety should replace window decals, 1999:4.40

Public safety education reduces panic in emergency, 2002:3.54

Raising public awareness of fire safe behavior continues to challenge fire safety educators, **2003:**6.36

Remembering WhenTM: A Fire Safety and Fall Prevention Program for Older Adults helps fire safety and home visiting organizations teach elders, **2007**:3.48

Remembering WhenTM fire safety and fall prevention program for older adults, **1999:**2.40

Remembering WhenTM translations funded by federal grant, **2006:**6.36

Residential fires caused by candles, statistics and fire safety information, 2002:6.35

Residential sprinkler systems are good for environment, 2010:3.56

Residential sprinkler systems provide important protection for elderly who stay in homes, **2013:**5.40

Residential sprinkler systems should be part of all new homes, 2001:3.55

Residential sprinklers discussed on television talk show, 1998:3.52

Risk Watch addresses prevention of children's unintentional injuries, 2005:1.32

Risk Watch® Champion Conference provides continuing education to Champion Management Teams, **2006:**1.32

Risk Watch helps schools prevent student injuries, 2000:1.34

Risk Watch® Safe Communities pilot program, 2006:3.48

Rolf Jensen Award nominations, call for, 2011:1.38

SafeUSA conference revealed keys to meeting safety needs of U. S., 2002:2.44

Scald injuries, preventing, 2005:2.38

Security bars can have unintended consequences, 2003:2.44

Smoke alarm installation and maintenance are both important, 2005:6.32

Smoke alarm installation programs work better with firefighter support, 2010:5.46

Smoke alarm safety awareness promoted through Internet "viral" campaign, 2013:1.38

Social media increase fire safety education community's public outreach, 2011:7.38

Sparky® celebrates 60th anniversary, 2011:2.40

Sparky.org website provides new ways to educate children in fire safety, 2009:6.36

Students demonstrate gains from *Risk Watch* curriculum, **2001:**4.40

Teachers as leaders in fire/life safety education, 1998:1.34

Thanks to those who support fire safety education and need for more assistance, 1998:6.34

"To-do" lists should include smoke alarm tests, 2004:3.44

U. S. society needs to shift focus from fire response to prevention, 1998:5.28

Working fire alarms and frequent drills aid home fire safety, **2002:5**.40

Working to make the next century the "Fire Safe Century," 1999:6.34

OVENS, INDUSTRIAL

Drying oven, dust and lacquer in vent system, ignited by heat source, 1996:4.24

Paint curing oven, heating unit malfunctions, ignites paint residue, combustibles, 2011:5.19

Powder coating oven, auto igniter ignites accumulated natural gas, 2011:4.14

Powder coating oven overheats when vent closed, 2013:1.26

OXYGEN

Animal oxygen masks donated to fire departments, 2011:2.21

Cylinders fuel manufactured home fire, 2007:5.57, 2009:3.34

Fuels apartment building fire, 2011:2.24

Fuels bus fire, **2006:5**.63

Fuels dwelling fire, 2011:2.25

Fuels hospital fire, 1994:5.104

Generators in cargo hold possibly activated, ignited catastrophic aircraft fire, 1997:5.54

Home oxygen generator and bottle contribute to fire intensity, 2012:2.14

Home oxygen generator arc ignites plastic housing, 2010:2.25

Oxygen-enriched atmosphere and oxygen container failure fuel fatal fire, 1998:4.19

Oxygen-enriched atmosphere fueled aircraft fire, 1992:6.76

Oxygen-enriched atmosphere in operating room intensifies fire, **1998:5**.17

Reacts with tetrachlorethane in purification vessel, 2000:5.60

Smoking while using medical oxygen, fire factor

Apartment fire, 1991:2.29, 2008:5.27, 2009:6.21, 2010:1.25, 5.34, 2011:4.16, 5.16

Board and care facility fire, 2009:5.25, 2010:5.31

Board and care facility fire; stored oxygen, 1996:5.96

Dwelling fire, **2004**:6.17, **2005**:3.24, **2008**:2.27, 5.28, **2010**:4.25, **2011**:1.24, **2012**:1.14, 5.27, 28, **2013**:1.22

Elder-care facility fire, 2008:3.32

Fire threat, review and proposals for, 2009:1.34

Manufactured home fire, **2007**:6.19, **2009**:3.34, **2013**:2.22

Nursing home fire, 1992:2.26, 2003:5.20, 2006:3.32

Oxygen machine fuels cigarette fire, 2000:3.36, 2001:3.32

Patient, receiving oxygen, ignites flash fire, 1999:6.20

OZONE

Second International Conference, 1990, 1991:1.64

D

PAINT MANUFACTURING PLANT FIRES

California, 1991, 1992:4.28

PAINT PROCESSES, INDUSTRIAL

NFPA vehicle plant paint shop regulations customized by General Motors, 2001:5.52

Paint spray booth fire, Florida, 2000, 2001:3.36

Paint spray booth fire, Michigan, March, 2011, 2012:6.61

PAKISTAN

Karachi, Pakistan, clothing factory fire, is deadliest manufacturing plant fire ever recorded by NFPA, **2012:**6.9

PAPER

Cardboard, other debris, ignited by juveniles, 2005:2.26

Cardboard, stored, fire in area of, 2007:6.79

Cardboard, stored, warehouse fire, 2010:1.26

Cardboard, tarpaulins, ignited by cigarette, 2006:4.26

Cardboard barrels ignited by torch, 2003:1.14

Cardboard box fire in open pit, embers ignite multiple-occupancy fire, 2001:3.26

Cardboard box ignited by burning polystyrene, **2004:**5.20

Cardboard box ignited by child playing with lighter, 2007:6.21

Cardboard box ignited by discarded cigarette, 2004:6.56

Cardboard boxes and paper files involved in office building fire, 2013:1.27

Cardboard boxes failed, fell from rack storage near heater, 2000:6.91

Cardboard boxes ignited by candle, 2009:4.20

Cardboard boxes ignited by extension cord, 2003:6.16

Cardboard boxes ignited by furnace, 2005:6.22

Cardboard boxes ignited by gas heater, 2003:6.16

Cardboard boxes ignited by hot pieces of broken light fixture, **1999:**6.90

Cardboard boxes ignited by light fixture, 1999:6.94

Cardboard boxes ignited by lighting, 2010:5.35

Cardboard boxes ignited by propane ceiling heater, 2003:2.24

Cardboard boxes ignited by radiant heat, 2013:6.51

Cardboard boxes ignited by space heater, 2009:2.22

Cardboard boxes ignited by stove, 2005:3.32, 2012:3.29, 30, 2013:4.20, 6.18

Cardboard boxes ignited in incendiary fire, 2003:5.18, 2011:1.27

Cardboard boxes on loading dock ignited by unknown source, 2004:4.18

Cardboard ignited by forging equipment, 1997:6.52

Cardboard ignited by sparks from light fixture, 2007:6.78

Cardboard ignited by sparks from welding, 2007:6.79

Cardboard ignited by spontaneous ignition fire, **2004:**3.24

Cardboard packing material ignited by overheated cable, **2000**:6.94

Cigarette lighter, ignited by child playing with, 2003:3.14, 2012:3.35

Decorations ignited by match, 2007:5.61

Government building fire, used to ignite, **1992:**6.26

Incendiary fire set in shredded paper bundles at warehouse, 2000:6.90

Incendiary fire set in toilet paper in school bathroom, 2008:1.22, 2013:3.29

Incendiary fire set with paper towels, **2011**:2.30, 4.19

Incendiary fire set with toilet paper rolls, **2011:**7.59

Incendiary fire started in shredded paper, 1994:6.97

Incendiary fire started in stored boxes, paper rolls, 2000:2.23

Incendiary fire started in stored cardboard boxes, 2002:4.20

Incendiary fire started with paper products, **1996**:1.24, **2008**:5.60, 6.21, **2009**:5.27, **2009**:5.81,

2010:2.26, **2012**:6.64, **2013**:3.24

Paper products ignited by furnace heat, **2013:**5.60, 6.54

Paper products ignited in printing press, 2013:6.51

Pulp storage tank, fire ignited at, **2009:**5.83

Rolled

Electrical malfunction, ignited by, **1996**:6.62

Manufacturing plant fire set in storage area, 2003:6.77

Outside storage area fire, 2005:6.49

Paper coating plant fire, factor in, 2012:6.63

Paper mill fire fueled by, **1994:**6.34

Printing plant fire fueled by, 1996:6.63

Warehouse fire fueled by, 1997:6.56, 2009:6.81, 2012:2.23

Scrap paper jams forklift, ignites fire, **1994:**6.95

Shredded, warehouse fire fueled by, 2009:6.81

Smoking materials, ignited by, 2011:1.25, 2.23

Stored

Bales too close to heater ignited, **1999:**6.90

Cardboard boxes ignited by stove, 2002:5.21

Cardboard boxes stored in kitchen, ignited by pilot light, 2004:6.18

Fire fueled by, **1994:**6.95, **2013:**1.20

Halide bulb, ignited by, 2003:6.77

Light, ignited by, **1994:**6.94

Paper ignited by dislodged fan wiring, 2002:4.18

Papers and boxes ignited in office building fire, 2004:5.71

Warehouse destroyed by fire, 1996:1.24, 2007:6.77

PARAGUAY

Supermarket fire, Aug. 1, 2004, **2004:**5.24, 6.42

PARRY, GEORGE T.

Profile of, **1997:**2.36

PARSONS, DAVIS R.

Profile of, **1997:**1.41

PASSIVE FIRE PROTECTION

Value in fire control, **1997:**2.30

PAULEY, JIM

Profile of, **2000**:2.42

PAULISON, DAVID

Profile of, **2000:**4.40

PEARSALL, DUANE

Accidental discovery by Pearsall led to his development of smoke detectors, **2013:**2.50 PENDERGRAS, DOUGLAS G.

Profile of, 1998:6.36

PENNSYLVANIA

Apartment building fire, 2002, 2003:2.22

Apartment building fire, 2007, **2008:5**.27

Apartment building fire, 2011, **2012**:6.19

Apartment building fire, 2012, **2013:**4.21

Board and care facility fire, 1993, 1994:6.33

Board and care facility fire, May 4, 1997, analysis, 1997:5.68

Board and care facility fire, 2008, 2009:5.25

Building-under-construction fire, Aug., 2008, 2009:6.82

Catastrophic fires

Aircraft crash, July, 2004, **2005:**5.60

Apartment building, April 5, 1997, 1998:5.45

Apartment building, June, 2001, 2002:5.82

Apartment building, June, 2005, 2006:5.62

Apartment building, Feb., 2006, 2007:5.58

Apartment building, March, 2006, 2007:5.58

Apartment building, Dec., 2006, 2007:5.60

Apartment building, Oct., 2010, 2011:5.76

Assisted living facility, Dec., 2000, 2001:5.78

Automobile, Nov. 8, 1992, 1993:5.68

Board-and-care facility, Aug. 20, 1996, **1997:**5.52

Board-and-care facility, May 14, 1997, **1998:**5.53

Board-and-care facility, Aug., 2004, 2005:5.59

Dwelling, March 3, 1990, 1991:4.64

Dwelling, July 30, 1990, 1991:4.66

Dwelling, Feb. 14, 1991, 1992:4.67

Dwelling, Dec. 14, 1991, **1992:**4.69

Dwelling, March 13, 1992, 1993:5.62

Dwelling, July 24, 1992, 1993:5.62

Dwelling, Oct. 2, 1992, 1993:5.64

Dwelling, Dec. 5, 1992, **1993:**5.62

Dwelling, July 25, 1993, 1994:5.97

Dwelling, April 6, 1994, **1995:**5.59

Dwelling, Oct. 21, 1994, 1995:5.60

Dwelling, Dec. 23, 1994, 1995:5.58

Dwelling, Feb. 12, 1995, **1996:**5.92

Dwelling, May 24, 1997, **1998:**5.49

Dwelling, Oct. 24, 1997, **1998:**5.50

Dwelling, Mar. 22, 1998, **1999:**5.50

Dwelling, Feb., 2002, 2003:5.75

Dwelling, Dec., 2002, 2003:5.75

Dwelling, Oct., 2003, 2004:5.68

Dwelling, Nov., 2003, 2004:5.70

Dwelling, Oct., 2004, 2005:5.57

Dwelling, April, 2006, 2007:5.59

Dwelling, Feb., 2007, 5.58, 59

Dwelling, June, 2007, **2008:**5.59

Dwelling, April, 2008, 2009:5.79

Dwelling, Dec., 2008, 2009:5.80

Dwelling, Feb., 2011, 2012:5.71

Dwelling, March, 2011, **2012:**5.69, 5.71

Furniture refinishing plant, Dec. 20, 1991, 1992:3.73

High-rise office building, Feb. 23, 1991, **1992:**4.71

Manufacturing plant, May 15, 1991, 1992:4.71

Manufacturing plant, Dec. 20, 1991, 1992:4.71

Manufacturing plant, Feb. 19, 1999, **2000:**5.59

Manufacturing plant, Feb., 2001, **2002:**5.82

Oil refinery, Oct. 16, 1995, 1996:5.96

Rooming house, April, 2001, 2002:5.82

Shanty, 1991:4.69

```
Store/apartment building, Jan., 2012, 2013:5.62
Truck fire, June 20, 1999, 2000:5.61
Vacant dwelling fire, Aug. 1, 1992, 1993:5.67
Church fire, Feb., 1995, 1996:6.73
```

Church fire, Sept.. 11, 1997, **1998:**6.92

Church fire, 2005, **2006:**3.30

Club fire, 2002, **2003:**4.16

College building fire, 2008, **2009:**2.22

College building fire, 2009, **2010**:2.26

Community center fire, 1996, **1997:**5.23

Detention facility fire, 1994, 1995:5.33

Dormitory fire, April, 1994, 1995:6.99

Dwelling fire, 1996, **1997:**4.19

Dwelling fire, 1997, 1998:1.22, 1998:3.38

Dwelling fire, 1999, **2000:**6.17

Dwelling fire, 2001, **2002:**3.30

Dwelling fire, 2003, 2004:5.16

Dwelling fire, 2004, 2005:5.26, 6.21

Dwelling fire, 2006, 2007:3.32

Dwelling fire, 2007, 2008:6.18

Dwelling fire, April, 2012, 2013:6.55

Dwelling-under-construction fire, 1995, 1996:6.23

Electric generating plant fire, July, 2002, **2003**:6.79

Fatal fires

Apartment building, 1990, 1991:4.26

Apartment building, 2002, 2003:5.16

Apartment building, 2005, **2006:**4.26

Apartment building, 2009, **2010**:1.24, 3.37

Board and care facility, May 13, 1997, fire investigation report, 1998:5.37

College building, 1992, 1993:1.27

Dwelling, 1994, 1995:1.34

Dwelling, 1997, 1998:1.23

Dwelling, 2000, **2001:**3.34

Dwelling, 2005, **2006:**2.24, 26, 3.36, 5.28, 34

Dwelling, 2006, 2007:6.21

Dwelling, 2007, 2008:2.23, 4.23, 5.24

Dwelling, 2008, 2009:1.23, 3.33, 40

Dwelling, 2009, **2010:**1.22

Dwelling, 2011, **2012:**2.14

High-rise office building fire, Feb. 23, 1991, 1991:5.64, 1992:5.56, 1992:6.74

Furniture manufacturing plant fire, 1992, 1993:1.28

Historic mansion fire, 1993, 1994:4.31

Hospital fire, 1991, 1992:2.27

Hospital fire, 2011, **2012:**5.29

Hotel fire, 2001, 2002:6.20

Hotel fire, 2007, **2008:**6.22

Housing for elderly fire, Nov., 2006, 2007:6.80

Lumberyard fire, March 25, 1999, 2000:6.91

Manufacturing plant fire, 1990, **1991:**5.28

Manufacturing plant fire, Feb., 1993, 1994:6.95

Manufacturing plant fire, Dec., 1993, 1994:6.95

Manufacturing plant fire, July 4, 1997, 1998:6.86

Manufacturing plant fire, Sept. 5, 1997, 1998:6.84

Manufacturing plant fire, May, 1998, 1999:6.91

Manufacturing plant fire, July 16, 1999, 2000:6.85

Manufacturing plant fire, Aug. 11, 1999, 2000:6.85

Manufacturing plant fire, Sept., 2000, 2001:6.61

Manufacturing plant fire, 2001, 2002:1.22

Manufacturing plant fire, Oct., 2002, 2003:6.78

Manufacturing plant fire, 2003, 2004:4.19

Manufacturing plant fire, 2004, 2005:2.28

Manufacturing plant fire, Sept., 2005, 2006:6.71

Manufacturing plant fire, 2006, 2007:2.22

Manufacturing plant fire, Oct., 2006, 2007:6.76

Manufacturing plant fire, Oct., 2012, 2013:6.51

Manufacturing plant/warehouse fire, June, 1991, 1992:6.80

Office building fire, June, 2003, 2004:6.55

Power plant fire, 1998, 1999:3.44

Public entertainment center fire, Jan. 28, 1997, 1998:6.92

Research laboratory fire, 1991, 1992:4.25

School fire, 1996, **1997:**3.34

Shopping mall fire, Dec., 1994, 1995:6.99

Shopping mall fire, 1996, 1997:6.21

Shopping mall fire, Oct., 1998, 1999:6.92

Shopping mall fire, 2009, **2010:**5.35

Storage facility fire, May 5, 1997, 1998:6.91

Storage facility fire, Jan. 2, 1999, 2000:6.91

Store fire, 1992, 1993:3.36, 1993:6.29

Store fire, 1993, **1994:**6.35

Store fire, Dec., 1994, 1995:6.99

Store fire, Dec. 21, 1997, **1998:**6.89

Store fire, March 29, 1999, **2000**:6.91

Store fire, Jan., 2002, 2003:6.81

Store fire, 2004, **2005:**1.19

Store fire, 2006, 2007:5.31

Store fire, Oct., 2006, 2007:6.79

Store fire, 2008, **2009:**5.28

Subway car fire, 1990, 1991:4.31

Tank farm fire, Oct., 1995, **1996:**6.62

Tire fire, March 13, 1996, **1997**:6.59

Warehouse fire, 1991, **1992:**2.27

Warehouse fire, August, 1992, 1993:6.85

Warehouse fire, Aug. 27, 1996, 1997:6.56

Warehouse fire, Dec., 1998, **1999**:6.92

Warehouse fire, May, 2000, 2001:6.62

Warehouse fire, 2006, **2007:**2.18, **2007:**3.23

Warehouse fire, June, 2006, 2007:6.77

Warehouse fire, 2008, 2009:3.44

Warehouse fire, Jan., 2008, 2009:6.81

Warehouse fire, April, 2008, 2009:6.81

Zoo fire, 1995, **1996**:6.24

PENTAGON ATTACK AND FIRE

9/11 Pentagon response report brings change to Arlington County, Virginia, fire services, **2002:**6.36

After 9/11 attack, National Urban Search and Rescue teams were dispatched to site to search for survivors, **2002:**1.62

After 9/11 attack, research organizations and other agencies eye safety improvements, **2002:**3.100

Artistic and historic treasures lost in 9/11 attack, **2003:**1.52

Attack and fire leads NFPA to review standards, consider changes, 2001:6.43

Catastrophic fire, Sept., 2001, **2002:**5.82

Fries, William, Pentagon fire marshal, on making Pentagon code-compliant after Sept. 11 attack, **2013:**3.18

Large-loss fire, **2002:**6.75

PERFORMANCE-BASED DESIGN. See CODES AND STANDARDS

PERKINS, FRANCES

New biography chronicles life of U.S. Secretary of Labor who championed safety initiatives for American workers, **2009**:3.30

PERSONAL PROTECTIVE EQUIPMENT. See also SELF-CONTAINED BREATHING APPARATUS

Firefighter fatalities wearing PASS devices, ten year analysis, 1998:4.56

First responder equipment for terrorist attack response evaluated, 2003:4.50

Improved thermal protection increases heat stress, **1993:**6.17

NFPA 70E, *Electrical Safety in the Workplace*, arc flash protective equipment requirements, **2008:**4.38

NFPA 70E, Electrical Safety in the Workplace, requirements, 2006:6.100

NFPA 70E, *Electrical Safety in the Workplace*, requirements, 2009 edition changes, **2008:**6.34 Performance in wildland fire, **1995:**5.67

Personal alert safety system (PASS) devices research aims to standardize wireless technology, **2011:**7.11

Personal alert safety systems performance issues addressed in NFPA 1982, *Personal Alert Safety Systems*, **2007:**2.15

Personal alert safety systems prevent firefighter fatalities, **1999:**4.62

U. S. Homeland Security Department adopts 8 NFPA standards for first responder personal protective equipment, **2007:**3.18

PERSPECTIVES COLUMNS, **2009**:6.9, **2010**:1.9, 2.13, 3.17, 4.13, 5.17, 6.11, **2011**:1.11, 2.13, 3.11, 4.24, 6.10, 7.24, **2012**:1.24, 2.24, 3.22, 4.16, 5.18, 6.14, **2013**:1.12, 2.14, 3.18, 4.14, 5.16, 6.14

PETERSON, WILLIAM E.

Profile of, **1991:**4.12

PETTIFOG, WIS.

Wildland/urban interface fire, 1871, 1994:2.86

PHILADELPHIA, PA.

High-rise office building fire, Feb. 23, 1991, 1992:5.56

PHOTOVOLTAIC SYSTEMS

Junction box malfunctions, ignites school fire, 2013:5.27

National Electrical Code®, 2011 edition, provisions address renewable energy technology, **2010:**3.72

National Electrical Code® app for photovoltaic requirements, 2013:5.12

PICAYUNE, MISSISSIPPI

Smoke detector distribution project pays off, 2005:5.76

PIERS AND WHARVES

Seaports, designing fire detection and notification for, **2004:**4.30

PIERS AND WHARVES FIRES

California, Nov., 1998, 1999:6.96

Louisiana, Aug. 24, 1990, **1991:**6.73

Massachusetts, mall on wharf, Feb., 1998, 1999:6.94

New Jersey, restaurant on pier, May, 1998, 1999:6.95

New York, Feb. 12, 1997, 1998:5.53

Rhode Island, 2006, 2007:4.21

Washington, July, 2006, 2007:6.78

PILFER, DANIEL J.

Memorial tribute, **1991:**2.35

PIPELINES. See also GAS LINES

Flammable liquids pipeline cut by power saw, catastrophic fire, Arkansas, May, 2012, **2013**:5.65

Gasoline pipeline ruptured by excavator, catastrophic fire, California, Nov., 2004, 2005:5.60

Natural gas pipeline ignites, catastrophic fire, Wyoming, Aug., 2011, 2012:5.75

Natural gas pipeline struck by mooring device, catastrophic fire, Louisiana, Oct., 2006,

2007:5.62

Oil pipeline grinding operation ignites vapors, Louisiana, 2009, 2010:2.28

Ruptured gasoline pipeline fire, Washington, June 10, 1999, 2000:6.96

Trans-Alaska pipeline officials face fire protection challenges, 2000:4.96

PLANO, TEXAS

Fire Department's fire safety education program benefits community, **2001**:3.102

PLASTICS

Fire tests of composite intermediate bulk containers indicate fire safety differences, **2009:**1.54

PLASTICS FIRES. See also MANUFACTURING PLANT FIRES

Acrylic sheet ignited by malfunctioning form machine, 1997:4.22

Ceiling insulation covers ignited by failed light fixture, 2011:5.20

Cigarettes ignite, melt polystyrene cup in school fire, **2004:5**.20

Embers ignite polyurethane, 1995:3.38

Fan motor overheats, ignites plastic trim, 1995:5.33

Foamed plastics fires in assembly occupancies; Life Safety Code® requirements, 2005:2.34

Heat lamps ignite plastic trays in restaurant fire, 1996:3.36

Insulation ignited by electric box malfunction, **1996:**3.40

Plastic bag, ignited in incendiary fire, 2010:3.42

Plastic blinds fuel fire, 2013:5.60

Plastic materials ignited by heater, 2005:6.46

Plastic pellets ignited, 1995:6.103

Plastic table ignited in garage fire, 2013:5.26

Plastic teapot melted by stove burner, **2011:**7.16

Plastic trash container ignited by ashes, 2012:5.24

Plastic trash container ignited in store fire, 2012:5.30

Polyethylene dust ignited in manufacturing plant fire, 2004:5.71

Polystyrene ignited in plastics warehouse, 1999:6.91

Rigid plastic insulation, ignited in incendiary fire, 1995:6.104

Short circuit ignites plastic toys in store fire, 2007:2.17

Sparks from light fixture ignite plastic materials, **2007:**6.78

Stored plastics ignited in manufacturing plant fire, 2006:6.71, 2009:5.27, 28

Stored polypropylene rope fuels ship fire, 1999:6.94

Thermostat melts plastic cart, which ignites audiovisual equipment, 2011:5.21

Torch ignites plastics, 1999:6.91

Torch ignites residual plastic in shredder, 1996:5.23

Trash container, lined with plastic bag, ignited by cigarettes, 1992:4.69

Vinyl chloride leak ignited, manufacturing plant fire, **2005**:5.59

Warehouse destroyed by fire, 1996:1.24

Welding ignites polyester waste, **2004:**6.52

POLYCHLORINATED BIPHENYLS (PCBs)

Hazardous materials response at generating plant fire, **1994:**6.92

Transformers, safety of PCBs in, 1991:1.116

POLYURETHANE FOAM. See FOAM RUBBER OR POLYURETHANE; INSULATION PORT WENTWORTH, GEORGIA

Imperial Sugar Company explosion and fire, Feb. 7, 2008, 2008:6.56

PORTLAND, OREGON

Preschoolers learn fire safety in Head Start program, 1994:1.67

PORTUGAL

Wildland/urban interface fire, 2010, 2011:6.21

POSTAL FACILITY FIRES

Massachusetts, 1990, **1991:**3.27

POUND, MURRAY

Interview with, **2012:**1.24

POVERTY. See also HOMELESS

Catastrophic fire, factor in, 1997:5.51

Fire risk statistics affected by, 1996:1.104

Utilities shut off for nonpayment, fires caused by (See UTILITIES)

POWER PLANT FIRES. See also ELECTRIC GENERATING PLANT FIRES; NUCLEAR ENERGY PLANT FIRES

California, Jan., 2011, 2012:6.64

Catastrophic

Heat recovery steam generators, Connecticut, Feb., 2010, 2011:5.78

Industrial, Michigan, Feb. 1, 1999, 2000:5.59

Coal, Georgia, Aug. 14, 1999, 2000:5.60

Coal, Pennsylvania, 1998, 1999:3.44

Ford Motor Company Rouge facility, Dearborn, Michigan, Feb. 1, 1999, fire investigation report, **2004:**4.58

Hawaii, Aug., 2012, 2013:6.56

Heat recovery steam generators, Connecticut, Feb., 2010, 2011:5.78, 7.42

Maryland, 2003, 2004:5.20

Missouri, Feb. 17, 1999, 2000:6.96

Natural gas, Michigan, Feb. 1, 1999, 2000:6.95

Steam, Virginia, Feb., 1995, 1996:6.72

POWER SAWS

Gasoline-powered saw ignites roof fire, 1992:3.31

PRESCRIBED BURNS

Fire spread beyond containment lines, Colorado, 2012, 2013:6.54

Fire spread beyond containment lines, Texas, 1994, 1995:2.31

Firefighter fatalities related to, 2006:4.61

PRESCRIPTION DRUGS. See DRUGS, PRESCRIBED

PRISON FIRES. See DETENTION FACILITY FIRES

PRODUCT LABELS

Effectiveness of labeling systems for flammable and combustible products, 1994:1.71

PROFILE COLUMNS

Almand, Kathleen H., 1998:3.54

Austin, Stephen P., 1996:5.38

Bailey, Dan W., 1992:1.16

Bathurst, Donald G., 1993:6.20

Bell, A. D., 1995:5.26

Benarick, Glenn P., 1994:1.22

Berkol, April, 1999:3.68

Bernd, Robert E., 1998:1.36

Beyreis, James R., 1994:5.20

Bhatia, Joe, **1999:**6.36

Blair, John A., 1991:6.18

Bliss, Donald P., 1998:4.36

Boehlert, Sherwood, 1996:1.36

Bollon, Vincent, 1999:2.42

Boyd, Howard F., 1993:4.18

Boyd, Wayne H., 1998:4.39

Brace, Tom, 1996:4.37

Brannigan, Frank, **1995:**1.23

Breedlove, Diane, 1994:2.22

Brice, Herman W., 1994:3.21

Broderick, Corinne, 1999:3.67

Bruno, Hal, 1996:2.38

Bukowski, Richard W., 1994:1.23

Butterworth, Lydia, 1999:5.39

Carson, Margaret D., 1992:2.20

Castino, G. Thomas, 1993:3.20

Coan, Stephen D., 1999:4.42

Compton, Dennis, 2000:5.45

Cox, Phil, 1996:4.36

Crawford, Jim, 1993:5.23

Daly, Wendy L., **1994:**3.20

Daniel, Michael, 1999:4.45

DiNenno, Philip J., 1992:4.20

Dubay, Christian, 2007:1.34

Dungan, Kenneth W., 1992:5.20

Ewell, P. Lamont, 1995:3.30

Fleming, Joseph M., 1998:1.37

Fleming, Russell P., 1991:2.14

Forsman, Douglas P., 1995:4.30

Frush, Karen S., 2000:3.61

Gabriele, Rocco J., 1995:2.22

Glatfelter, Arthur J., 1997:6.35

Godfredson, Jeffrey, 1999:6.39

Gonzales, Richard L., 1993:6.21

Goss, Kay, 1996:3.53

Grant, Ernest, 1996:5.39

Greene, Olin L., 1992:3.26

Grill, Raymond A., 1999:5.38

Gross, Carol, 1995:3.31

Hairston, Harold, 1999:2.45

Hathaway, Leonard R., 1996:6.38

Hawkins, Jasper Stillwell, 1995:2.23

Hewitt, Terry-Dawn, 1998:2.32

Hoebel, James F., 1997:2.37

Javeri, Sultan M., 1997:3.48

Keigher, Donald J., 1995:5.27

Kung, Hsiang-Cheng, 1995:4.31

Labauve, Lamar, **1996:**1.37

Lawry, Edward C., 1999:1.35

Lingenfelter, Gerald, 1996:2.39

Lion, Douglas R., 1993:2.16

Long, Marian H., 1996:6.39

Lopes, Rocky, 1995:1.22

Lucht, David A., 1993:5.22

Mattern, Jeffrey, 1997:4.34

McDaniels, Warren, 1998:2.33

Mickalide, Angela D., 1998:5.30

Moncada Perez, Jaime, 2000:3.62

Moore, Wayne D., 1994:4.23

Moses, Thomas M., 1991:1.14

Moyle, Bernard, 2000:1.39

Nachbar, Mary, 1994:5.21

Nelson, Harold E., 1993:1.21

Nelson, Jennifer L., 1993:2.17

Norstrom, Gail P., 1997:5.38

Oliver, David, 1997:4.35

Ong, Y. S., 1997:6.36

O'Sullivan, John J., 1997:1.42

Parry, George T., 1997:2.36

Parsons, Davis R., 1997:1.41

Pauley, Jim, 2000:2.42

Paulison, David, 2000:4.40

Pendergras, Douglas G., 1998:6.36

Peterson, William E., 1991:4.12

Proulx, Guylène, 1997:3.47

Pullan, Art, 1998:3.57

Quiter, James, 2000:2.45

Renfrew, Henry W., 1994:4.22

Richardson, Kenneth J., 1991:5.20

Sanders, Russell E., 1993:1.20

Scannell, Jerry, 1996:3.55

Sharry, John, 1994:6.26

Simmons, Philip, **1994:**2.23

Smittle, Walter, III, 1992:6.20

Stronach, Ian, 1998:5.33

Testa, William L., 1994:6.27

Thomas, H. Emerson, 1998:6.39

Trench, Nancy J., 1993:3.21

Vendetta, John R., 2000:6.34

Vidal, David J., 1993:4.19

Von Essen, Thomas, 1999:1.36

Ware, D. Harold, **2000:**4.41

Webb, William E., 2000:5.46

Weldon, Curt, 1991:3.14

Wells, Jack, 2000:1.36

Witzeman, Lou, 1997:5.37

Wooldridge, Jerry, 2000:6.37

PROPANE. See also LP-GAS

Burner ignites hydrogen, 1992:5.28

Cylinder explodes in office building fire, 2004:1.14

Cylinder ruptures when overfilled, 1994:3.30

Cylinder valve malfunction releases gas which is ignited by open flames, 2008:2.28

Cylinders, improperly stored, fail, release vapor cloud, 1998:6.89

Cylinders BLEVE in fire, 1991:6.23

Cylinders explode in auto repair shop fire, **1995**:6.100

Cylinders explode in warehouse fire, 1999:3.43, 2007:3.23

Cylinders ignited by spreading fire, 1994:6.36

Cylinders leak, BLEVE, 1997:3.33

Fire and explosion involving, **1991:**1.28

Forklift fuel fuels, spreads warehouse fire, 2007:3.23

Forklift fuel ignited by engine block, 1991:2.33

Forklift fuel leak causes explosion, 2006:1.16

Furnace ignites accumulated coffee dust, 2009:2.26

Gas line hit by mower breaks, water heater ignites leak, 2011:4.17

Gas line to cylinder cracks, vapors in garage explode, 2001:6.64

Gas lines fail, fuel catastrophic fire, 1992:4.70

Gas released from cylinder explodes, ignites distribution facility fire, 1997:4.20

Grill, fire started near, **2008:**6.18

Grill fuel ignited by open flame, 1991:5.26

Grill fuel tank leaks, ignites dwelling fire, 1997:4.19

Grill igniter ignites leaked fuel, 2013:2.14

Grill leaks fuel, ignites roof, 2000:4.18

Grill left on to clean, ignites wood siding, 2002:3.30

Grill pilot ignites stored boxes, 2004:6.18

Grill possible ignition cause, failure fueled fire, 2001:2.22

Grill tank fuel, released, contributes to fire spread, 1996:4.22

Grill tank fuel released, ignited by spark, 1994:3.28

Heater, baseboard, fire started at, 2000:5.56

Heater, ceiling, ignites cardboard boxes, 2003:2.24

Heater, leak from, ignites dwelling explosion, fire, 2012:5.26

Heater, portable, ignites combustibles, 2011:1.26, 2013:1.25

Heater, portable, ignites paper, 1995:6.35

Heater, portable, ignites walls, building-under-renovation, 2004:2.19

Heater, portable, releases fuel, ignites trailer fire, 1999:3.46

Heater, room, unattended, building-under-construction, 2005:6.19

Heater ignites fire, explosion, 1991:3.27, 2008:6.23

Heater ignites leaked acetylene, 2006:5.63

Heater used to dry wet stock ignites boxes, 2000:6.91

Heaters ignite wood sprinkler enclosures, **1995:**1.32

Heating and air conditioning system propane feeds dwelling fire, 2005:6.21

Ice resurfacer cylinder leaks, vapors ignited by hot water heater, 2006:1.22

Isobutyl propane, ignited by electrical arc, 1992:6.28

Juveniles inhaling propane inadvertently ignite residual gas, 1997:6.19

Lantern ignites combustibles, **2007:5**.57

Large tank explodes, causing rapid fire spread, 2000:6.93

Marina fire fueled by, 2002:1.21

Pipe leak forms vapor cloud, ignited in refinery fire, 2008:6.42

Portable heater ignites powdered tryptophan, 2002:6.22

Retail propane filling station and vehicles, fire at, 2000:6.14

Retail propane filling station explosion and fire, **2010:**4.31

Safety rules clarified by Congress, EPA, NFPA, 2002:1.32

Space heater ignites gasoline vapors, 1997:1.26

Storage tank hit by truck, fire and explosion caused by, 2002:1.18

Stove, catastrophic fire cause, **2002:**5.82

Stove fuel contributes to spread of catastrophic fire, 1994:5.96

Tanks explode in lumberyard fire, hamper fire fighting, 2008:6.44

Tank explodes, starts fire, 1994:1.30

Tank explosion, fatalities caused by, 2008:4.86

Tank line fuel leak ignites fatal dwelling fire, **2010**:6.26

Tank system leak ignites, explodes, fatal fire cause, 2004:5.14

Tank truck fuel leak ignited by open flame, 1993:3.36

Tank truck leak ignites fatal truck/clubhouse/storage tank fire, 1998:2.19

Tank trucks at fire site hampered fire fighting, 1994:6.96

Tank valve malfunctions, escaped gas ignites service station/store explosion, 2008:5.60

Tank vents, forcing fire fighters to evacuate building fire, 1996:6.73

Tanks explode, hamper fire service operations, 2009:6.82

Tanks protected in manufacturing plant fire, 1994:6.95

Torch ignites cellulose insulation, **2004:**2.18

Torch ignites combustible crates and plastic, 1991:6.73

Torch ignites couch, 1993:2.22

Torch ignites fire in roof drain, 1997:6.53

Torch ignites restaurant fire, 1991:2.32

Torch ignites roof, **1997**:6.19, **2004**:3.18

Torch ignites roof framing, 1998:2.19

Torch ignites roofing materials, 2011:3.33

Torch ignites school fire, 1993:4.28

Torch ignites shingles, wood trim, 1997:2.21

Torch ignites structural framing, **2005:**1.20

Torch ignites wood beneath aluminum siding, 2006:3.30

Torch ignites wood-framed wall, 2011:3.49

Trash fire spreads to stored propane cylinders, 2000:6.16

Vapor cloud ignites, causes explosion, 1993:5.67, 1993:6.30

Water heater fuel tank ignites flash fire, 2011:5.18

Water heater ignites leaked propane, **2012:**5.70

Water heater pilot light ignites spilled gasoline vapors, 1993:2.21

PROTECT-IN-PLACE

Elderly housing, successful, **2005:**5.32, **2012:**5.25

Manufacturing plant fire, hazardous materials at, 2005:6.22

PROTECTIVE CLOTHING

First responder clothing for terrorist attack response evaluated, 2003:4.50

NFPA 2112, Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire, annual meeting review, **2001:**2.81

Personal responsibility of firefighters to use clothing, 1999:2.38

Rescue worker without clothing killed, 1996:5.94

Thermal capacity and stored energy effect subject of Fire Protection Research Foundation study, **2008**:6.24

PROULX, GUYLENE

```
Profile of, 1997:3.47
PUERTO RICO
  Dupont Plaza Hotel fire, San Juan, Jan. 1, 1986, 2012:6.80
PULLAN, ART
  Profile of. 1998:3.57
PYNE, STEPHEN
  Interview with environmental historian on U.S. relationship with wildfire, 2011:6.10
PYROTECHNICS. See also EXPLOSIVES; FIREWORKS
  Catastrophic nightclub fire, Feb., 2003, 2004:5.70
  Catastrophic storage and manufacturing facility explosion and fire, Tennessee, June 5, 1997,
         1998:5.53
  Dwelling fire, ignited by home manufacture of pyrotechnics, 2007:3.30
  Penn & Teller interviewed on use of fire in shows, 2008:3.90
  U. S. amusement parks and resorts use NFPA standards for pyrotechnic safety, 2002:3.78
Q
OATAR
  Qatar Civil Defense Agency hosts NFPA training seminars, 2012:1.11
QUEBEC, CANADA
  Fatal board and care facility fire, Aug. 31, 1996
     Analysis of fire, 1997:1.44
     Fire investigation report, 1998:5.38
  Tire fire, 1990, 1991:1.55
OUITER, JAMES
  Profile of, 2000:2.45
R
RACETRACKS. See also MOTORSPORTS VENUES
  NFPA 150, Racetrack Stables, proposed changes for human and animal fire and life safety;
         questions answered, 2004:6.22
RACETRACK FIRES
  Louisiana, Dec., 1993, 1994:6.89
RACK STORAGE
  Fire in, 1991:6.26
  Solid shelves in racks vs. shelf storage, 2006:1.24
RADIO COMMUNICATIONS. See also FIRE SERVICE COMMUNICATIONS
  Ham radio operators' role in emergency communication, 1996:2.46
RADIO STATION FIRES
  California, 1994, 1995:4.40
RAILROAD FIXED EQUIPMENT FIRES
  Trestle fire, Georgia, May, 2003, 2004:6.54
RAILROAD ROLLING STOCK FIRES
  Amtrak trains rescuers to respond to railroad disasters, 2000:3.78
  Catastrophic
```

Freight train and tractor trailer-tanker collision, Tennessee, June 19, 1990, 1991:4.70

Freight train collision, Georgia, Aug. 19, 1990, 1991:4.72

Freight train collision, Illinois, Dec. 22, 1995, 1996:5.101

Illinois, March 15, 1999, 2000:5.61

Locomotive/tanker truck collision, Louisiana, June, 2004, 2005:5.61

Passenger train collision, Florida, March 17, 1993, 1994:5.106

Passenger train collision, Maryland, Feb. 16, 1996, 1997:5.54, 6.59

Elevated train, Washington, 2004, 2005:3.24

Freight train collision, Kansas, July 2, 1997, 1998:6.91

Hazardous materials database software for responders, 1997:3.66

High-speed train crash, Germany, June 3, 1998, 1999:6.40

Illinois, March 15, 1999, **2000**:6.94

Locomotive collision, Texas, Oct. 25, 1997, 1998:6.91

NFPA 130, Fixed Guideway Transit and Passenger Rail Systems, 2000 edition includes passenger rail systems, **2000:**3.82

NFPA 130, Fixed Guideway Transit and Passenger Rail Systems, 2010 changes, 2009:3.88

"Operation Respond" addresses hazardous materials at railroad fires, 2000:3.52

Rail fires survey, NFPA Rail Transportation Systems Section, 1991:1.101

Technological advances, training, key to safety efforts, 1997:3.64

Virginia, Mar., 1998, **1999:**6.95

Weyauwega, Wisc., LP-Gas tank car derailment, March 4, 1996, **1996**:3.89, **1997**:6.60 RECORDS

Fire protection of federal records, **2002:**2.51

NFPA 232, Protection of Records, defines vital records and how to protect them, 2002:2.53

NFPA 232, Protection of Records, result of Burlington Building fire, Chicago, 1922, 2002:2.96

NFPA 232A, Guide for Fire Protection for Archives and Records Centers may need updating for larger facilities, **1998:**2.68

Protecting business records, post 9/11, 2002:2.48

Protection systems, questions answered, 1999:5.26

Storage hazards of records storage and protection systems study by Fire Protection Research Foundation, **2007:**1.22

RECORDS STORAGE FIRES

Iron Mountain, Inc. fire, South Brunswick, New Jersey, March, 1997, spotlights problems of large records-retention facilities, **1998:**2.68

Pennsylvania, May 5, 1997, 1998:6.91

RECREATIONAL FACILITY FIRES. See also AMUSEMENT CENTER FIRES;

AMUSEMENT PARK FIRES

Athletic complex, Arizona, 1993, **1994:**5.30

Bowling alley, Maine, 1992, 1993:1.26

Bowling alley, vacant, Michigan, 1991, 1992:2.29

Building-under-construction, Illinois, March, 1992, 1993:6.88

Camp, New York, 2010, 2011:3.44

Gymnasium, Rhode Island, Jan., 1992, **1993:**6.79

National Park Visitors Center, Utah, 1991, 1992:1.23

Virginia, 2012, 2013:4.25

RECREATIONAL VEHICLE FIRES. See also CAMPING TRAILER FIRES;

MANUFACTURED HOME FIRES

California, 1994, 1995:5.36

Carburetor floods, releases gasoline vapors which ignite, 1998:6.89

Catastrophic

Arizona, May, 2012, 2013:5.64

California, July 30, 1990, 1991:4.72

Camper van, Ohio, Nov. 11. 1991, 1992:4.70

Florida, Feb., 2004, 2005:5.60

Nebraska, May, 2003, 2004:5.73

North Carolina, Oct., 2003, 2004:5.73

Tennessee, Aug. 14, 1992, 1993:5.68

Utah, May 25, 1999, 2000:5.61

Washington, Feb., 2009, 2010:5.69

Iowa, 2010, **2011:**1.26

Jet ski, vacuum cleaner ignites gasoline vapors, 1992:5.28

Oregon, 2011, 2012:2.22

REFINERIES, OIL

NFPA partners with American Petroleum Institute and OSHA for petroleum and petrochemical industry safety, **2004**:4.32

Pre-incident planning and cooperation essential to firefighting, 2002:6.28

REFINERIES, OIL, FIRES

Alaska, Dec., 2008, 2009:6.84

Australia, Longford Esso refinery fire and explosion, Sept. 25, 1998, fire investigation report, **1999:** 2.64

California, Oct., 1992, 1993:6.82

California, Jan., 1995, **1996**:6.63

California, Jan. 21, 1997, 1998:6.84

California, March 25, 1999, **2000**:6.83

California, Feb. 23, 1999, 2000:6.83

California, 2001, **2002:**6.75

California, Dec., 2006, **2007**:6.77

Catastrophic

Arkansas, Jan. 13, 1999, 2000:5.60

California, Feb. 23, 1999, **2000:**5.59

Louisiana, Aug. 2, 1993, 1994:5.105, 1994:6.93

Pennsylvania, Oct. 16, 1995, **1996:**5.96

Texas, March, 2005, 2006:5.62

Washington, Nov. 25, 1998, 1999:5.54

Washington, April, 2010, 2011:5.77

Illinois, 2001, **2002:**6.75

Louisiana, March 3, 1991, 1992:4.70, 1992:6.77

Minnesota, July, 2004, **2005**:6.47

Ohio, Oct. 12, 1996, 1997:6.49

Texas, April, 1991, 1992:6.75

Texas, 2004, 2005:2.18

Texas, March, 2005, **2006:**5.62, 6.75

Texas, Feb., 2007, **2008**:6.42

Texas City, Texas, BP Refinery explosion and fire, March 23, 2005, 2007:4.78

Utah, 1993, 1994:6.36

Virginia, 2001, 2002:6.75

RELIEF AGENCIES

Efforts after Northridge, Calif. earthquake, 1995:3.52

RENEWABLE-ENERGY TECHNOLOGY. See also PHOTOVOLTAIC SYSTEMS

Fire Protection Research Foundation research connects the *NEC*®, alternative energy technologies, and firefighter safety, **2010**:4.34

National Electrical Code®, 2011 edition, provisions address renewable energy technology, **2010:**3.72

National Electrical Code®, 2014 edition, provisions safeguard renewable energy technology, **2013:**3.62

RENFREW, HENRY W.

Profile of, **1994:**4.22

RESCUE. See FIRE SERVICE RESCUE AND EXTRICATION

RESEARCH COLUMNS. See also FIRE ANALYSIS AND RESEARCH REPORTS

Aged electrical infrastructure impacts fire safety, 2006:2.22

Aged electrical infrastructure in single-family dwellings subject of FPRF research, 2008:3.34

Collaboration with industries important part of finding fire safety solutions, 2011:1.28

Colonial Williamsburg includes Fire Protection Research Foundation in program to insure fire protection method appropriate to physical environment, **2013**:6.28

Cooking fire prevention technologies and marketplace barriers to entry, 2012:1.28

Data center fire protection systems, discussion of, 2012:3.42

Emergency egress for fire/nonfire emergencies and for people with disabilities, improvements in, **2010:**2.30

Emergency evacuation and notification system reviews aided by Fire Protection Research Foundation studies, **2007:**5.34

Emerging fire problems can require out-of-box approach to research, 2013:3.34

Energy-saving technologies and new energy forms studied by Fire Protection Research Foundation for National Electric Code® revision, **2009:**3.46

Energy-saving techologies electrical safety impact assessed in Fire Protection Research Foundation studies. **2012**:2.28

Fire Detection and Alarm Research Council founded to implement detection and alarm research, **2006:**1:14

Fire protection/environmental sustainability interactions are Fire Protection Research Foundation symposium topic, **2009:**6.28

Fire Protection Research Foundation addresses fire safety needs for aging population, sustainable building design, **2012**:4.32

Fire Protection Research Foundation keeps Technical Committees current on computer models, **2007**:4.30

Fire Protection Research Foundation provides information to support standard review, **2005**:5.22

Fire Protection Research Foundation research results to be presented at NFPA World Safety Conference and Exposition, 2007:3.38

Fire Protection Research Foundation seeks dialogue on future research challenges, 2008:4.26

Fire Protection Research Foundation studies enhance technical basis for inspection, testing, and maintenance requirements, **2012**:6.28

Fire Protection Research Foundation studies helps integrated latest technology into codes and standards, **2010**:3.46

Fire Protection Research Foundation studying key issues for next generation automatic sprinklers, **2009:**1.24

Fire Protection Research Foundation uses Homeland Security grant for three projects for fire service constituency, **2008:**6.24

Fire risk assessment improves safety level of codes and standards, 2007:2.24

Fire safety engineers education, codes and standards as critical component in, 2011:5.28

Firefighter health and safety research reflected in NFPA standards, 2010:1.28

Firefighter safety research also addresses overall fire problem, 2012:5.32

First responder respiratory exposure studied by Fire Protection Research Foundation, **2008**:2.32

Five-year research agenda of Fire Protection Research Foundation, 2009:2.28

Grand Challenges for fire suppression systems research, 2005:6.14

Hazardous materials studies provide blueprint for improved classifications system, 2009:4.24

High-volume low-speed fans' effect on sprinkler protection studied, 2009:5.30

Human behavior and fire safety emphasis of new research, 2013:5.32

Hydrogen technology requires research on infrastructure safety, 2006:4.22

Insurance industry fire safety concerns addressed through research, 2011:2.32

Lithium battery storage safety standards addressed by workshop and standards-development efforts, **2011**:7.28

Lithium-ion battery hazards addressed through research, training, other means, 2013:4.26

National Fire Alarm Code® builds on latest smoke detection and alarm research, 2008:1.26

NEC®, alternative energy technologies, and firefighter safety connected by Fire Protection Research Foundation research, **2010**:4.34

Newest smoke detection technology supported by Fire Protection Research Foundation research, **2008**:5.32

Ongoing research efforts supporting NFPA's codes and standards process, examples of, **2011:**3.50

Optimization of fire alarm systems for high-risk groups, 2007:6.24

Residential use of home fire sprinklers supported by research projects, 2010:6.28

Roadway tunnels safety and security in U. S. and abroad, 2006:3.26

Smoke alarm signals to reduce older adults fire deaths, 2006:5.26

Social media's role in code development tested by Fire Protection Research Foundation, **2010:**5.36

Sprinkler protection of shelf storage and ordinary hazard occupancies, 2006:6.26

Sprinkler system research initiatives explore full-scale fire test alternatives, 2013:1.28

Storage hazards research helps technical committees, **2007:**1.22

Telecommunications and information technology facilities fire protection challenges addressed by workshop, **2011**:4.28

U.S. Fire Administration event focuses on effect of fast-paced technological change on home fires, **2013**:2.26

RESEARCH LABORATORY FIRES

Pennsylvania, 1991, 1992:4.25

RESIDENTIAL FIRES. See also APARTMENT BUILDING FIRES; APARTMENT COMPLEX FIRES; BOARD AND CARE FACILITY FIRES; CONDOMINIUM FIRES; DWELLING FIRES; HOTEL FIRES; MANUFACTURED HOME FIRES; MULTIPLE OCCUPANCY FIRES

Air conditioners and fans involved in home fires, 2003-2007, **2010:**5.70

Air conditioners and fans involved in home fires, 2006-2010, 2013:2.50

Arc fault-circuit interrupter requirement for bedrooms targets residential fires, 2000:2.69

Candles as cause of, 2003-2007, **2010:**5.71

Candles as cause of, 2006-2010, **2013:**2.77

Candles as cause of, increase in number of, **2000**:6.112, **2004**:1.13, 6.14

Candles as cause of, statistics and fire safety information, 1998:3.160, 2002:6.35

Clothes dryers or washing machines, fires involving, 2006-2010, 2013:2.80

Cooking equipment as lead cause of, 1999:5.20

Cooking equipment fires, 2003-2006, **2010:**3.110

Cooking equipment fires, 2004-2008, 2011:1.75

Cooking equipment fires, 2005-2009, 2012:1.74

Cooking equipment fires, 2006-2010, 2013:2.77

Electrical fires, causes of, 2000:2.70

Fatalities, strategies to reduce, 2013:5.68

Fire service operations at residential fires should not be considered routine, 2003:4.26

Fire statistics and safety information, 1998:5.112

Firefighter fatalities related to, 1995:4.87

Heating equipment, home fires involving, 2012:1.74

Home electrical fires, report on, 2009:3.130

Home health care safety risks, 1998:1.64

Ignition factor study; increased awareness of cause and effect can promote fire safety, **1999:**1.42

Kitchen equipment other than cooking equipment, involvement in fires of, 2009:6.87

Kitchen equipment other than cooking equipment, involvement in fires of, 2006-2010, **2013:**2.77

Kitchen fire statistics, fire safety information, 1998:1.88

Mattresses and bedding, fires starting with, 2005-2009, 2012:1.76

Montgomery County, Maryland, offers tax credit for residential sprinkler installation, **2000:**6.63

Natural gas and LP-Gas fires, 2003-2006, **2010**:3.112

NFPA grants target states most vulnerable to fire deaths, 2005:2.10

NFPA "Great Escape" promotes home fire drills and escape plans, 1998:3.74, 4.32

Physical disability as factor in home fire deaths, 2009:6.85, 2011:4.77

Products ignited in, 1991:5.72

Reporting protocol for non-dwelling fires revised, 1996:4.55

Residential fire safety relies on education, 2003:4.30

Residential sprinkler ordinances hurt by public's misconceptions, 1998:2.58

Residential sprinkler protection required in NFPA Life Safety Code® and Building Construction and Safety Code®, **2005**:4.10

Residential sprinklers discussed on television talk show, 1998:3.52

Residential sprinklers supported by statistics, technology, and life-safety benefits, 2005:4.36

Smoke detector experience, 2009:6.86

Sprinklered *vs.* non-sprinklered home burn demonstration measures environmental impact of fires, **2009**:6.15

Upholstered furniture flammability's significant role in home fires brings new research, testing, and regulations from NFPA, others, **2013:**5.46

U.S. Fire Administration event focuses on effect of fast-paced technological change on home fires. **2013**:2.26

U.S. fires, 2005-2009, statistics, 2011:4.75

Winter fire dangers and fire safety, 2011:1.11

Winter fire safety tips offered by NFPA, 2013:1.10

Winter fires, 2004-2008, U.S. statistics, 2011:1.77

RESORT FIRES

Colorado, 1992, 1993:1.25

Florida, Dec., 2008, 2009:6.79

RESTAURANT FIRES

Arizona, 2008, 2009:6.25

California, 1990, 1992:3.34

California, 1992, 1993:4.28, 1993:5.35

California, 1997, 1998:3.36, 4.22

California, 2010, 2011:1.26

California, April, 2005, 2006:6.74

Catastrophic

Indiana, Feb. 6, 1992, 1993:5.66

Iowa, Oct. 17, 1994, 1995:5.62

Minnesota, Dec. 11, 1998, 1999:5.55

Colorado, May 10, 1999, 2000:6.96

Colorado, 2000, 2001:5.22

Colorado, 2002, 2003:1.12

Colorado, , Nov., 2008, 2009:5.84

Connecticut, 1996, 1997:4.22

Florida, 1994, **1995:**2.31

Florida, 1996, 1997:3.29

Florida, 2001, 2002:3.32

Florida, 2002, 2003:6.12

Florida, Jan., 2005, **2006**:6.73

Illinois, 1991, 1992:5.30

Illinois, Oct. 18, 1996, **1997**:6.59

Illinois, 2000, **2001:**4.22

Illinois, 2008, 2009:2.27

Indiana, 1995, 1996:5.25

Iowa, 2008, **2009:**5.27

Iowa, 2011, **2012:**1.23

Louisiana, March, 2006, 2007:6.83

Louisiana, Jan., 2010, 2011:7.56

Maryland, 1999, 2000:1.19

Maryland, 2005, 2006:2.30

Maryland, 2008, 2009:3.43

Massachusetts, 1955, 1965; Wayside Inn fires, 1994:6.75

Massachusetts, 1996, 1997:4.22, 5.22

Massachusetts, 2001, 2002:2.25

Massachusetts, 2007, 2008:4.19

Michigan, 1990, 1991:2.32, 1991:6.23

Michigan, 1994, 1995:1.34

Michigan, 1995, 1996:3.35

Michigan, 1998, **1999:**5.21

Minnesota, 1991, 1992:6.25

Minnesota, 2001, 2002:5.22

Missouri, 2010, 2011:4.18

New Hampshire, 2010, **2011:**7.20

New Jersey, May, 1998, 1999:6.95

New Jersey, 2001, **2002:**2.26, **2002:**6.22

New Jersey, 2003, 2004:4.19

New Jersey, 2012, **2013:**5.20

New York, 1996, 1997:6.22

North Dakota, 1993, 1994:3.28

Ohio, 1995, **1996:**3.35

Ohio, 1997, **1998:**6.21

Ohio, 2000, 2001:1.20

Ohio, 2010, 2011:5.14

Oklahoma, Jan., 1994, 1995:6.98

Oklahoma, 2003, 2004:3.22

Pennsylvania, 2011, 2012:3.38

Safe commercial cooking operations, 1997:1.33

Tennessee, 1997, 1998:5.18

Texas, Sept., 2008, 2009:6.83

Texas, 2011, 2012:4.29

U.S. fires, 2004-2008, statistics, **2011:**1.74

Virginia, 1995, 1996:3.36

Virginia, 1996, 1997:2.21

Washington, 2005, 2006:3.30

Washington, 2010, 2011:3.44

Wisconsin, 1993, **1994:**3.29

Wisconsin, 2002, 2003:2.20

RHODE ISLAND

Apartment building fire, 1992, **1993:**2.22

Apartment building fire, 1999, 2000:4.19

Apartment building fire, 2003, 2004:1.15

Apartment building fire, 2009, 2010:2.23

Apartment building fire, 2011, **2012:**5.25

Apartment building fire, 2012, 2013:6.18

Building-under-renovation fire, 2003, 2004:3.24

Catastrophic fires

Aircraft, Aug. 26, 1995, 1996:5.99

Apartment building, Feb. 27, 1993, 1994:5.96

Apartment building, Dec. 23, 1995, 1996:5.93

Apartment building, Dec., 2000, 2001:5.77

Dwelling, Feb., 2010, 2011:5.75

Nightclub, Feb., 2003, 2004:5.70

College building fire, 1994, **1995:**3.37

Dormitory fire, 2006, 2007:2.22

Dwelling fire, 1995, **1996:**6.22

Gymnasium fire, Jan., 1992, **1993:**6.79

Manufacturing plant fire, 2011, 2012:3.28

School fire, March, 1992, **1993**:6.79

Station, The, nightclub fire, Feb., 2003, led to code changes and more fire service diligence, **2008**:2.68

Station, The, nightclub fire, Feb., 2003, NIST investigation summary, 2005:3.44

Station, The, nightclub fire, Feb., 2003, report on, 2007:3.90

Station, The, nightclub fire, Feb., 2003, survivor Robert Feeney describes advocacy of sprinkler systems and remembers the lost, **2013:**1.12

Station, The, nightclub fire, Feb., 2003, witness statements, 2011:1.15

Storage facility fire, 2006, 2007:4.21

Store fire, 1994, **1995:**3.39

Warehouse fire, May, 1992, 1993:6.86

Warehouse fire, 1994, **1995:**3.39

RICHARDSON, J. KENNETH

Profile of, **1991:**5.20

RIDGE, JOHN

Memorial tribute, 2012:1.32

ROBOTS

Tokyo fire service pioneers use, **1992:**2.67

ROCHESTER, NEW YORK

Risk Watch® program adapted for mothers and children in emergency shelters, **2006:**4.68 ROCKET FUELS

Mixture ignites, causes test facility explosion, fire, 1995:4.40

ROOFS. See also CONCEALED SPACES; WOOD SHINGLES, SHAKES

Asphalt layers factor in fire spread, **1995:**6.107

Collapse, **2000**:4.16, **2000**:6.86, 91, 96, **2001**:1.22, **2001**:3.36, **2003**:3.18, **2003**:4.17, **2007**:2.17, 3.24, **2009**:6.79

Animal shelter, in, **2002:**3.36

Apartment building fire, in, 1997:3.30, 2010:4.27, 2012:6.18, 19

Building supply store fire, in, 1997:6.54

Building-under-construction fire, in, 1991:3.27

Catastrophic dwelling fire, in, 1997:5.50

Defensive attack required, 1998:1.21, 6.89, 2008:4.24

Dwelling fire, in, 2006:6.71

Equipment damaged by, 1994:6.94

```
Fire fighting hampered by, 1993:6.29, 6.83, 1994:6.95, 96, 97, 1995:6.37, 100, 106, 107, 108, 1996:6.70, 2002:1.19, 21, 3.32, 4.20, 2005:4.22, 2007:5.31, 6.76, 80, 2008:5.58, 2009:2.22, 5.80, 6.24, 76, 2010:4.27, 2010:5.29, 2012:6.64, 2013:1.26, 2.18, 4.18

Fire spread by, 1994:6.95, 1999:6.91
```

Fire spread by, **1994:**6.95, **1999:**6.91

Firefighter fatalities related to, **1998**:4.59, **2005**:4.58, **2006**:4.60, **2009**:4.66, **2013**:4.67, 70 Firefighter injuries related to, **1996**:6.109, **1998**:6.54, **2006**:6.84, **2007**:6.93, **2011**:7.62, **2012**:6.72

Garage fire, in, **2013:**6.18

Hotel fire, in, 1997:6.19, 2002:6.20

Investigation hampered by, **2000:**3.38

Manufacturing plant, in, 2002:6.22

Manufacturing plant fire, in, 1992:6.80, 1997:6.49, 52

Multiple occupancy fire, 2005:1.18

Rescue prevented by, 1993:5.64

Restaurant fire, in, 2012:4.29

Shopping mall fire, in, 1997:4.21, 6.21, 2008:1.22

Snow, damages electrical panel, ignites manufacturing plant fire, 1997:1.28

Sprinkler system damaged by, 1996:6.62

Sprinkler system rendered inoperable by, 1991:6.74, 75, 1993:6.84, 85, 1998:6.87

Storage facility fire, 1998:5.18

Store fire, in, 1992:6.78

Trusses, collapse of, 2000:6.88

Trusses, collapse of, firefighter fatalities related to, 1997:4.57, 1999:4.76, 2000:5.60

Trusses, collapse of, in apartment building fire, 1997:2.22

Trusses, collapse of, in automobile repair shop fire, 1997:2.23

Water supply cut off by, 1993:6.83

Concrete thickness delays venting, 1995:6.106

Electrical grounding, ignited by, 1995:5.35

Fall from, firefighter fatality related to, 2008:4.86

Fall from, firefighter injury related to, 2000:6.46, 2008:6.54

Fire fighter operations on roofs prompt special concerns, 2007:6.28

Fire safety statistics and construction/repair recommendations, 1999:2.96

Fire spread across/through, **1991:**4.57, 5.28, 6.73, **1992:**4.69, .70, 5.30, **1994:**4.31, 5.98, 6.93, **1996:**2.23, 3.35, **1997:**1.27, 5.21, 49, 6.21, 53, 57, **1998:**2.18, 3.38, **1999:**5.21,

1999:6.90, 91, **2000:**1.19, 4.18, 20, 6.84, 86, 88, 90, **2001:**3.34, **2002:**4.18, 20,

2003:3.18, **2005:**1.16, 4.18, 6.49, **2006:**6.73, **2007:**1.20, 6.77, **2008:**6.43, **2009:**3.43,

5.23, **2010**;3.38, **2011**;7.55, 58, **2013**;2.18, 20, 21, 3.29, 4.24, 5.20, 27

Fire started in, **1994:**4.29, **1997:**6.59, **1999:**6.90, 95, **2001:**6.22, **2002:**5.18, 21, **2012:**5.25, **2013:**6.56

Fire vented through, **1991:**4.67, **1998:**2.20, **2000:**6.16, 88, **2008:**1.24, **2009:**6.75, **2012:**5.70, 6.19, **2013:**6.52

Fireworks, ignited by, **1992:**4.27, **2001:**4.24, **2004:**4.16, **2011:**4.22

Gas-fueled fire, ignited by, 1994:6.35

Gasoline-powered saw, ignited by, 1992:3.31

Grass fire, ignited by, 1991:4.26

"Green roof" gardens, photovoltaic arrays, wind turbines and more, concern fire service and code community, **2009:**6.48

Insulation ignited by welding, 1994:6.94

Layer ignited, **1994:**6.95

Lighting short circuit ignites roofing material, 2001:2.20

Lightning, ignited by, **2010:**4.30

Lightning, ignited by; framing fails and collapses, 1992:6.78

Lightning travels along metal roof, ignites rafters, **1995**:6.98

Metal roof, delayed fire venting, 2001:5.75

Metal roof installed over existing roof created concealed spaces, 1995:4.40

Multiple layers, hamper fire service operations, 1997:6.21

Noncombustible, limited fire spread, 1994:6.97

Plywood subroof spreads fire, 1994:6.94

Rafters ignited by ceiling heater, 2012:2.22

Roofer's circular saw sparks, ignites cellulose insulation, 2002:4.16

Roofers ignite fire in roofing materials, 2000:6.88

Roofers run screw through electrical conduit, ignite fire, **1995:**6.99

Roofer's torch, tar ignite roof framing, 1998:2.19

Roofer's torch ignites exterior wall, 2012:4.22

Roofer's torch ignites fire, 2001:6.62

Roofer's torch ignites insulation, **1995:**3.40

Roofer's torch ignites roof, **1994:**3.29, **1995:**6.98, **1997:**2.21, 6.19, **2010:**6.64, **2011:**3.33, **2012:**6.66

Roofer's torch ignites roof-covering glue, **2003:5**.20

Roofer's torch possibly ignites roof, **1996:**6.73

Roofing materials ignite roof, 2004:5.14

Sawtooth roof design channeled fire to assembly area, 1995:6.104

Second roof installed over existing roof conceals fire, 1998:6.84

Slate roof contained fire for long time before self-venting, 2000:6.93

Sloped, delayed sprinkler activation, 1998:6.89

Tar, ignited by, **1991:**6.23

Tar kettle ignites propane leak, 1997:3.33

Tar on roof contributes to fire spread, 1994:6.93, 94, 95

Tar paper ignited by torch, 1994:6.96

"Tudor" soffit allowed fire spread, **1994:**6.90

Welding operations ignite roofing materials, 1999:4.22

Wood, factor in wildland fire spread, 1994:6.99

Wood-and-tar roof ignited by torch, **1994:**6.95

Wood shake shingles factor in wildland fire spread, 1993:6.89

Wood shingles ignited by cigarette, 1996:5.25

Wood shingles ignited by fireworks, **1996**:4.21, **1997**:3.30

ROOMING HOUSE FIRES

Catastrophic

Ohio, Feb. 18, 1991, 1992:4.67

Ohio, April, 2003, 2004:5.69

Ohio, Nov., 2009, 2010:5.67

Pennsylvania, April, 2001, 2002:5.82

Pennsylvania, Dec., 2008; illegal use, 2009:5.80

Connecticut, 1998, **1999:**6.18

Massachusetts, 1996, 1997:1.26, 6.19

Missouri, 2002, 2003:2.23

Ohio, 2000, 2001:6.21

ROW HOUSES. See APARTMENT BUILDING FIRES

ROWE, ALAN

Interview with, 2013:4.14

RUBBER FIRES. See also FOAM RUBBER OR POLYURETHANE; TIRE FIRES

Hot rubber waste ignited in waste hopper, **1995**:4.40

Stored rubber goods ignited in incendiary fire, 2004:6.57

RUBBISH AND TRASH. See also DUMPSTER FIRES

Aerosol can used to ignite trash, 1997:1.27

Apartment fire spread, factor in, 1991:4.25

Ashes ignite trash in plastic container, 2012:5.24

Basement debris, fire ignited in, 1994:5.98

Burning paper in waste disposal system ignites stored waste, 1997:5.24

Cigarette lighter used to ignite dumpster trash, 1998:4.20

Cigarette lighter used to ignite trash, 2012:6.24

Cigarette(s) ignite construction debris, **1997:**3.30

Cigarette(s) ignite fire in trash barrel, **1994**:6.35, **2004**:6.18, **2008**:5.27, **2011**:3.40

Cigarette(s) ignite fire in wastebasket, **2004**:6.17, **2009**:3.44, **2010**:4.24

Cigarette(s) ignite trash, 2009:1.19

Cigarette(s) ignite trash can contents, **2010**:5.30

Cigarette(s) ignite trash in metal can, 2009:2.24

Cigarette(s) ignited trash in catastrophic fire, **1992:**4.69

Cigarette(s) ignites fire in trash bag, 1996:5.24

Cutting operations ignite rubbish in pile, 1999:6.97

Cutting operations ignite rubbish in stairwell, 2008:5.26

Cutting torch ignites trash, 2000:3.38

Debris barrel fire spreads to brush, storage building, **2000**:4.20

Debris stored on hospital roof ignited, **2002:**5.21

Debris used as shelter by homeless burned in catastrophic fire, 1998:5.53

Dumpster, fire ignited in, 2013:4.21

Dumpster, fire ignited in, involves warehouse, 1991:1.31

Dumpster, fire ignited in, spreads to mall canopy, 2002:3.34

Dumpster, incendiary fire started in, 1999:6.92

Dumpster, incendiary fire started in, spreads smoke up chute, 2011:7.18

Electric skillet ignites trash container, 1995:2.29

Fire started in recycling container doused by sprinkler, **2013:**2.23

Fire started in trash in alley spreads to motel, **2012:**4.22

Fire started in trash spreads to stored propane cylinders, 2000:6.16

Fireworks ignited in recycling bin ignite combustibles in school fire, 2007:3.23

Lighter ignites trash in catastrophic fire, **1991:**4.68

Manufacturing plant fire, ignited in, 1998:6.87

9-volt battery contacts metal foil in trash, heat ignites other combustibles, 2013:1.25

Oil-soaked refuse spontaneously ignites, 2000:2.21

Polyester waste ignited by welding, 2004:6.52

Rags soiled with stain ignite other trash, 1995:6.38

Shopping cart filled with refuse ignited in store fire, 2006:6.69

Shredded trash, fire ignited in, 1993:6.82

Smoking materials ignite fire in trash container, 1996:3.35

Smoking materials ignite trash in catastrophic fire, **1997:**5.52

Smoking materials ignite trash in kitchen trash can, 1999:4.19

Smoking materials ignite trash in trash chute, 2013:5.26

Smoldering scraps ignite trash in bin, 2013:6.51

Sodium experiment, discarded, ignites trash, 1999:3.43

Trash, fire ignited in, 1996:2.25, 2008:6.21

Trash barrel, incendiary fire ignited in, 2011:4.19

Trash burning in fireplace spills onto floor, ignites combustibles, 2009:6.24

Trash chute/dumpster ignited by incendiary fire, 2010:4.24

Trash container, fire ignited in, 1994:5.27

Trash container, fire spread to, 2012:5.30

Trash container on porch, fire ignited in, 2010:5.66

Trash dropped near boilers ignited by radiant heat, 2005:2.22

Trash in chute ignites between floors, **2006**:6.22

Trash on floor ignited by cooking fire, **2013**:6.21

Trash on floor ignited by paper towel, 2001:6.21

Trash on loading dock, fire ignited in, 1993:6.84

Unknown source ignites trash in catastrophic fire, 1992:4.69

Waste chemicals in dumpster react, ignite waste products, 1997:5.24

RUGS. See CARPETS AND RUGS

RURAL FIRES

NFPA/U.S. Fire Administration report on rural fire problem, **2008:**4.68

Prevention is shared responsibility of citizens, fire service, government, 1994:5.35

RUSSIA

Hermitage Museum presents fire protection challenges, 2003:1.46

Visit to Russia is part of NFPA effort to fight wildfire through international outreach, 2013:5.44

S

SAN FRANCISCO, CALIF.

Earthquake and fire, April 18, 1906, looking back, 2004:6.96

Earthquake and subsequent fires, October 17, 1989, 1994:3.88

Fire department peer mediation program, 1991:3.62

Fire fighting challenges of city fire department, 1994:3.119

Palace Hotel fire, 1906, 2000:4.70

SANDERS, RUSSELL E.

Profile of, **1993:**1.20

SANDY HOOK ELEMENTARY SCHOOL

Mass-casualty shooting, Dec. 14, 2012, fire department role in integrated response, **2013:**5.52 SARGENT, NEBRASKA

Sprinkler system retrofit, Beverly Healthcare facility, 2006:1.54

SAUDI ARABIA

Kingdom Centre, Riyadh, incorporates NFPA codes and standards, 2002:3.66

SAWMILL FIRES. See MILL FIRES

SCANNELL, JERRY

Profile of, **1996:**3.55

SCHIRMER, CHET

Remembering former NFPA Board chair and active supporter of organization, **2013:**2.13 SCHOOLS

Bulletin boards and decorations, code requirements for, 2012:5.38

Code enforcement keeps life loss low in educational occupancy fires, 2003:5.32

Exits require balancing fire safety and security needs, 1998:3.46

Fire alarm systems requirements, 2003:5.36

Fire drills, planned programs for, 1991:2.24

Fire drills keep schools fire safe; fire statistics, **1999:**1.80

Gibsonville, North Carolina, learns value of fire protection systems and disaster planning after high school burns, **2009:**5.64

Lockdown procedures can run counter to NFPA 1, *Fire Code*, and NFPA 101[®], *Life Safety Code*[®] egress requirements, **2013:5**.55

Minnesota pilot project evaluates delayed evacuation plan, 2003:5.42

Natural gas explosion, New London, Texas, March 18, 1937, 1993:5.94

NFPA 101, *Life Safety Code*[®], and NFPA 72[®], *National Fire Alarm and Signaling Code*, allow schools to use fire alarm system for nonfire purposes, **2012:**5.40

Retired high school used by NIST to evaluate positive pressure ventilation, 2008:5.78

Sandy Hook Elementary School, Connecticut, mass-casualty shooting, Dec. 14, 2012, fire department role in integrated response, **2013:**5.52

School Emergency Evacuation Planning Checklist geared to teachers, administrators, staff, parents, and students, **2007:5**.17

School fire safety holds lessons for other occupancies, 1997:5.104

Successful management of school fires, 2003:5.28

SCHOOL FIRES. See also COLLEGE BUILDING FIRES; DORMITORY FIRES

Arizona, 2010, **2011:**4.19

Art center, Massachusetts, April 9, 1999, 2000:6.96

Building-under-renovation, Washington, 2001, 2002:6.75

Building-under-renovation, Washington, Nov., 2009, 2010:6.63

California, 1991, **1992:**6.29

Catastrophic, elementary, Maryland, Oct. 24, 1993, 1994:5.105

Church school, Missouri, 2001, **2002:**5.22

Connecticut, 2007, 2008:1.22

Under construction, Minnesota, 1994, 1995:3.39

Elementary, Alaska, Aug., 2006, **2007:**6.82

Elementary, California, 1992, 1993:4.28

Elementary, California, 1997, 1998:1.21

Elementary, California, 1999, 2000:4.20

Elementary, California, Nov., 2003, 2004:6.57

Elementary, California, July, 2010, 2011:7.58

Elementary, Indiana, 2000, 2001:6.23

Elementary, Massachusetts, 1992, 1993:3.33

Elementary, Massachusetts, 2012, 2013:5.27

Elementary, Oregon, 1991, 1992:2.25

Elementary, Utah, March, 1995, 1996:6.73

Elementary, Utah, 2012, 2013:2.23

Elementary, Washington, 2006, 2007:3.23

Elementary/middle, North Carolina, 2004, 2005:1.14

Elementary/secondary, Hawaii, June, 2006, 2007:6.83

Lake View School, Collinswood, Ohio, March 4, 1908, 2008:5.64

London Consolidated School, New London, Texas, March 38, 1937, 2010:5.80

Middle, California, Feb., 2004, 2005:6.49

Middle, Massachusetts, 2004, 2005:4.16

Middle, Missouri, April, 2010, 2011:7.57

Middle, Oregon, 1993, 1994:5.28

Middle, South Carolina, 2010, 2011:5.21

Middle, Texas, Nov., 1998, 1999:6.97

Middle, Utah, July, 2005, 2006:6.75

Middle, Virginia, 2012, 2013:3.29

Middle/secondary, Arkansas, Aug., 2006, 2007:6.82

Oregon, 2009, 2010:4.31

Our Lady of the Angels school, Chicago, IL, 1958, 1996:1.72

Our Lady of the Angels school, Chicago, IL, 1958, Looking Back column, 2003:5.104

Secondary, Arizona, 2010, 2011:5.22

Secondary, California, 2002, 2003:5.20

Secondary, Connecticut, 2001, 2002:6.22

Secondary, Connecticut, 2003, 2004:5.20

Secondary, Connecticut, 2005, **2006**:1.20

Secondary, Connecticut, 2008, **2009:**4.22

Secondary, Florida, 1993, 1994:1.29

Secondary, Indiana, April, 1994, 1995:6.98

Secondary, Indiana, Dec., 1994, 1995:6.98

Secondary, Maine, 1998, 1999:4.22

Secondary, Maine, 2003, 2004:5.20

Secondary, Massachusetts, 1991, **1992:**4.27

Secondary, Massachusetts, 1998, 1999:2.25

Secondary, Michigan, 2000, **2001:**1.20

Secondary, Minnesota, 2011, 2012:5.28

Secondary, New Jersey, 2011, 2012:1.22

Secondary, Pennsylvania, 1996, 1997:3.34

Secondary, Rhode Island, March, 1992, **1993:**6.79

Secondary, Tennessee, 1993, 1994:2.30

Secondary, Virginia, 1995, 1996:5.25

Secondary, Washington, 1998, 1999:3.43

Secondary, Washington, Jan., 2002, 2003:6.81

Secondary, Washington, 2004, 2005:1.14

Texas, May, 1998, 1999:6.97

Texas, 2007, 2008:4.24

Vacant, Indiana, June 25, 1999, 2000:6.95

Vacant, Nova Scotia, Canada, 1991, 1992:5.30

Vacant school complex, Mississippi, 1990, 1991:3.27

SCOTTSDALE, ARIZONA

Required residential sprinklers increase fire safety, **1997**:4.40

SEARCH. See FIRE SERVICE RESCUE AND EXTRICATION

SEATING

Festival seating addressed in NFPA 101®, Life Safety Code, 2002:1.29

Festival seating as factor in Riverfront Stadium, Cincinnati, concert disaster, Dec. 3, 1979, **2002:**1.80

Improving accessibility of assembly seating, 2002:1.24

SEATTLE, WASHINGTON

Fire alarm system installer certification required by, 1993:1.55

Ship fire, Sept. 16, 1991, **1992**:6.48

SECTION FORUM COLUMNS, **2006**:5.80, 6.86, **2007**:1.61, 2.69, 3.145, 4.87, 5.89, 6.96, **2008**:1.68, 2.86, 3.126, 4.94, 5.96, 6.74, **2009**:1.68, 2.70

SECTION NEWS COLUMNS, **2002**:2.78, 3.106, 4.92, 5.90, 6.76, **2003**:1:66, 2.78, 3.96, 4.68, 5.76, 6.82, **2004**:1.64, 2.76, 3.78, 4.64, 5.74, 6.76, **2005**:1.64, 2.72, 3.74, 4.76, 5.86, 6.78, **2006**:1.64, 2:78, 3.126, 4.74

SECTIONS, THE, COLUMN, **2009**:3.127, 4.69, 5.85, 6.88, **2010**:1.76, 2.76, 3.115, 4.83, 5.74, 6.78, **2011**:1.68, 2.68, 3.125, 4.72, 5.86, 7.72, **2012**:1.68, 2.76, 3.83, 5.83, 6.75, **2013**:1.68, 2.82, 3.84, 4.83, 5.75, 6.68

SECURITY PROVISIONS

Access-controlled egress doors and locks, NFPA 101®, *Life Safety Code*® requirements, **2007:**5.40

Airport security measures jeopardize life safety, 1996:6.85

Amusement park security programs, technology of, **2006:**3.79

Building security devices increase risk of fire injury, 1999:3.176

Building security measures contribute to fire deaths, **1994:**3.110

Chain and lock on fenced area, factor in storage facility fire, 1997:6.56

Child-resistant door knob covers difficult to remove, 2003:5.14

Dead-bolt lock delays escape, 2000:4.19, 2000:6.16, 17

Electric locks evaluated for compliance with NFPA 101, Life Safety Code, 1999:6.26

Electronic locking devices hindered rescue in catastrophic prison fire, 1992:4.70

Fire safety implications of home security systems, **1994:**3.4

Gates, chains, factor in catastrophic dwelling fire, 2005:5.58

Gates, chains, factor in school fire, 1993:6.79

Gates, factor in fatal fire, 1995:3.37

Gates, locked, factor in large-loss fire, 2004:6.56

Health care occupancies cope with crime and violence, 2002:4.44

Health care occupancy security management requires code compliance, 2006:1.58

Key box keys no longer worked, 2000:1.19

Locked exits (See EXITS)

NFPA 730, Guide for Premises Security, and NFPA 731, Installation of Electronic Premises Security Systems, aid quality and reliability of security installations, **2005**:1.40

NFPA 730, Guide for Premises Security, and NFPA 731, Installation of Electronic Premises Security Systems, bring first installation standard and design guide to industry, **2006**:6.48

NFPA 730, Guide for Premises Security, and NFPA 731, Installation of Electronic Premises Security Systems, focus on contemporary issues, **2006:**1:10

NFPA moves toward premises security standard, 2001:4.48

School exits require balancing fire safety and security needs, **1998:**3.46 Security bars

Catastrophic fires, factor in, **1991**:4.64, **1993**:5.62, **1994**:5.95, 96, **1996**:5.93, **1997**:5.51, **1998**:5.45, 50, **1999**:5.50, 5.53, **2000**:5.57, **2001**:5.76, 77, **2004**:5.68, 5.71, **2005**:5.55, 56, 57, 58, **2006**:5.60, 61, **2007**:5.58

Fatal fires, factor in, **1991**:4.26, **1992**:6.28, **1994**:3.110, 5.95, 96, **1995**:2.29, **1996**:1.23, **2001**:4.22, 6.20, **2002**:3.30, **2003**:1.16, 6.14, **2004**:2.19

Immobile security bars, dangers of, 2003:4.38

Immovable security bars can trap occupants; quick-release bars needed, 2003:2.44

Washington, D. C. airports equipped with state-of-art security systems, 1998:4.80

SELF-CONTAINED BREATHING APPARATUS

Air supply used up, cause of fire fighter fatalities, 1996:5.96

Firefighter injuries related to, 2006:6.83

NFPA 1981, Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services, adopted by U. S. Homeland Security Department, **2004**:2.34

Safety alert issued for SCBA facepiece lenses, 2012:5.17

SEMICONDUCTOR MANUFACTURING

Fire protection for, 1992:2.32

SENIOR CITIZENS, HOUSING FOR. See HOUSING FOR ELDERLY FIRES

SERVICE STATIONS

Station design must consider technology, market demand, code and federal requirements, **1998:**4.76

SERVICE STATION FIRES

Catastrophic, Mississippi, Aug. 9, 1998, 1999:5.55

Catastrophic, West Virginia, Jan., 2007, 2008:5.60

Massachusetts, 1995, 1996:6.21

NFPA 30A, *Automotive and Marine Service Station*, expanded to cover alternative fuels, **2000:**4.83

Ohio, 2004, 2005:5.32

70E CONNECTION, THE. See also ELECTRICAL SAFETY COLUMNS

2012 edition, full head protection required for all hazard/risk category 2 tasks, 2011:3.62

2012 edition, proposed changes, 2010:3.58, 2011:1.40

2012 edition, tracking evolution of, 2010:1.40

Arc flash personal protective equipment requirements, 2008:4.38

Arc flash warning label revisions targeted by proposed code changes, 2008:3.46

Electrical equipment labeling requirements for *NEC*® and 70E protect against arc flash hazard, **2010**:4.46

Energized electrical work permit paperwork protects employees performing energized work, **2011:**7.40

Fine print notes contain important information, 2009:1.33, 2009:2.40

Inspection to be covered by 70E, proposal for, **2011:**1.40

Locking and tagging is best way to create safe work condition, **2011:**4.40

Maintaining electrical equipment promotes safety, 2009:4.36

National Electrical Code® and NFPA 70E team up to minimize risk on energized equipment, **2010:**5.48

National Electrical Code[®] and NFPA 70E work together for greater electrical safety, **2009:**5.42 New Hampshire now requires personal safety training for all apprentice electricians, **2010:**6.37 OSHA and 70E definitions of "qualified person" for electrical construction and operation, **2008:**5.44

OSHA and NFPA 70E requirements for energized work go beyond mere convenience, **2010**:2.42

Personal protective equipment selection requirements revised in 2009 edition, **2008**:6.34 Portable GFCI protection protects against faulty tools and extension cord sets, **2011**:5.40

Proper use of test equipment can save your life, 2011:2.42

Property managers and electrical contractors aided by 70E training and hazard information requirements, **2009**:3.58

Users of 70E can participate in NFPA revision process for new edition of standard, **2009**:6.38 SEWAGE TREATMENT PLANTS. *See* WASTEWATER TREATMENT PLANTS SHANNON, JIM

Fire and life safety issues facing Obama administration, interview on, **2009**:1.11 NFPA President will remain as president until 2014, outlines 2012 initiatives, **2012**:1.12 Profile of incoming NFPA president, **2002**:3.62

SHANTY FIRES

Catastrophic, Pennsylvania, March 24, 1990, 1991:4.69

SHARRY, JOHN

Profile of, **1994:**6.26

SHAW, HARRY

Memorial tribute, 2012:3.14

SHED FIRES

California, 1991, **1992:**6.26

Catastrophic, Missouri, Sept. 14, 1991, 1992:4.70

Oregon, 2011, **2012:**4.23

Texas, 1992, **1993:**2.20

SHELTER-IN-PLACE. See PROTECT-IN-PLACE

SHIPS

NFPA 301, Safety to Life from Fire on Merchant Vessels, annual meeting review, **2001**:2.80 NFPA 301, Safety to Life from Fire on Merchant Vessels, requirements for fire-safe design, operation, and maintenance, **2001**:1.28

NFPA maritime codes, standards, and training aid marine industry life safety, 2004:4.38

NFPA-trained marine chemists oversee safe work practices for U.S. vessels and shipyards, **2013**:2.58

NFPA's 75 years of marine fire protection, **1997:**2.90

Submarines, fire safe construction of, 2001:1.48

```
Tanker fire safety, 1998:3.70
```

SHIP EXPLOSIONS

Munitions ship, Halifax, Nova Scotia, Dec. 6, 1917, 1992:3.96

SS Sultana explosion, April 27, 1865, killed 1,700 people, **2013:**2.88

SHIP FIRES. See also BARGE FIRES; BOAT FIRES

Cargo, Texas, Mar., 1998, 1999:6.94

Catastrophic

Barges, Louisiana, Oct. 30, 1990, 1991:4.70

Passenger cruise ship, Alaska, July 27, 1996, 1997:5.54

Tanker, Texas, Oct. 9, 1993, 1994:5.108

Cruise, Florida, July, 1998, 1999:6.94

Cruise, Florida, July 20, 1998, fire investigation report, 1999:1.38

Cruise ship lines are taking threat of ship fires seriously, **2007:**1.36

Cruise vessel fires raise questions about regulations, 1998:3.66

Fish-processing vessel, Seattle, Wash., Sept. 16, 1991, 1992:6.48

Florida, Aug., 1993, **1994:**6.98

Large-loss-of-life

General Slocum excursion steamer, N. Y., N. Y., 1904, 1995:4.80, 2011:1.80

S. S. Noronic, Toronto, Canada, Sept. 17, 1949, 1997:1.58

Texas City, Texas, explosion and fire of ships carrying ammonium nitrate, April 16, 1947, **2012:**3.112

S.S. *Morro Castle* disaster, Sept. 8, 1934, **2004:**4.80

Submarine, Maine, May, 2012, 2013:6.59

Texas, Nov. 11, 1997, 1998:6.91

Washington, Jan. 2, 1999, 2000:6.94

Washington, 2001, 2002:6.75

SHOPPING MALLS

Mall of America, Bloomington, Minn., fire protection and life safety systems, 1999:6.66

Stratosphere Mall, Las Vegas, Nevada, fire protection systems, 2001:6.66

SHOPPING MALL FIRES

Arkansas, 1996, **1997:**4.21

Arkansas, 1999, **2000:**5.23

California, 1993, **1994:**6.35

California, 1998, 1999:4.21

California, Nov., 1998, 1999:6.94

California, 2000, 2001:2.23

California, 2007, 2008:1.22

California, Oct., 2010, 2011:7.59

Florida, Sept. 6, 1996, **1997**:6.53

Florida, 1998, 1999:4.22

Georgia, 2008, **2009:**4.17

Illinois, 2010, **2011:**4.21

Indiana, 2005, 2006:1.20

Kansas, 2008, 2009:5.28

Louisiana, Sept., 2005, 2006:6.74

Maryland, 2006, 2007:1.20

Massachusetts, Feb., 1998, 1999:6.94

Michigan, 2006, 2007:1.20

Missouri, 1997, **1998:**2.20

Missouri, 2010, 2011:5.14

Nevada, 1992, 1993:2.19

New Jersey, 1990, 1992:1.21

New Jersey, 1997, 1998:6.21

New Jersey, May, 2006, 2007:6.80

New York, May, 1991, 1992:6.77

Pennsylvania, Dec., 1994, 1995:6.99

Pennsylvania, 1996, 1997:6.21

Pennsylvania, Oct., 1998, 1999:6.92

Pennsylvania, 2009, 2010:5.35

Tennessee, 2010:3.42

Texas, 2003, 2004:1.17

Utah, 2008, **2009:**5.29

Virginia, 2011, 2012:5.30

Washington, 1999, 2000:3.32

Washington, 2001, 2002:3.34

Washington, 2003, 2004:4.18

Washington, 2004, 2005:3.32

Washington, 2012, **2013:**4.19

West Virginia, March, 1995, 1996:6.70

Wisconsin, 1989, 1991:1.29

SIGNALING SYSTEMS. See ALARM SYSTEMS

SIMMONS, PHILIP

Profile of. **1994:**2.23

SINCE YOU ASKED COLUMNS

Electrical experts answer questions on *National Electrical Code*, **1996:**1.28

Fire extinguisher questions, **1996:**4.28

Hazardous materials classification and containment, 1996:2.30

NFPA 99, Health Care Facilities, questions, 1996:6.28

Public fire protection's most asked questions, **1996:5**.30

Ouestions on various codes answered, 1996:3.44

SMITHSONIAN INSTITUTION

SimplexGrinnell contracts to provide fire protection services, 2005:4.72

SMITTLE, WALTER, III

Profile of, 1992:6.20

SMOKE

Fire Protection Research Foundation and Underwriters Laboratory complete Smoke Characterization Project, **2007:**3.17

SMOKE BARRIERS/SMOKE PARTITIONS

NFPA 101[®], Life Safety Code[®], requirements, **2007:**5.81, **2012:**3.48

Purpose, application, and use of, 2001:6.28

SMOKE CONTROL

Fire Dynamics Simulator software provides safest atrium smoke control design for real world enforcement, **2008:**1.50

Meeting smoke control requirements for atria in green building designs, 2008:1.56

NFPA 105, *Installation of Smoke-Control Doors*, recommended practice considered for upgrading to standard, **2001:**5.59

NFPA 105, *Smoke Door Assemblies and Other Opening Protectives*, 2010 changes, **2009:**3.87 Smoke door release methods, health care occupancies, **2005:**6.30

Washington Dulles International Airport AeroTrain smoke control systems aid safe passenger evacuation, **2010**:4.62

SMOKE DETECTORS. See DETECTORS, SMOKE

SMOKE INHALATION

Firefighter fatalities related to, 1999:4.67, 2003:4.63

Firefighter injuries related to, **1991:**6.52, **1994:**6.64, **1997:**6.75, **2001:**6.54

Smoke and burns compared as fire death causes, 1995:1.38

SMOKE REMOVAL SYSTEM

Polyurethane foam manufacturing plant fire, use on, 1998:6.21

Theater fire, successful use in, 1999:3.44

SMOKE VENTS

Satisfactory performance, warehouse fire, 1996:4.23

SMOKING MATERIALS. See also CIGARETTES

Careless disposal of

Apartment building fire cause, 2000:1.19, 2010:1.22, 2011:2.23, 3.40, 2013:5.26

Apartment building fire cause, marijuana cigarette, 1997:5.22

Barracks fire cause, 1991:6.77

Board and care facility fire cause, 1993:1.29, 1998:5.53

Catastrophic apartment building fire cause, **1994:**5.102

Catastrophic board and care facility fire cause, 1993:5.66, 1995:5.64, 1997:5.52

Catastrophic dwelling fire cause, 1995:5.56, 2006:5.61

Catastrophic fire cause, 1993:5.66, 1994:5.102, 1995:5.56, 64

Catastrophic fraternity house fire cause, **1997:**5.50

Club fire cause, **2004:**6.18

Dormitory fire cause, 2000:6.16

Dwelling fire cause, **1991**:5.26, **1995**:1.34, **1999**:4.19, **2000**:3.34, **2002**:2.25, **2002**:3.30, **2009**:2.21, **2011**:2.23

Fraternity house fire cause, **1997:**6.21

Funeral home fire cause, 1996:6.24

Hospital fire cause, possible, 1992:2.27

Hotel fire cause, 1996:5.24

Manufactured home fire cause, 2009:4.18

Motor vehicle repair shop, 1991:2.30

Passenger terminal fire cause, 1992:6.76

Restaurant fire cause, 1993:5.35, 1996:3.35, 1999:6.95

Store fire cause, **2003:**2.25

Warehouse fire cause, 1995:2.30, 2002:1.19

Wildland/urban interface fire cause, possible, 1995:6.111

Careless use of

Apartment building fire cause, **2005**:5.24, **2005**:6.18, **2006**:3.38, **2008**:4.24, **2010**:3.37, **2010**:4.26, **2011**:4.15, **2013**:6.22

Assisted living facility fire cause, 2009:3.42

Camping trailer fire cause, **2013:**3.28

Catastrophic apartment building fire cause, 1996:5.91, 1998:5.46, 2002:5.82, 2008:5.57

Catastrophic assisted living facility fire cause, 2001:5.78

Catastrophic board and care facility fire cause, 1991:4.68, 1996:5.96, 1996:5.97, 1997:5.53

Catastrophic dwelling fire cause, **1991:**4.67, **1993:**5.62, **1996:**5.91, **1996:**5.92, **1997:**5.50,

1998:5.46, **2004:**5.68

Catastrophic limited care facility fire cause, 1991:4.69, 1993:5.62

Condominium fire cause, 2013:2.19

Dwelling fire cause, **1995**:2.30, **1998**:5.15, **2000**:6.93, **2006**:1.18, 5.30, **2010**:2.24, 3.34, 4.25, **2011**:1.24, 2.22, **2012**:1.14

Elder-care facility fire cause, 2008:3.32

Garage fire cause, **2011:**4.14, **2013:**6.18

By homeless person, vacant store fire cause, 1999:6.20

Hotel fire cause, 1998:6.23, 2002:1.20, 2002:6.21, 2008:6.21, 2013:4.19

Manufactured home fire cause, 2005:6.20, 2008:6.19, 2011:7.14

Manufacturing plant fire cause, 1997:6.50

Nursing home fire cause, 2003:5.20

Oil-change facility fire cause, 1996:3.40

Warehouse fire cause, 2000:6.88

Child playing with, catastrophic fire cause, 2001:5.75

Incendiary fire started by, catastrophic fire cause, 1995:5.64

NFPA joins fight against smoking, 1994:4.4

U. S. fire deaths caused by, 1995 statistics, 1998:1.56

U. S. fire deaths caused by, overview of, 1980-88, 1991:1.86

U. S. fire problem, 2010:6.89, 2012:5.85

SOFTWARE. See COMPUTER SOFTWARE

SOLVENTS

Aerosol solvent containers damaged by forklift, explode, **1996:**4.23

Cleaning solvent vapor ignites tunnel fire, 2008:5.60

Drums of solvent ignited, 1995:6.103

Gasoline, used as solvent, ignited by gas furnace, 1992:6.28

Grinding operations, ignited by, 2010:5.34

Hot engine, ignited by, 1995:3.39

Printing plant fire fueled by, 1996:6.63

PVC, ignited by torch, **1996:**6.23

Spark from forklift, ignited by, 1992:4.28

SOUNDPROOFING MATERIALS

Flammable, catastrophic fire factor, **2004:**5.70

SOUTH AFRICA

Learn Not to Burn® adaptation proposal, 2006:1:12

NFPA Center for High-Risk Outreach educates South Africans on home fire dangers, **2006**:2:70

NFPA Center of High-Risk Outreach trains Johannesburg fire service, 2005:1.10

Wildland fire, January, 1999, **2000:**2.68

SOUTH CANYON FIRE, COLO.

Wildland fire, 1994, **1995**:2.51, **2007**:4.56

SOUTH CAROLINA

Apartment building fire, 2006, **2007:**3.28

Apartment building fire, 2011, 2012:6.26

Automobile repair shop fire, 1996, 1997:5.23

Catastrophic fires

Board and care facility, Nov. 22, 1990, **1991:**4.69

Dwelling, Nov. 7, 1992, 1993:5.64

Dwelling, May 23, 1993, 1994:5.96

Dwelling, Nov. 13, 1993, 1994:5.102

Hotel, Jan., 2004, 2005:5.56

Manufactured home, Sept. 6, 1996, 1997:5.51

Manufactured home, Jan. 19, 1997, 1998:5.45

Manufactured home, Sept., 2004, 2005:5.58

Manufactured home, Jan., 2009, 2010:5.64

Manufacturing plant, June 17, 1991, 1992:4.70

Motor vehicle, March, 2002, 2003:5.75

Motor vehicle, July, 2007, 2008:5.62

Store/warehouse, June, 2007, 2008:5.60

Vacant building, Jan. 9, 1999, 2000:5.60

Club fire, 2010, **2011:**1.26

Club fire, March, 2010, 2011:7.56

Dwelling fire, Aug. 13, 1999, **2000:**6.93

Electric generating plant fire, Dec., 1994, 1995:6.100

Fatal fires

Apartment building, 2008, 2009:3.33

Apartment building, 2011, **2012:**4.26

Board and care facility, 2003, **2004:**1.16

Dwelling, 2001, **2002:**1.21

Dwelling, 2005, 2006:5.30

Dwelling, 2008, 2009:2.24, 6.23

Dwelling, 2009, 2010:4.24

Dwelling, 2011, **2012:**3.32

Manufactured home, 2004, 2005:2.24

Manufactured home, 2005, **2006**:4.26

Manufactured home, 2011, 2012:2.16

Truck/storage tank, 1990, **1991:**2.32

Manufacturing plant fire, 1991, 1992:3.32

Manufacturing plant fire, June, 1991, 1992:6.80

Manufacturing plant fire, Jan., 1992, 1993:6.83

Manufacturing plant fire, Jan., 1993, 1994:6.95

Manufacturing plant fire, Nov. 4, 1997, **1998**:6.87

Manufacturing plant fire, Oct., 2006, 2007:6.76

Manufacturing plant fire, 2009, 2010:4.32

Manufacturing plant fire, 2011, 2012:1.19 Manufacturing plant fire, Feb., 2011, 2012:6.61 Nursing home fire, 2003, **2004:**4.19 Office building fire, 2012, 2013:3.30 School fire, 2010, 2011:5.21 Store fire, Jan. 7, 1997, 1998:6.89 Store fire, 2004, **2004:**3.18 Store fire, 2009, **2010:**5.35 Store/warehouse fire, June 18, 2007, 2008:4.84, 5.60, 2011:1.18 Tank storage facilities fire, 2004, **2005**:3.30 Warehouse fire, Feb. 10, 1997, 1998:6.88 Warehouse fire, 2008, **2009:**6.27 Wildland fire, April, 2009, **2010**:6.67 **SOUTH DAKOTA** Catastrophic fires Aircraft, July, 2012, 2013:5.63 Dwelling, May 8, 1990, 1991:4.66 Fatal fires Dwelling, 2008, **2009:**4.20 Fireworks display accident, 1995, 1996:4.24 Hotel fire, 2010, 2011:1.24 Manufacturing plant fire, 1991:6.75 Manufacturing plant fire, Jan., 2002, 2003:6.77 **SOVIET UNION** Fire prevention and suppression programs in, 1991:6.67 **SPAS** National Electrical Code prevents accidents, 1992:4.22 **SPA FIRES** Florida, Dec., 2008, **2009**:6.79 **SPACE STATION FIRES** Mir space station fire, February, 1998, 2000:1.86 **SPARKS** From downed pole cross arm ignites grass, 2007:6.81 From downed power line, ignite grass, 2007:6.80 Electrical conduit ignite natural gas, 1991:6.74 Gasoline ignited by, 1991:2.31 From grinding operation ignite building materials, 1991:6.75 From heater ignite combustibles, **2006**:6.72 From hole-boring machine ignite coolant oil, **2006:**6.70 From kitchen equipment ignite combustibles, 2006:6.71 From light fixture ignite cardboard and plastic material, 2007:6.78 From steel wool ignite varnish remover, 1991:6.24 From tool ignite gasoline, 1991:4.30

From welding ignite cardboard, 2007:6.79

Wood fibers ignited by, 1997:6.50

SPONTANEOUS IGNITION

Agricultural products, 2011:7.56

Boxed adhesive materials, 1991:6.26

Chemical mixing vat, **2012:**2.19

Chemicals (CMDP) in laboratory, 1991:5.30

Chlorinated pool chemicals, possible ignition of, 2000:3.95

Cooking ingredients, 2011:1.26

Dust and powder for nutritional supplement manufacture, 2001:1.23

Grain stored or growing in outside crop growing area, 2012:6.64

Grease-laden rags, 2002:1.21, 2003:3.14

Hydrogen peroxide, 1993:2.21

Mop heads and towels in laundry cart ignited by heat from drying process, 2011:7.21

Nail salon products stored in bedroom, 2001:3.34

Oil-based paints and thinner containers, cardboard, pallets, insulation, 2004:3.24

Oil-soaked laundry items, 2011:2.27

Oil-soaked rags, **1991**:5.64, 6.25, **1992**:4.71, 5.56, 6.74, **1993**:4.26, 6.79, **1994**:3.27, 4.31, **1998**:6.21, **1999**:2.26, **2000**:2.21, **2004**:6.53, **2007**:6.22, **2008**:5.26, **2011**:1.25, 4.21,

5.22, **2012**:1.23, 4.23, **2013**:4.25, 5.27

"Perk" tank containing lard and animal oils, 2001:6.61

Polyurethane foam bungs, 1998:6.21

Resin-processing pit, 2005:1.20

Solvent soaked rags, 1994:3.27

Stain-soaked paper towels, 1998:4.21

Stain-soaked rags, 1995:6.38, 2004:5.18, 2005:3.28, 2013:4.24

Urethane-soaked rags, 2013:3.31

Varnish-saturated paper towels, **1991:**1.29

Wood finisher-soaked rags, 2008:2.26

SPORTS UTILITY VEHICLE FIRES. See TRUCK FIRES

SPORTS VENUES. See also ARENAS; ASSEMBLY OCCUPANCIES; MOTORSPORTS

VENUES; STADIUMS

Fire alarm challenge, 2004:3.38

Ice rink fire, Minnesota, 2005, 2006:1.22

Operational requirements for, 2004:3.34

SPRINGFIELD, MASSACHUSETTS

City uses Jensen Award for Multi-Language Public Education Fire Safety Initiative, **2013:**2.12, 4.36

SPRINKLER SYSTEMS. See also DELUGE SYSTEMS; HEADS UP COLUMNS

Advances in systems and codes over thirty years, 1996:5.75

Animal housing facilities, requirements for, 2012:5.13

Antifreeze banned for new residential sprinkler systems, 2010:5.23, 6.11

Antifreeze safety alert issued by NFPA, 2011:3.20

Arbitrary regulations thwart residential sprinkler installations, 1999:5.86

Backflow prevention assemblies protect public water supply, 1997:4.68

Backflow prevention discussed by fire protection, water supply industries, 1997:6.26

Big-box stores rely on sprinkler protection, 2004:2.24

Board and care facilities use, 1998:5.34

Catastrophic fires, factor in, 2005:5.54

Community marketing strategy for residential sprinklers, **1996:**4.27

Connecticut adopts stricter nursing home sprinkler requirements after deadly fire, **2003**:3.80 Design-related problems, **1993**:6.12

Dry-pipe sprinkler software to calculate system performance, 2004:2.46

Effectiveness of sprinkler systems demonstrated in NFPA 2002-2004 fire reports, 2007:5.22

Energized electrical/electronic equipment, use above, 1993:6.31

Experts discuss sprinkler system design and technology advances, 1999:5.65

Federal bills offer economic incentive for sprinkler installation in existing buildings, 2005:3.38

Fire alarm system interconnections with sprinkler systems, 2010:6.35

Fire department pumpers supply system, high-rise building fire, 1991:5.65

Fire safety importance of sprinkler systems, 1993:1.53

Grounding, bonding of sprinkler piping, **2000:**1.72

Health care facility fires, systems prevent tragedy in, 1993:5.49

Heat/flames cause sprinkler pipe elbow to fail, limits fire, 1998:5.15

High-volume, low-speed (HV/LS) fans effect on sprinkler activation studied by NFPA Fire Protection Research Foundation, **2009:**5.30

High-volume, low-speed (HV/LS) fans effect on sprinkler activation tested, 2008:3.88

High-volume, low-speed (HV/LS) fans effect on sprinkler system effectiveness in storage facilities, **2011:**2.64

History of requirements in NFPA codes and standards, 2007:6.112

Home builders want residential sprinkler information, **2004:**2.12

Home Fire Sprinkler Coalition and NFPA provide sprinkler water supply facts to counter myths, **2012**:6.38

Home Fire Sprinkler Coalition offers quality educational materials on residential sprinkler systems, **2007**:2.34

Home Fire Sprinkler Coalition poll verifies consumers' perceived value of home sprinkler systems, **2006**:2:76

Home Fire Sprinkler Coalition promotes residential sprinkler systems, 1999:5.85

Home Fire Sprinkler Coalition receives FEMA grant for national 'Built For Life' sprinkler awareness program, **2004:5**.12

Home Fire Sprinkler Coalition study attributes lack of fire deaths to home sprinklers, 2012:1.13

Home Fire Sprinkler Summit champions home fire sprinkler requirements, 2012:3.16

Home sprinkler community outreach efforts get local fire departments involved, 2009:5.40

Home sprinkler system environmental benefits showcased by Epcot Center VISION House®, **2012:**3.16

Home sprinkler systems, update on NFPA campaign for, 2009:3.28

Home sprinkler systems cost report released by Fire Protection Research Foundation, **2008:**6.14

Home sprinklers now required in *International Residential Code*, **2008:**6.26

Hydraulic calculations require understanding of remote area sizing, 2003:6.58

Indianapolis airport's system design, 2008:4.48

Industrial occupancies, code requirements for, 2012:2.36

Live-fire demonstration provides clear comparison of sprinklered/non-sprinklered fire extinguishment, **2007**:6.34

Maintenance and testing lack allows high-rise fire to spread, 2005:2.46

Mall of America, Bloomington, Minn., sprinkler system at, 1999:6.66

- Mesa, Arizona, sprinkler projects designed to stabilize troubled neighborhoods and stimulate economy, **2012**:6.14
- Montgomery County, Maryland, offers tax credit for residential sprinklers, 2000:6.63
- Movies misrepresent how sprinkler systems work, 2002:5.26
- New design criteria allows doubled height for palletized 55-gal. drum storage, **2000:**1.66 New technology of sprinkler systems, **1994:**3.38
- NFPA 13, Installation of Sprinkler Systems, 1991 edition overview, 1991:5.12
- NFPA 13, Installation of Sprinkler Systems, 1994 edition, changes in, 1994:3.14
- NFPA 13, Installation of Sprinkler Systems, 1999 edition changes, 1999:5.72
- NFPA 13, *Installation of Sprinkler Systems*, 1999 edition incorporates storage facility information, **2000:**4.26
- NFPA 13, *Installation of Sprinkler Systems*, 2002 edition, allows computerized water delivery predictions in dry-pipe systems, **2002**:4.24
- NFPA 13, Installation of Sprinkler Systems, 2002 edition, proposed revisions, 2002:2.35
- NFPA 13, *Installation of Sprinkler Systems*, 2002 edition, proposed revisions end standard sprinkler designation, **2002:**2.30
- NFPA 13, Installation of Sprinkler Systems, 2007 edition, proposed changes, 2006:1.34
- NFPA 13, Installation of Sprinkler Systems, 2010 edition, changes approved for, 2009:4.11
- NFPA 13, Installation of Sprinkler Systems, 2010 edition, proposed changes, 2009:3.84
- NFPA 13, *Installation of Sprinkler Systems*, 2013 edition, clarifies when and how to run service piping under buildings, **2013:**6.26
- NFPA 13, *Installation of Sprinkler Systems*, 2013 edition, requires removed sprinklers not be reinstalled, **2013:**5.30
- NFPA 13, Installation of Sprinkler Systems, and ASME A17.1, Safety Code for Elevators and Escalators elevator and elevator protection requirements, **2011:**7.30
- NFPA 13, *Installation of Sprinkler Systems*, and NFPA 24, *Private Fire Service Mains and Their Appurtenances*, requirements are coordinated, **2002:**1.26
- NFPA 13, *Installation of Sprinkler Systems*, drop-out and open grid ceilings as sprinkler concealment options, **2006:**6.28
- NFPA 13, Installation of Sprinkler Systems, earthquake protection important, 2013:3.36
- NFPA 13, *Installation of Sprinkler Systems*, future revisions will address key issues for next-generation sprinklers, **2009:**1.24
- NFPA 13, *Installation of Sprinkler Systems*, includes revised earthquake protection standards, **2000:**4.72
- NFPA 13, Installation of Sprinkler Systems, looking back at earlier editions, 2004:2.96
- NFPA 13, Installation of Sprinkler Systems, microbiologically influenced corrosion, 2000:6.69
- NFPA 13, *Installation of Sprinkler Systems*, NFPA technical committees respond to material incompatibility, leak concerns, **2013:**6.44
- NFPA 13, Installation of Sprinkler Systems, shelf storage protection, 2006:6.26
- NFPA 13, Installation of Sprinkler Systems, sprinkler pipe pitch requirements, 2006:3.40
- NFPA 13, Installation of Sprinkler Systems, unprotected spaces requirements, 2011:7.50
- NFPA 13, Installation of Sprinkler Systems, 1996 edition changes, 1997:1.34
- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 2010, changes approved for, **2009:**4.12
- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 2010, proposed changes, **2009:**3.85

- NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, questions answered, **2003:1**.24
- NFPA 13R, Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height, 2010, proposed changes, **2009:**3.85
- NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 1997 edition, 1997:5.85
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2007 edition, proposed changes, **2006:**3.83
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, aids regular maintenance activities, **2001:**3.72
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, discussions address questions on scope of standard, **2013:**6.40
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, dry sprinkler sample-testing requirements, **2001:**2.26
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* focuses on changes in sprinkler inspection and maintenance, **2002:**3.40
- NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, questions answered, **2000**:6.22, **2008**:1.16
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, record retention requirements, **2006:**2:32
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based fire Protection Systems*, sprinkler system alarm requirements, **2000:**5.26
- NFPA 909, *Protection of Cultural Resources*, 2010, changes address sprinkler system corrosion issues, **2013:5**.16
- NFPA 5000, *Building CodeTM*, sprinkler system requirements for renovated healthcare facilities, **2002:**4.22
- NFPA Bringing Safety Home campaign's strategies to reduce fire deaths, 2013:5.68
- NFPA Bringing Safety Home Sprinkler Summit highlights leaders in field, 2013:3.10
- NFPA "Fire Sprinkler Initiative—Bringing Safety Home" campaign calls for sprinklers in all new one-and two-family homes and encourages home sprinkler use, **2009:**2.38, 42
- NFPA proposes requiring residential sprinklers; Congress considers tax incentive program, **2004**:2.28
- NFPA Standards Council issues nursing home, dwelling, nightclub requirements, 2005:5.14

NFPA's latest performance statistics confirm sprinklers' effectiveness, 2008:2.64

Nursing home fire damage limited by sprinkler system, 2010:1.66

Nursing home fire fatalities reduced by sprinkler systems, 2006:1.50

Nursing home fire verifies authority having jurisdiction/engineers joint design, 1995:2.85

Nursing home sprinkler system retrofit, Beverly Healthcare facility, Sargent, Nebraska, **2006:**1.54

Nursing homes, U.S., required to be sprinklered, 2013:1.62

Performance requires regular maintenance, testing, and available water supply, 2003:3.13

Premature sprinkler system shutdown is common firefighting error, 2001:5.30

Qualified, knowledgeable designers and installers needed for sprinkler system projects, **2011:**7.24

Questions on installation answered, **1997:5**.27

Reliability of sprinklers higher than estimated; NFPA report, 2005:6.12

Research initiatives explore alternatives to full-scale fire testing, **2013:**1.28

Residential sprinkler density requirements increased, 2004:3.68

Residential sprinkler installation continues in Massachusetts despite regulatory opposition, **2012**:6.12

Residential sprinkler legislation proposed in Kentucky, 2011:2.57

Residential sprinkler legislation update, 2010:6.56, 2012:4.13

Residential sprinkler life safety, property loss, and cost statistics reported for Prince George's County, Maryland, **2009:**6.16

Residential sprinkler ordinances have no negative impact on new home construction, study finds, **2009**:4.12

Residential sprinkler ordinances hurt by public's misconceptions, 1998:2.58

Residential sprinkler push by NFPA backed by International Association of Fire Chiefs president Jeff Johnson, **2010**:4.19

Residential sprinkler regulations adopted by seven states including California, **2010**:2.18 Residential sprinkler regulations pushed by NFPA, other organizations in Massachusetts, **2011**:7.9

Residential sprinkler system advocate and Canadian homebuilder Murray Pound dispels sprinkler myths, **2012:**1.24

Residential sprinkler system antifreeze use banned for new construction, 2010:5.23, 6.11

Residential sprinkler system installation costs falling, new study finds, 2013:5.14

Residential sprinkler system legislation faces challenges in Pennsylvania, 2011:1.19, 3.19

Residential sprinkler system legislation takes effect in states, 2011:1.19

Residential sprinkler systems, how they work explained, 2007:3.20

As residential sprinkler systems advocate, homebuilder Sam Davis offers customers free systems and supports sprinkler ordinances, **2013:**1.7

Residential sprinkler systems advocates Utawna Leap and Lianna Bryant emphasize value for people with disabilities, **2010**:4.50

Residential sprinkler systems are good for environment, 2010:3.56

Residential sprinkler systems provide important protection for elderly who stay in their homes, **2013:**5.40

Residential sprinkler systems should be part of all new homes, 2001:3.55

Residential sprinklered homes compared to non-sprinklered homes in burn demonstration, **2009:**6.15

Residential sprinklers can be successfully integrated with local water system, 2009:6.40

Residential sprinklers discussed on television talk show, 1998:3.52

Residential sprinklers' high cost driven by community requirements, 2002:6.24

Residential sprinklers NFPA Faces of Fire program public service announcement, 2013:4.13

Residential sprinklers offer major water savings compared to firefighting operations, 2011:2.54

Residential sprinklers promoted by NFPA Faces of Fire program, **2010**:3.24, 54, **2011**:3.20, **7.**10, **2013**:1.7, 2.36, 3.10

Residential sprinklers supported by NFPA Fire Protection Research Foundation research, **2010**:6.28

Sample training exercise for sprinkler placement, 1996:4.49

School sprinkler system's value learned after high school burns, 2009:5.64

Scottsdale, Arizona, experience with required residential sprinklers, 1997:4.40

Seismic load requirements, lateral brace spacing to meet, 2008:4.28

Seismic protection for sprinkler systems, 2005:1.58

Seismic protection in NFPA 13, *Installation of Sprinkler Systems* coordinated with ASCE/SEI 7, **2006:**5.36

Seismic protection provisions in NFPA 13, *Installation of Sprinkler Systems* endorsed in International Building Code amendment cycle, **2007:**4.32

Seismic protection standards revised in NFPA 13, Installation of Sprinkler Systems, 2000:4.72

Seismic provisions in NFPA 13, Installation of Sprinkler Systems are important, 2013:3.36

Specialized sprinklers provide more protection at less cost, but create new challenges,

1998:1.72

Sprinkler manufacturers donate systems to Habitat for Humanity homes, 1999:5.83

Sprinkler system placement to protect ceiling pockets, **2004:**2.60

Sprinkler systems, codes addressing, 1997:5.27

Sprinklers invented and manufactured by Parmalee and Grinnell, 2011:7.80

Station, The, nightclub fire survivor Robert Feeney tells how he became a sprinkler system advocate. **2013**:1.12

Storage configurations, sprinkler protection of, 2006:1.24, 6.26

Storage facilities, fire department operations working with sprinkler systems at, 2011:3.54

Training for fire fighters on system operation; review of literature, 1994:3.59

U. S. Department of Housing and Urban Development manufactured housing standards committee considers pro-sprinkler argument, **2012:**2.12

U. S. experience with sprinklers, 1993:6.44

U. S. experience with sprinklers, 2003-2007, **2010**:3.112

U. S. experience with sprinklers, 2004-2008, 2010:6.86

U. S. experience with sprinklers, 2005-2009, 2011:4.75

U. S. experience with sprinklers, 2006-2010, 2012:5.85

U. S. experience with sprinklers, 2007-2011, 2013:4.78

Underwriters Laboratories, Inc. (UL) revised standards for wet- and dry-type sprinklers, **2004:**2.54

Warehouse sprinkler system design, **1993:**4.16

Warehouses, fire protection systems for large, 2011:4.42

Water consumption, study of community impact for sprinklered/nonsprinklered buildings, **2011**:3.22, **2012**:3.16

Water consumption from residential sprinklers and firefighting operations compared, **2011:**2.54

Zebra mussels invade sprinkler systems, threaten system operation, **1999:**2.60 SPRINKLER SYSTEMS NOT A FACTOR IN FIRE

Backflow device turned off, 2010:6.66

Branch line disconnected, **1991:**4.67

Building collapse rendered system ineffective, 2003:6.77, 2004:6.52

Closed valve, 1993:5.67, 1993:6.82, 1997:6.58

Disabled by forklift accident, 2000:6.91

Disconnected, **1991:**3.31, **1991:**4.68, **1995:**6.108, **1996:**5.23, **1997:**6.56, 57, **1999:**6.90, **2007:**6.76, **2008:**6.42

Disconnected due to false alarms, 1999:6.90

Disconnected for ongoing construction, **1993**:6.86, **1995**:6.35, 108, **1999**:6.97, **2000**:6.93, **2001**:3.26

Exterior fire not affected by operating sprinklers, 2000:5.23

Fire above system, **1993**:6.83, **1995**:6.107, **1996**:6.65, **1997**:6.59, **1999**:4.22, **1999**:6.95,

2000:4.18, **2000:**6.84, 88, **2001:**2.22, **2001:**5.26, **2001:**6.62, **2002:**4.18, **2003:**5.20,

2007:3.28, **2010:**6.63, **2011:**5.21, 7.59, **2012:**2.22, 4.29, **2013:**3.29

Fire burns through PVC sprinkler supply pipe, 1996:5.24

Fire discovered before operation, 2003:2.23

Fire extinguished prior to activation, **1996:**5.26, **1997:**6.22, **1998:**5.17, **2005:**1.14, **2010:**1.24, 3.41, **2011:**7.22, **2012:**3.39

Fire in concealed space, **2009:**6.79, **2012:**5.25

Fire on exterior of building, **1994**:6.35, **1997**:5.22, **2013**:5.27

Heat not sufficient to activate, 1993:5.37, 1995:5.33, 2005:6.22, 2006:4.28, 2008:3.32,

2011:7.16, **2012:**5.28, 6.64, **2013:**5.28, 6.18, 23

Installation incomplete, **1992**:4.71, **1992**:5.28, 56, **2003**:1.14, 5.16, 6.79, **2004**:6.53

Local systems only, 1994:6.94

Manual system not activated, 1993:6.27, 82

Not located in area of origin, **1992**:4.70, **1992**:5.30, **1994**:6.93, **1996**:5.97, **1997**:5.49, 52, 6.52, 54, 57, **1998**:5.54, 6.22, 89, 91, **1999**:2.25, 5.21, 6.90, 94, 95, 97, **2001**:5.78, 6.62, 63, **2002**:5.21, **2003**:2.25, 3.18, 4.14, 6.79, **2004**:6.21, 56, **2006**:1.18, 6.72, **2008**:5.27, 6.44, 45, **2009**:6.77, 79, **2010**:4.27, 5.29, 5.66, **2011**:1.20, 7.55, **2012**:6.61, 64, 66, **2013**:3.24, 6.55, 56

Not operational, **1991**:6.73, **1992**:2.29, **1993**:2.44, 6.85, 86, 88, **1994**:6.92, 97, 98, **1995**:6.108, **2000**:3.38, 6.88, **2001**:6.22, 62, **2002**:2.25, 3.36, 6.22, **2003**:2.25, 3.18, 5.18, **2004**:6.56, **2008**:6.45

Not operational due to closed valve, 1996:5.94

Not operational due to earlier roof collapse, 1997:6.50, 56

Not operational due to frozen valve, 2005:1.18

Not operational due to locked valve in area of ignition, 2008:6.44

Not operational due to poor maintenance, 1995:6.104

Not operational due to previous fire, **1997**:6.54, **2011**:7.56

Not operational in building-under-construction, **1999**:6.96, **2000**:6.95, **2005**:6.44, **2006**:6.68, 69, **2008**:5.26, **2010**:6.64, **2013**:6.57

Not operational in building-under-renovation, 2004:3.24

Not operational in vacant building, **2006**:6.68, **2009**:5.27, **2012**:1.20

Not operational while undergoing repair, 1998:6.88

Partial system only, **1995:**1.31, **2010:**6.27

Pump not operating, **2007**:6.22, 78

Reason unknown, 1999:3.48, 2010:6.65

Rendered inoperable by explosion, **1991**:6.74, **1994**:6.90, 92, **1998**:6.87, **2003**:6.77, **2004**:5.72, **2006**:6.69, **2009**:5.83, 6.75

Rendered inoperable by explosion, building collapse, 1996:5.94, 1996:6.69

Rendered inoperable by roof collapse, **1993**:6.84, 85, **1996**:6.62, **1998**:6.87, **2006**:6.70

Rendered inoperable by structural collapse, 2013:6.51

Rendered inoperable by support collapse, **1991:**6.74

Rendered inoperable by tank BLEVE, 1996:6.63

Shut off by employee during fire, **2011:**7.59

Shut off due to construction, **1999**:6.90, **2005**:1.20, **2012**:3.28

Shut off for winter, **1997:**6.57

Shut off prior to fire, 1991:6.26, 1997:5.52, 2005:6.44, 2009:6.75

Sprinkler heads missing, 2000:6.85

Water pipes frozen, 1995:1.32

Water supply ruptured by metal fragments, 1996:6.72

Water supply shut off, **1994**:6.91, 95, **1996**:2.25, **1996**:5.26, **1998**:6.89, **2000**:4.20, **2007**:2.17, 6.77, **2009**:5.24

SPRINKLER SYSTEMS, SATISFACTORY PERFORMANCE, 1991:1.28, 29, 30, 2.29, 30, 31, 3.25, 29, 31, 4.25, 5.25, 26, 28, 30, 6.24, **1992:**1.21, 22, 23, 26, 2.27, 3.34, 4.26, 27, 28, 5.28, 30, 6.25, 26, 29, **1993:**1.26, 27, 28, 4.25, 5.35, 37, 38, 49, 67, 6.29, 81, 86, **1994:**1.29, 30, 32, 2.27, 29, 30, 3.27, 28, 29, 4.29, 30, 31, 5.29, 30, 105, 6.33, 34, 35, 93, 95, **1995:**1.34, 2.29, 30, 32, 85, 3.39, 40, 4.40, 5.33, 6.37, 38, 98, 104, **1996:**1.22, 24, 2.23, 24, 25, 26, 3.36, 39, 40, 4.23, 24, 5.23, 24, 25, 6.21, 22, 23, 24, 64, **1997**:1.25, 26, 27, 3.33, 34, 4.22, 5.22, 24, 6.22, 49, 54, **1998:**1.24, 2.18, 20, 3.41, 42, 4.20, 5.15, 17, 18, 5.53, 6.21, 22, 84, 85, 87, 88, 89, **1999:**1.19, 2.24, 3.43, 44, 4.21, 22, 5.19, 21, 22, 6.92, 95, 97, **2000:**1.19, 2.21, 22, 23, 3.32, 34, 4.18, 5.60, 6.14, 16, 84, 93, **2001:**1.20, 2.24, 4.22, 23, 5.26, 6.22, 62, **2002:**1.21, 2.24, 26, 3.34, 36, 4.18, 5.22, 6.21, 22, **2003:**1.12, 2.20, 22, 24, 3.14, 16, 20, 4.16, 17, 5.16, 18, 20, 6.12, 15, 16, 78, **2004:**1.15, 16, 2.16, 3.18, 20, 24, 4.17, 18, 5.20, 71, 6.17, 20, 52, **2005**:1.17, 2.22, 28, 3.32, 4.22, 5.32, 6.16, 18, 22, 46, 49, **2006**:1.18, 1.20, 2.26, 30, 3.32, 38, 4.27, 28, 29, 5.34, 6.73, **2007:**1.15, 16, 20, 2.21, 5.32, 6.22, 77, 78, 79, **2008:**1.22, 23, 24, 2.28, 5.26, 61, 6.21, 22, **2009:**2.26, 3.38, 42, 44, 45, 4.17, 18, 20, 22, 5.26, 5.28, 29, 6.22, 26, 27, **2010**:1.23, 25, 26, 27, 2.23, 24, 2.26, 27, 3.37, 42, 43, 44, 4.30, 31, 32, 5.30, 32, 6.25, 27, 67, **2011:**1.24, 25, 26, 27, 2.27, 28, 30, 3.40, 42, 45, 46, 47, 48, 4.16, 17, 18, 19, 20, 21, 22, 5.14, 16, 18, 19, 20, 21, 7.18, 20, 21, 22, 55, 58, 59, **2012:**1.15, 18, 20, 22, 23, 2.16, 18, 19, 20, 21, 22, 23, 3.29, 30, 38, 4.22, 30, 5.24, 27, 29, 30, 31, 6.18, 26, 27, **2013:**1.21, 24, 25, 26, 27, 2.19, 23, 25, 3.29, 30, 31, 32, 4.19, 21, 23, 24, 25, 5.20, 24, 25, 26, 27, 6.22, 23, 24, 25

SPRINKLER SYSTEMS, UNSATISFACTORY PERFORMANCE

Alarm not sent to alarm company, **2012:**6.66

Corroded valve prevents operation, 1992:3.32

Did not function properly, reason unknown, 1993:6.84

Did not operate, 1994:6.90, 2004:6.57, 2013:6.56

Did not operate promptly, 1998:6.88

Dry-pipe system failed to operate, 1994:6.96

Failed to control fire, **1994**:6.96, **1998**:6.88, 91, **1999**:6.90, **2005**:6.46, **2007**:6.77

Fire shielded from sprinkler system, **2005**:6.49

Fire shielded from sprinkler system, which did not operate, 1998:1.24

Fire shielded from sprinkler system by shelves, **2006**:6.73

Fire spread above sprinkler system, 1999:6.92

Fire spread beyond area of coverage, 2001:4.22

Fire spread to concealed spaces, **1997**:6.22, **2003**:4.17, **2012**:4.30

Fire spread to unsprinklered ductwork, 2004:4.19

High-expansion foam rendered ineffective by sprinkler operation, 2003:2.25

HVAC equipment blocked sprinklers, 1994:2.30

Inadequate for hazard, **1995**:6.107, **1996**:6.62, **2000**:6.85, 90, **2001**:6.61

Inadequate for storage configuration, **1991**:2.33, **1993**:1.26, **1993**:6.87, **1996**:6.62, **1996**:6.70, **1997**:6.54, 56, **1998**:6.89, **1999**:6.92, 94

Ineffective due to poor maintenance, **2000:**6.90

Ineffective operation, **1999:**6.96, **2008:**6.42, **2012:**6.62

Insulation obstructs spray, 1999:6.94

Interior partitions obstructed spray pattern, 1993:5.35

No fire department connection, **1996**:6.62

No in-rack sprinklers, **1998**:6.88, 89, **2005**:6.47

Opening of sprinklers dropped pressure, overwhelmed system, 2001:6.64

Overpowered by dust explosions, **1997**:6.49

Overpowered by fire, **1991**:6.75, 76, **1992**:6.78, 79, **1993**:6.84, **1994**:6.91, 93, 94, 97,

1996:6.62, **1997**:6.54, **1998**:6.21, 86, **1999**:1.19, 6.92, **2000**:5.59, 6.95, **2003**:6.77, 78, **2004**:6.57, **2005**:6.45, **2006**:6.70, 72, 74, **2007**:6.76, **2008**:1.24, **2009**:6.79, **2010**:6.69, **2011**:5.22, **2012**:6.61

Overpowered by fire, inadequate design, **1991**:6.37, **1992**:6.75, **1993**:4.33, **1993**:6.85

Plywood shelving interfered with system operation, 1997:6.54

Sediment in system, 2000:6.91

Shut down prematurely, **1995**:6.103, **2000**:6.85, **2012**:2.19

Sloped roof delayed sprinkler activation, 1998:6.89

Solid shelving interfered with, 1998:6.85

Storage arrangement caused unnecessary sprinklers to activate, 1998:1.25

Test mode, system in, **2012**:6.66

Ventilation hood blocks water from fire, 1992:5.25, 1996:6.62

Water flow insufficient, 2009:6.76

Water supply inadequate, 1991:4.68

Water supply inadequate, due to faulty booster pump, 1998:6.91

ST. JOHN, NEW BRUNSWICK

Detention facility fire, June 21, 1977, **1994:**5.50

ST. LOUIS, MISSOURI

Fire service facilities renovation, 1991:1.94

STADIUMS

Arlington, Texas, fire chief stands by decision to keep fans from unsafe seats during Super Bowl, **2011**:2.19

Fenway Park, nation's oldest ballpark, renovations incorporate fire and life safety elements, **2012:**4.48

Planning for fires in stadiums and other entertainment venues, **2010**:2.34

STADIUM FIRES

Atlanta and Texas fires demonstrate unique protection problems, 1994:4.49

Minnesota, 2010, **2011:**4.18

North Dakota, 2011, 2012:4.29

STAIRWAYS

Blocked by burning mattress, fatal fire factor, **2002:**4.19

Blocked by collapsed occupant, **2006:**6.18

Catastrophic fire spread up, **1991**:4.64, 65, 66, **1992**:4.67, 69, **1993**:5.62, 64, 66, 67, **1994**:5.95, 96, 97, 98, 100, 102, 104, **1995**:5.53, 54, 58, 59, 60, **1996**:5.92, **1997**:5.49, 50, 54, **1999**:5.50, 51, 52, 54, **2000**:5.56, 57, **2005**:5.56, **2007**:5.59, **2009**:5.80, **2012**:5.69

Exterior wooden, fire spread up, 1998:5.49

Fire spread up, **1993**:1.29, 5.36, 6.28, 86, **1995**:6.106, **1997**:6.20, **1998**:5.45, 5.50, **1999**:6.17, **2001**:2.22, 5.25, 76, 77, 6.18, **2002**:3.30, 4.20, 6.21, **2005**:1.19, 6.21, **2006**:5.28, 61, **2007**:4.24, 28, 5.58, 6.79, 80, **2008**:1.21, 3.26, 5.57, **2009**:5.24, 6.23, **2010**:1.25, **2011**:5.76, 7.55, **2013**:5.60, 61

Heat and smoke spread up, 1998:5.17, 5.53

Incendiary fire set in, **2002**:4.20, **2007**:4.25, **2008**:5.59, **2011**:7.55

Limited egress from second floor in large loss of life club fire, 1991:4.67

NFPA 101®, *Life Safety Code*®, exit stair signage and marking requirements, **2011:**1.34 Smoke spread up, **2003:**2.25

STANDARDS. See CODES AND STANDARDS; NFPA CODES AND STANDARDS STANDPIPE SYSTEMS

Calculating flow rates based on compartmentation, 2002:2.32

Capped standpipes, hoses removed, hampers fire fighting, 2007:1.15

Employees control manufacturing plant fire, 1999:1.19

Handline used to extinguish equipment fire, 1996:4.24

Hose line extinguishes turbine fire, 2004:5.20

Lack of connections hampers fire fighting, 1994:6.92

NFPA 14, *Installation of Standpipe Systems*, has jurisdiction over hose-to-sprinkler system connections, **2007**:5.36

Pipe obstruction, connection problems hamper firefighting, 2008:5.27

Pre-incident planning should include study of building standpipe system, 2013:5.34

Pressure-regulating devices in, **1991:**5.70

Water supply damaged by explosion, 1994:4.104

STEVENS, RICHARD E.

Remembering architect of NFPA's standards system, 2008:2.104

STITTLEBURG, PHILIP

NFPA Board of Directors chair, interview with, 2012:5.18

STORAGE FACILITIES. See also WAREHOUSES

Big, high buildings create firefighting challenges even when fully protected, 2009:2.46

Fire alarm system design and installation challenges, 2009:2.36

Fire department operations working with sprinkler systems at, 2011:3.54

High-volume, low-speed (HV/LS) fans' impact on sprinkler system effectiveness, 2011:2.64

IKEA develops hazardous commodities fire protection criteria, 2013:2.42

Insurance industry and NFPA Fire Protection Research Foundation collaborate on fire safety concerns, **2011**:2.32

National Fire Protection Research Foundation researches cost-effective protection for solid shelf rack storage, **2003**:4.24

NFPA 13, *Installation of Sprinkler Systems*, 1999 edition incorporates storage facility information, **2000:**4.26

NFPA 101, Life Safety Code, addresses life safety for high-hazard uses, 2000:4.30

NFPA 400, Hazardous Materials Code, will aid safe storage of hazardous materials, 2009:3.80

Sprinkler system must be properly designed to accommodate change in storage hazard, **2012:**5.34

Underground Hunt Midwest SubTropolis facility, Kansas City, Missouri, requires unique fire protection measures, **1998**:6.68

STORAGE FACILITIES FIRES. See also AIRCRAFT HANGAR FIRES; BARN FIRES; PIERS AND WHARVES FIRES; TANK STORAGE FACILITIES FIRES; WAREHOUSE FIRES

Agricultural products, California, Jan., 2010, 2011:7.56

Agricultural products, Ohio, July, 2005, 2006:6.73

Agricultural products, Washington, March, 1995, 1996:6.68

Agricultural products (grain elevator), Alberta, Canada, 1996, 1997:4.20

Agricultural products (grain elevator), Indiana, Oct. 1, 1996, **1997:**5.52

Alcohol, Kentucky, Nov. 7, 1996, 1997:6.57

Auto salvage yard, Alabama, 1998, 1999:2.25

Boat storage and marina, Florida, Aug. 30, 1999, 2000:6.91

Boat storage and marina, Virginia, Sept. 12, 1999, 2000:6.90

Book storage, Florida, Oct., 2009, 2010:6.68

California, 2006, 2007:1.20

Cans, empty, Texas, Feb., 2011, 2012:6.66

Catastrophic

Ammonium nitrate storage silos, Minnesota, Nov. 17, 1993, 1994:5.105

Chemical storage, Arkansas, May 8, 1997, 1998:5.53

Chemical storage, Ohio, May 27, 1994, 1995:5.66

Fireworks, Hawaii, April, 2011, 2012:5.73

LP-Gas underground bulk storage, Texas, April 7, 1992, 1993:5.67

Missouri, Dec., 2002, 2003:5.75

Chemical storage, Texas, June/July, 1995, 1996:6.66

Chemical waste, Ohio, May, 2009, 2010:6.67

Chemicals, Pennsylvania, Jan. 2, 1999, 2000:6.91

Commercial warehouse, Maryland, 1992, 1993:1.26

Composting storage plant, Connecticut, Nov. 28, 1999, 2000:6.83

Cotton, Dec., 2005, 2006:6.72

Fairground, Connecticut, 2005, 2006:2.30

Feed and grain, California, 1999, **2000:**4.20

Fireworks, Texas, July, 2003, 2004:5.72

Fireworks storage trailer, Arkansas, July 4, 1999, 2000:5.60

Flammable liquids bulk storage, Ohio, Sept., 2005, 2006:6.75

Food products, California, April, 1994, 1995:6.107

Food products, California, April, 2011, 2012:6.66

Food products, Maryland, 2005, 2006:1.16

Food products, Missouri, Oct., 1994, 1995:6.104

Food products, Nebraska, March, 1995, 1996:6.69

Fuel depot, Rhode Island, 2006, 2007:4.21

Furniture storage, Georgia, March, 1994, 1995:6.106

Garage, Colorado, 1996, 1997:1.26

Georgia, 2008, 2009:4.17

Grain elevator, Kansas, June 8, 1998, 1999:5.54, 1999:6.92

Grain mill and storage facility, Washington, 1991, 1992:4.28

Heavy equipment, New York, July, 1995, 1996:6.68

Logging yard, Utah, 2006, 2007:5.30

LP-Gas bulk storage, Texas, 1994, 1995:1.31

LP-Gas underground bulk storage, Texas, April, 1992, 1993:6.87

Lumber, New Hampshire, Jan. 8, 1996, 1997:6.56

Lumber storage shed, California, 1991, 1992:6.26

Lumberyard, Indiana, June, 1998, 1999:6.92

Lumberyard, Michigan, May 19, 1999, 2000:6.88

Lumberyard, Pennsylvania, March 25, 1999, 2000:6.91

Mini-storage facility, Ohio, 1993, 1994:2.27

Miscellaneous, New York, March, 1995, 1996:6.69

Motor home, California, 1994, 1995:5.36

Motor vehicle storage and paint shop, Oregon, 2011, 2012:2.22

Motor vehicle storage and workshop building, Texas, 1994, 1995:6.38

Motor vehicles, Maine, 2001, 2002:6.75

Motor vehicles, New Mexico, 1999, 2000:6.14

Natural gas and gasoline storage, California, 1992, 1993:6.29

Ohio, May, 1998, 1999:6.92

Plastic storage and recycling, Georgia, March, 1993, 1994:6.97

Polyurethane storage, New Jersey, 1990, 1991:5.30

Propane, Georgia, 1999, 2000:6.14

Propane, New Mexico, 2001, 2002:1.18

Propane storage tank, North Dakota, 1993, 1994:1.30

Public works building, Michigan, 1996, 1997:5.24

Pyrotechnics, Tennessee, June 5, 1997, 1998:5.53

Records storage, New Jersey, March, 1997, 1998:2.68

Records storage, New Mexico, June, 2010, 2011:7.57

Records storage, Pennsylvania, May 5, 1997, 1998:6.91

Recycling facility, New Jersey, 1998, 1999:1.19

Residential storage shed, Missouri, 1997, 1998:3.36

Rolled paper storage, Georgia, Sept., 1995, 1996:6.68

Roofing supplies storage, Massachusetts, 1996, 1997:2.23

Seafood cold storage, Texas, June 26, 1999, 2000:6.90

Self-storage facility, California, 2003, 2004:2.17

Self-storage facility, Massachusetts, 1991, 1992:5.28

Self-storage facility, Missouri, 1997, 1998:5.18

Self-storage facility, Virginia, 2010, 2011:7.23

Shed, Oregon, 2011, 2012:4.23

Shoe distribution and storage facility, 1993, 1994:2.27

Stable, Kentucky, 2003, 2004:6.21

Stable, Massachusetts, 2010, 2011:4.19

Tires, Illinois, Oct., 2003, 2004:6.57

Tires, Pennsylvania, March 13, 1996, **1997**:6.59

Tool shed, Sept., 2010, 2011:5.78

Workshop, Texas, 2009, 2010:2.28

Zoo, Pennsylvania, 1995, 1996:6.24

STORES

Big-box stores rely on sprinkler protection, 2004:2.24

```
IKEA develops hazardous commodities fire protection criteria, 2013:2.42
  NFPA develops standard to protect retail consumer fireworks facilities, 2001:3.94
  Prefire planning, 2011:1.32
  U.S. fires, 2004-2008, statistics, 2011:4.73
STORE FIRES. See also SERVICE STATION FIRES; SHOPPING MALL FIRES
  Antiques, Missouri, 2002, 2003:2.24
  Appliances, Arizona, 2013, 2013:2.19
  Appliances, California, 1992, 1993:2.19
  Arizona, 2003, 2004:6.20
  Auto parts, Oregon, Nov., 2002, 2003:5.75
  Automobile repair (See AUTOMOBILE REPAIR SHOP FIRES)
  Automobiles
     Illinois, 1993, 1994:1.32
     New York, April, 1993, 1994:6.91
     New York, Oct., 2012, 2013:6.56
     Oregon, 1999, 2000:5.23
     Pennsylvania, 1992, 1993:3.36
     Pennsylvania, Dec. 21, 1997, 1998:6.89
     Texas, 2001, 2002:4.18
  Barber shop, Pennsylvania, Jan., 2012, 2013:5.62
  Beauty supplies, Virginia, 2011, 2012:5.30
  Block of stores
     Illinois, 1992, 1993:3.34
     Illinois, Apr. 24, 1996, 1997:6.54
     Massachusetts, 2001, 2002:2.25
  Building materials
     Alaska, April, 1994, 1995:6.100
     Florida, 1993, 1994:4.30
     Georgia, Apr. 16, 1996, 1997:6.54, 1998:1.50
     Massachusetts, May, 1995, 1996:6.70
     Massachusetts, May 23, 1995, 1998:1.50
  California, 2000, 2001:3.28
  California, 2011, 2012:4.22
  Camping/recreational equipment, Florida, 2000, 2001:1.22
  Carpet, South Carolina, 2004, 2004:3.18
  Clothing
     California, 1995, 1996:5.26
     Georgia, 2005, 2006:6.24
     Maryland, 1991, 1992:3.31
     New Jersey, 1990, 1992:1.21
     New Jersey, Jan., 1991, 1992:6.78
     New York, Dec. 8, 1995, 1996:5.94
     Ohio, 2002, 2003:2.25
  Computer store, Washington, 1998, 1999:5.22
  Convenience store/gas station, Pennsylvania, 2006, 2007:5.31
```

Convenience store/gas station, West Virginia, Jan., 2007, 2008:5.60

Craft, Texas, Oct., 2011, 2012:6.64

Department

Arizona, June, 2006, 2007:6.78, 79

California, 1992, **1993:**5.38

California, 1996, **1997:**1.27

California, July, 2006, **2007:**6.79

California, 2011, 2012:1.22

Colorado, 2005, 2006:1.20

Georgia, Oct. 26, 1997, 1998:6.89

Hawaii, July, 1993, 1994:6.91

Minnesota, 1991, **1992:**6.25

Mississippi, 1993, **1994:**1.32

New York, 2001, **2002:**6.75

North Carolina, 1997, 1998:6.22

North Carolina, 1999, 2000:3.34

Oregon, 1996, 1997:3.33

Pennsylvania, 2008, 2009:5.28

Pennsylvania, Dec., 1994, 1995:6.99

Pennsylvania, March 29, 1999, 2000:6.91

Tennessee, Oct., 1993, 1994:6.91

Texas, Sept., 1995, 1996:6.72

Virginia, 1998, 1999:5.21

Washington, 2004, 2005:3.32

Washington, 2007, **2008:**3.32

Discount, Texas, 2012, 2013:6.24

Drug

Michigan, 1999, **2000:**1.21

Pennsylvania, 1993, 1994:6.35

Dry cleaner

Colorado, 1999, 2000:4.16

Kansas, 2008, **2009:**5.28

Ohio, 2002, 2003:5.20

Electronics

Florida, Oct. 25, 1997, 1998:6.89

Florida, Oct. 26, 1996, 1997:6.54

Fireworks, Ohio, July 3, 1996, 1997:5.52

Fireworks, Tennessee, 2011, 2012:3.40

Fish, Michigan, Nov. 12, 1998, 1999:5.56

Fishing supplies, Washington, 1991, 1992:3.32

Flea market, Florida, Jan., 1993, 1994:6.91

Floor coverings, California, 2007, 2008:5.30

Furniture

Arizona, 2003, 2004:2.16

Arizona, March, 2003, 2004:6.56

California, 1998, 1999:5.22

California, July 2, 1999, **2000**:6.91

```
California, 2001, 2002:4.16
  Florida, 2002, 2003:1.14
  Illinois, 2001, 2002:5.22
  Kentucky, 2004, 2005:1.20
  Minnesota, 1998, 1999:6.20
  Oregon, Aug., 2006, 2007:6.79
  South Carolina, June 18, 2007, 2008:4.84, 5.60
  South Carolina, 2008, 2009:6.27
  South Carolina, 2009, 2010:5.35
  Texas, May, 2009, 2010:6.69
Furniture repair, Massachusetts, 1996, 1997:5.24
General, Pennsylvania, Oct., 2006, 2007:6.79
General, Tennessee, 2011, 2012:4.30
Gifts, Tennessee, July, 1992, 1993:6.81
Gifts, Texas, 2008, 2009:4.20
Grocery
  California, 2011, 2012:2.22
  Colorado, 2007, 2008:1.23
  Florida, 1993, 1994:5.30
  Illinois, 2011, 2012:5.31
  Maryland, 2005, 2006:1.16
  New York, Aug. 22, 1994, 1995:5.66
  North Carolina, 1999, 2000:3.32
  Ohio, 2010, 2011:4.21
Hair salon, Florida, 2007, 2008:6.23
Hair salon, Florida, 2009, 2010:2.27
Hardware
  California, 1997, 1998:4.21
  Florida, 1993, 1994:4.30
  Hawaii, 1993, 1994:3.30
  Michigan, Jan. 25, 1996, 1997:6.53
  Utah, 2010, 2011:3.33
Home supply
  California, 2007, 2008:1.24
  Pennsylvania, Jan., 2002, 2003:6.81
  Texas, 2000, 2001:4.22
  Washington, 1999, 2000:2.21
Illinois, 2000, 2001:3.26
Illinois, 2008, 2009:4.20
Indiana, April 21, 1999, 2000:6.92
Iowa, 2010, 2011:2.30
Jewelry, Maryland, 2007, 2008:1.22
Jewelry, Michigan, 2001, 2002:4.18
Kansas, 2006, 2007:2.17
Laundromat, Massachusetts, 1992, 1993:3.36
Laundry/linen supplies, Tennessee, May 23, 1996, 1997:6.54
```

```
Liquor
  Connecticut, 1999, 2000:3.32
  Michigan, Nov. 12, 1998, 1999:5.56
  Wisconsin, 1993, 1994:3.29
Lumber
  Alaska, April, 1994, 1995:6.100
  Illinois, May, 2007, 2008:6.44
  Ohio, 1989, 1991:1.28
  Utah, 2010, 2011:3.33
Manufactured home parts, Illinois, Oct. 29, 1996, 1997:6.53
Massachusetts, 2002, 2003:4.16
Massachusetts, July, 2007, 2008:6.44
Mixed use
  Massachusetts, 1994, 1995:4.39
  Vermont, 1989, 1991:1.27
  Virginia, April, 1995, 1996:6.63
Natural gas refueling station, Michigan, 1993, 1994:4.30
New Hampshire, 2012, 2013:3.31
New Jersey, April 17, 1997, 1998:6.89
New York, 2006, 2007:2.17
New York, June, 2001, 2002:5.82
Open air flea market, South Carolina, Jan. 7, 1997, 1998:6.89
Oregon, 2009, 2010:1.27
Paint and wallpaper, Ohio, 1998, 1999:4.22, 1999:6.20
Party goods, California, Aug., 2012, 2013:6.56
Pet and aquarium, Massachusetts, 2001, 2002:4.18
Pet and aquarium, Washington, 2009, 2010:2.27
Propane/farm equipment, Minnesota, 2009, 2010:4.31
Renovations can lead to code-compliance problems, 1997:4.26
Rental, Rhode Island, 1994, 1995:3.39
Secondhand goods, Michigan, Dec., 1995, 1996:6.69
Spa, New Hampshire, 2007, 2008:2.30
Sporting goods
  Connecticut, 1993, 1994:6.35
  Connecticut, 2007, 2008:1.23
  Georgia, June, 2004, 2005:6.48
  Washington, 1999, 2000:2.22
Supermarket
  California, 1990, 1991:2.30
  Maine, 2004, 2005:1.20
  Massachusetts, 1989, 1991:1.28
  Massachusetts, 1994, 1995:5.36
  New York, Nov., 2005, 2006:6.69
  Paraguay, Aug. 1, 2004, 2004:5.24, 6.42
  Pennsylvania, 1992, 1993:6.29
```

Texas, 2003, **2004:**1.17

```
Thrift, Oregon, 2011, 2012:5.30
  Tools, Washington, Dec. 28, 1999, 2000:6.91
  Toys
     Illinois, 1991:1.29
     Ohio, Nov. 13, 1996, 1997:6.54
     Ontario, Canada, 2001, 2002:4.18
  Trucks
     New Jersey, May, 2000, 2001:6.62
     Texas, 1993, 1994:4.29
  Umbrellas, Pennsylvania, 2004, 2005:1.19
  Variety
     Maryland, 2006, 2007:1.20
     Missouri, 1996, 1997:6.22
     Texas, July, 1995, 1996:6.70
  Virginia, 2012, 2013:3.32
  Warehouse stores
     Arizona, 1998, 1999:6.94
     Arizona, March 21, 1998, 1998:4.49
     Special hazards need special attention, 1998:1.50, 4.44
  Washington, D.C., April, 2007, 2008:6.44
STORM, HANNAH
  Interview with, 2013:2.14
STRONACH, IAN
  Profile of, 1998:5.33
STRUCTURAL COLLAPSE. See also ROOFS, Collapse
  Allows fire spread, 1992:4.71
  Apartment building fire, Maryland, 2005, 2006:6.20
  Apartment building fire, New York, 2006, 2007:1.18
  Apartment building fire, Ohio, 2000, 2001:4.24
  Balloon-frame construction contributes to, 1999:5.52
  Dwelling fire, Michigan, 2003, 2004:4.17
  Dwelling fire, Pennsylvania, 2005, 2006:5.34
  Dwelling fire, Texas, 2004, 2005:5.28
  Dwelling fire and explosion, Texas, 2001, 2002:6.18
  Federal Emergency Management Agency Building Performance Assessment Team World
         Trade Center collapse study, 2002:5.47
  Firefighter fatalities related to, 1993:4.69, 1994:4.57, 64, 67, 1997:4.54, 58, 1998:4.59,
         1999:4.57, 68, 76, 2000:4.56, 2001:4.78, 2002:4.80, 2004:4.56, 2005:4.56, 2006:4.60,
         2007:4.69, 2008:4.84
  Firefighter injuries related to, 1991:6.49, 52, 1992:6.61, 62, 64, 1993:6.66, 1994:6.63, 65,
         1997:6.73, 74, 1998:5.45, 6.56, 1999:6.55, 2006:6.84, 2007:6.91, 93, 2009:6:70,
         2011:7.62, 2013:6.65
  Hampers fire fighting, 1998:5.18, 6.84
     Athletic complex fire, 1994:5.30
     Automobile repair shop fire, 1997:5.23
     Dwelling fire, 2004:6.16, 2008:6.17, 2010:6.68
```

Manufactured home fire, 2004:6.17

Manufacturing plant fire, **1994**:6.36, **1994**:6.94, **2004**:6.52

Multiple occupancy fire, **2005:**1.18

Store fire, 2013:6.56

Warehouse fire, 1992:6.75, 1997:6.56, 2009:3.44

Homeless deaths related to, 2000:5.60

Manufactured home fire, Alaska, 2008, 2009:3.40

Manufacturing plant fire, Georgia, 2012, 2013:6.51

Manufacturing plant fire ignited after, 2003:6.77

Mill fire, Oregon, July, 2005, 2006:6.70

National Institute of Standards and Technology World Trade Center investigation may aid code revisions to prevent structural collapse, **2002:**5.44

Office building fire, Georgia, 2003, 2004:1.14

Office building fire, Massachusetts, 2000, 2001:5.78

School fire, Missouri, 2001, 2002:5.22

Store fire, Florida, 2000, 2001:1.22

Store fire, Kentucky, 2004, 2005:1.20

Store fire, South Carolina, June, 2007, 2008:5.60

Warehouse fire, Maryland, May, 2005, 2006:6.68

Warehouse fire, Minnesota, 2005, 2006:4.27

Warehouse fire, Pennsylvania, June, 2006, 2007:6.77

Warehouse fire, Washington, 2004, 2005:5.24

STRUCTURAL FIREFIGHTING COLUMNS. See also STRUCTURAL OPS COLUMNS

Accounting for occupants at fire scene, 2001:2.28

Airport emergency planning should include various occupancies, 2002:5.28

Applying rate-of-flow formulas when water supply is limited, **2001:**6.25

Elevator use by firefighters, standard operating procedures for, 2001:4.28

Flow rate calculations, limitations of, 2002:1.28

Flow rates and compartmentation, 2002:2.32

Habitual false/nuisance alarms can cause complacency, 2002:3.42

High-rise building fires, operational priorities at, **2001**:3.40

Occupancy and risk-versus-benefit analysis, 2002:4.26

Pre-incident planning and cooperation essential to industrial facility firefighting, 2002:6.26

Pre-incident planning of tactical operations, **2000**:6.20

Premature sprinkler system shutdown is common error at sprinklered properties, 2001:5.30

To set rescue priorities, incident commander must consider many factors, 2000:4.24

Standard operating procedures aid fire scene operation start-up, 2001:1.26

Tactical priority order models differ, but always include three basic components, 2000:5.28

Vacant building risks, management of, **2000:**3.44

STRUCTURAL OPS COLUMNS. See also STRUCTURAL FIREFIGHTING COLUMNS

Alternative rescue options when shortest, easiest, best option not available, 2007:3.42

Attack lines, determining flow from, 2007:1.26

Basement fire challenges require training and firefighting guidelines, 2012:5.36

Big-box stores rely on sprinkler protection, 2004:2.24

Budget cuts can jeopardize vital chief aide positions, 2006:4.32

Church fires pose special challenges for firefighters, 2009:5.34

College off-campus housing fire protection requires more attention, 2010:3.50

Command post protocol, 2006:2.34

Command transfer issues discussed, 2005:6.26

Convention center fire fighting tactics reviewed, **2010**:1.32

Defensive attack, starting with or changing to, 2008:1.28

Defensive attack vs. offensive attack, factors in choice of, 2008:2.36

For defensive attacks, master streams are tool of choice, 2008:3.38

Determining imminent life-threatening situations can require probability analysis, **2006:**6.30

Division of labor eases coordination of fireground activities, 2006:5.38

Dwelling fires should not be considered routine, 2003:4.26

Educational occupancy fires necessitate pre-incident planning emphasizing life-safety tactics, **2010:**5.40

Effective communication important to successful command, **2006:**3.42

Establishing alternative egress/access paths at incidents, **2004:5**.28

Estimating staffing requirements for working fire in building occupied by many people, **2007:**2.28

Estimating structural stability, use and misuse of 20-minute rule, **2009:**1.28

Exposure protection tactics discussed, 2008:5.36

Failure to properly size-up occupancy type, including complex buildings, can be disastrous, **2007**:4.34

Fire service staffing levels have direct impact on firefighter and occupant safety, 2013:1.32

Fire service staffing sufficient to carry out incident action plan, determining, 2013:3.38

Fire streams: correct choice and use vital knowledge for firefighters, 2008:4.30

Firefighter safety correlates to sound fire tactics, 2004:3.30

Fireground procedure effectiveness limited by absolutes, **2010**:6.32

Fires in different occupancies require different tactics, 2009:4.28

Fires in occupied assembly occupancy may require extraordinary firefighting tactics, 2003:6.22

Health care occupancies need pre-incident plans, 2004:1.22

High rise building fires, study examines deployment and tactics for, 2012:2.32, 3.46

For high-rise fires, study indicates value of adequate staffing levels and response times, **2013:**4.30

Imminent life hazard, risk vs. benefit in determining, 2011:7.32

Incident action plan development is critical for life safety, extinguishment, and property conservation, **2013**:2.30

Incident management system should be used at all emergencies, 2005:5.36

Incident safety begins with training, pre-incident planning, 2004:4.24

Lightweight construction and heavy fuel loads increase hazards, 2007:5.38

Managing scene overhaul operations, 2005:1.24

Managing school fires successfully, **2003:**5.28

NFPA 1561, Emergency Services Incident Management System, provides IMS guidance, **2005**:4.28

NFPA 1584, Rehabilitation of Members Operating at Incident Scene Operations and Training Exercises, provides blueprint for managing rehabilitation, **2005**:2.32

NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, fire service staffing levels validated by science and experience, 2011:2.36

Nightclub fires, handling and planning for overcrowding in, 2009:6.32

Occupancy of building key to developing firefighting strategy and tactics, **2009:**3.50

Past incidents provide planning and training tips for future incidents, 2012:1.32

Personnel accountability system essential for locating firefighters at incident scene, 2005:3.36

Planning for fires in theaters, stadiums, and other entertainment venues, 2010:2.34

Pre-demolition planning for fires, entrapments, and other emergencies, 2011:5.32

Pre-fire planning aids working with sprinkler systems in storage facilities, 2011:3.54

Pre-fire planning for mercantile occupancies, **2011:**1.32

Pre-incident planning should include study of building standpipe system, 2013:5.34

Rapid intervention crew play critical role in saving firefighters, 2010:4.38

Risk-benefit analysis can help reduce firefighter injuries and deaths, 2012:4.36

Roof operations prompt special concern, 2007:6.28

Sprinkler systems make fire department operations easier and reduce risk, 2012:6.32

Staging and stairway support help manage high-rise fire logistics, 2003:2.32

Staging lets you manage incidents safely, 2003:1.22

Training and planning improves chances of locating lost, trapped firefighters, 2011:4.32

Truck terminals need pre-incident plans as potential high-risk/large-loss hazard, 2003:3.28

Truss construction technique can mean greater risk for firefighters, 2009:2.32

Unified command at structure fires, 2006:1.26

Urban conflagration, strategies and tactics for, 2008:6.28

Using risk-benefit analysis to select structural fire attack method, 2004:6.26

Value of codes and standards for firefighter safety, and sign-off after 13 years, 2013:6.30

STRUCTURES. See also STRUCTURAL COLLAPSE; STRUCTURAL FIREFIGHTING COLUMNS; STRUCTURAL OPS COLUMNS

Fire barriers in structural joints, 1991:2.98

Fire hazards of contents, furnishings and interior finishes, 1992:4.33

Firefighter fatalities while operating inside, **1995**:4.84, **2003**:4.63, **2004**:4.56, **2006**:4.53, 56, 59, 60, 61, **2007**:4.61, **2007**:4.69, 71, **2008**:4.84, 90, **2009**:4.62, 67, **2010**:4.79, 80, **2012**:4.76, 78, 79

Firefighter injuries while operating inside, **2003**:1:65, **2003**:6.70, 71, **2004**:6.64, **2006**:6.82, 83, 84, **2007**:6.93, **2008**:6.54, **2009**:6:70, **2010**:6.72, 76, **2011**:7.62, **2012**:6.70, 72, 74, **2013**:6.65, 66

Lightweight (engineered wood) construction's relationship with fire detailed in two studies, **2009:**4.38

Nonresidential properties, U.S., report on fires in, 2009:6.86

Studies seek to better understand wind-driven structural fires, 2009:4.14

SUBWAY CAR FIRES

Pennsylvania, 1990, 1991:4.31

SUBWAY FIRES

King's Cross Underground Station fire, London, Nov., 1987, 2010:6.96

Token booth, New York, 1995, 1996:6.24

SUFFOLK, VIRGINIA

Grant used for community fire and life safety education programs, 2005:5.74

SUPERMARKET FIRES. See STORE FIRES

SUPPRESSION OPERATIONS. See FIRE SERVICE OPERATIONS

SUPPRESSION SYSTEMS. See also CLEAN AGENTS; FOAM EXTINGUISHING AGENTS AND SYSTEMS; SPRINKLER SYSTEMS; WATER MIST SUPPRESSION SYSTEMS

Advances in systems and codes over thirty years, 1996:5.75

Air cargo, NTSB urges fire suppression upgrade for, 2013:1.11

Argon system not in area of fire, 2012:1.19

Carbon dioxide, overpowered by fire, 1994:6.94

Carbon dioxide shipboard system discharges, kills two, 1996:2.83

Catastrophic fires, 1994:4.104, 1994:1.05

Dry chemical hood, activated after fire spread to duct, 1996:5.25

Electrical generating plant large-loss fire spread limited by, 1995:6.100

Fixed fire protection schemes to achieve complete extinguishment in large warehouses, **2011:**4.42

Kitchen hood suppression system extinguishes restaurant fire, 2012:3.38

Kitchen hood suppression system heads operation ineffective in restaurant fire, 2012:3.39

Manual water spray system limits fire spread in chemical plant fire, 1996:6.64

Research on suppression systems faces grand challenges, 2005:6.14

Total-flooding and local-application water-mist systems protect ConocoPhillips Alaska Alpine oil-processing facility, **2003:**6.52

U. S. experience, 2003-2007, **2010:**3.112

U. S. experience with non-water-based systems, 2005-2009, 2011:4.73

U. S. experience with non-water-based systems, 2006-2010, 2013:2.79

Water cannons control refinery fire, 1996:5.96

Wet chemical hood, satisfactory performance, 2003:2.20

SWEDEN

Nightclub fire, Gothenburg, Oct. 28, 1998, 2000:3.117

Т

TALBOT, GARY

Metropolitan Boston Transportation Authority Accessibility Manager works on accessibility and evacuation issues for people with disabilities, **2010**:4.52

TANK CARS, RAILROAD

Acetone tank car breaches after derailment, ignites fire, 1999:6.95

Weyauwega, Wisc., LP-Gas tank car derailment, March 4, 1996, 1996:3.89

TANK STORAGE FACILITIES

NFPA 326, Safeguarding Tanks and Containers for Entry, Cleaning, or Repair covers entry, cleaning, repair work procedures, **1999:**6.76

NFPA partners with American Petroleum Institute and OSHA for petroleum and petrochemical industry safety, **2004**:4.32

TANK STORAGE FACILITIES FIRES

California, Nov., 2012, 2013:6.57

Catastrophic

Arkansas, May, 2009, 2010:5.68

Iowa, Dec. 13, 1994, 1995:5.66

Kentucky, July 2, 1993, 1994:5.104

Louisiana, March 11, 1990, 1991:4.68

Louisiana, March 4, 1998, 1999:5.55

```
Mississippi, June, 2006, 2007:5.61
     Missouri, Sept. 8, 1992, 1993:5.67
     Ohio, May 27, 1994, 1995:5.66
     Oklahoma, May 16, 1990, 1991:4.69
     Oklahoma, Apr. 23, 1995, 1996:5.97
     Tennessee, July 1, 1999, 2000:5.60
     Texas, April, 2003, 2004:5.71
     Texas, May, 2007, 2008:5.61
     Wyoming, Aug., 2011, 2012:5.75
  Colorado, Nov. 25, 1990, 1991:6.73, 1992:1.60
  Fatal, Florida, 1990, 1991:3.29
  Fatal, Indiana, 2011, 2012:1.21
  Georgia, April, 1995, 1996:6.66
  Kansas, 2007, 2008:4.25
  New Mexico, 2000, 2001:1.23
  Ohio, May, 2009, 2010:6.67
  Pennsylvania, Oct., 1995, 1996:6.62
  South Carolina, 2004, 2005:3.30
TANK TRUCK ACCIDENTS
  Chemical countermeasures for fuel spills that threaten water supply, 1999:2.74
TANK TRUCK FIRES
  California, April, 2007, 2008:6.45
  Catastrophic
     Florida, March 17, 1993, 1994:5.106
     Louisiana, June, 2004, 2005:5.61
     Mississippi, Jan. 20, 1992, 1993:5.68
     Missouri, April 16, 1990, 1991:4.70
     New York, May 20, 1991, 1992:4.72
     Tennessee, June 19, 1990, 1991:4.70
     West Virginia, May 11, 1993, 1994:5.108
  Connecticut, March, 2004, 2005:6.48
  Fatal
     California, 1995, 1996:1.21
     California, 1997, 1998:2.19
  Florida, Dec., 1998, 1999:6.94
  Michigan, 1991, 1992:6.29
  Oregon, July, 1992, 1993:6.84
  Pennsylvania, 1992, 1993:3.36
  Space program technology applied to tank truck fires by NASA, NFPA, Chicago Fire Dept.
         partnership, 1998:2.52
  Tennessee, 1992, 1993:6.30
TANKER VESSELS
  Fire safety, 1998:3.70
TANKS, DIPPING
  Bonderizing tank liquid overheats, ignites, 1998:3.42
  Equipment failure ignites flammable liquid, 2010:4.32
```

TANKS, PROCESS

Pressure in aluminum plant process area vessel or tank causes explosion, 2000:6.83

TANKS, STORAGE. See TANK STORAGE FACILITIES

TAR

Hot tar ignites roof, **1991:**6.23

Hot tar ignites roof framing, 1998:2.19

Residue in floor boards spreads fire, 1993:6.83

Roofing tar spreads fire, **1994:**6.93, 94, 95

TAR KETTLE FIRES

Illinois, 1990, **1991:**6.23

Oklahoma, 1996, **1997:**3.33

TAVERN FIRES. See RESTAURANT FIRES

TELECOMMUNICATIONS FACILITIES

Fire, Toronto, Canada, July, 1999, 2000:4.67

Fire Protection Research Foundation workshop addresses fire protection challenges, 2011:4.28

NFPA 76, Standard for the Fire Protection of Telecommunications Facilities, proposed to replace Recommended Practice, **2004:**5.46

NFPA 76, Telecommunications Facilities, addresses fire requirements, 2000:4.62

TELEPHONE APPS. See APPS

TELEVISION PRODUCTION STUDIOS. See MOTION PICTURE STUDIOS TENNESSEE

Apartment building fire, 2009, **2010:**3.37

Board and care facility fire, Feb. 8, 1996, 1997:5.52

Catastrophic fires

Aircraft crash, Jan., 2001, 2002:5.82

Apartment building, Dec. 28, 1998, 1999:5.53

Apartment building, Dec., 2001, 2002:5.82

Assisted living facility, Jan., 2004, 2005:5.59

Board-and-care facility, Sept., 2000, **2001:**5.78

Dwelling, March 9, 1991, 1992:4.67

Dwelling, March 31, 1992, **1993:**5.62

Dwelling, Apr. 13, 1996, 1997:5.49

Dwelling, Oct. 5, 1999, 2000:5.58

Dwelling, Dec., 2000, 2001:5.77

Dwelling, Jan., 2003, 2004:5.69

Dwelling, Nov., 2005, 2006:5.61

Dwelling, March, 2006, 2007:5.57

Dwelling, Aug., 2008, 2009:5.80

Dwelling, Jan., 2010, 2011:5.74

Manufactured home, March 4, 1994, 1995:5.56

Manufactured home, Sept., 2010, 2011:5.76

Manufacturing plant, May, 2011, 2012:5.74

Motor home, Aug. 14, 1992, 1993:5.68

Motor vehicle/railroad rolling stock fire, June 19, 1990, **1991:**4.70

Motor vehicle fire, Dec. 11, 1990, 1991:4.70

Motor vehicle fire, Nov. 11, 1994, 1995:5.68

Motor vehicle, Apr. 3, 1997, 1998:5.55

Nursing home, Sept., 2003, **2004:**5.70

Oil tank, July 1, 1999, **2000:**5.60

Storage and manufacturing facility, June 5, 1997, 1998:5.53

Church fire, 1992, **1993**:6.30

Church fire, Oct., 2006, 2007:6.83

Detention facility fire, June 26, 1977, 1994:5.50

Dwelling fire, 2007, **2008:**3.21

Electric generating plant fires, Sept., 2002, 2003:6.79

Fatal fires

Apartment building, 1999, **2000**:3.36

Apartment building, 2006, 2007:2.19

Board and care facility, February 8, 1996, fire investigation report, 1998:5.38

Dwelling, 2000, 2001:5.25

Dwelling, 2005, 2006:5.28, 6.20, 24

Dwelling, 2008, 2009:1.18

Dwelling, 2011, **2012:**1.17, 4.24, 28, 6.20

Manufactured home fire, 2010, 2011:3.36

Hospital fire, 1991, 1992:5.25

Manufacturing plant fire, Sept.. 18, 1997, 1998:6.85

Manufacturing plant fire, Sept., 2010, 2011:7.58

Mill fire, 2012, 2013:2.23

Motor vehicle fire, Aug. 9, 1999, 2000:6.94

Nursing home fire, April 25, 1994, **1995:**2.85

Nursing home fire, 2010, **2011:**7.20

Office building fire, May 23, 1999, 2000:6.92

Restaurant fire, 1997, 1998:5.18

Secondary school fire, 1993, **1994**:2.30

Shopping mall fire, 2009, **2010**:3.42

Stores, museum, amusement center fire, July, 1992, 1993:6.81

Store fire, Oct., 1993, 1994:6.91

Store fire, May 23, 1996, 1997:6.54

Store fire, 2011, **2012:**3.40, 4.30

Warehouse fire, 1990, 1991:5.25

Warehouse fire, March, 2004, **2005**:6.47

Warehouse fire, Nov., 2006, 2007:6.78

TENTS

Hartford, Connecticut, circus fire, July 6, 1944, 2012:4.88

NFPA 101®, Life Safety Code®, and NFPA 1, Fire Code, regulations, 2012:4.38

TERMINALS

Truck terminals need pre-incident plans as potential high-risk/large-loss hazards, **2003:**3.28 TERMINAL FIRES

New York, Sept., 1991, **1992:**6.76

TERRORISM. See also DISASTER RESPONSE; HOMELAND SECURITY

After Sept. 11 attacks, NFPA reviews standards, considers changes, 2001:6.43

Airport security measures jeopardize life safety, 1996:6.85

Bomb site, fire fighter injuries related to, 1998:6.54

Emergency response preparedness for, 1996:1.54

Emergency response training funded by Domestic Preparedness Act, 1998:1.38

Explosion and fire caused by, Murrah Federal Building, Oklahoma City, Okla., Apr. 19, 1995, **1996**:1.50, 59, **1996**:5.94, **1996**:6.69

Explosion and fire caused by, Sandy Springs, Georgia, Jan. 12, 1997, 1997:3.52

Federal program trains first responders for terrorist attacks, 1998:6.31

Fire service preparation for attacks, 1997:3.52

Fire services find opportunities for change post 9/11, 2002:5.48

Fire services must be prepared for terrorist attacks, 1996:2.35

First responder protective equipment evaluated for terrorist attack response use, 2003:4.50

Homeland Security Department must standardize first responder preparation, 2003:5.34

Homeland Security Department should incorporate fire service factors, 2003:2.19

Mass-casualty shootings, fire chiefs endorse position paper for, 2013:6.11

Mass-casualty shootings, fire department role in integrated response to, 2013:5.52

NFPA 472, Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition, can be used to develop HAZMAT/WMD emergency responder training program, 2008:2.54

NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, proposed as National Preparedness Standard basis by 9/11 Commission, **2004:**5.58

NFPA investigator recalls his work at Ground Zero, 2011:5.48

NFPA post 9/11 code and standards have made America safer, 2011:5.42

NFPA takes key role in defending first responders against weapons of mass destruction terrorist acts, **2001**:4.63

NFPA's progressive approach to post 9/11 code changes, 2002:5.51

9/11 Commission, 2002 to 2004, 2005:1.64

Pentagon attack (See PENTAGON ATTACK AND FIRE)

Senate committee moves to protect chemical facilities from terrorism, 2002:6.30

United States Capitol complex buildings need improved fire safety, evacuation plans, and terrorist protection, **2003:**3.86

USAR task force response to Murrah Federal Building bombing, 1996:1.59

World Trade Center, New York (See WORLD TRADE CENTER, N. Y., N. Y.)

TEST FACILITIES FIRES

Rocket fuel propellants, California, 1994, 1995:4.40

Rocket testing facility, California, July, 2007, 2008:5.61

TESTA, WILLIAM L.

Profile of. **1994:**6.27

TEXAS

Agricultural building fire, July, 2009, **2010**:6.68

Aircraft crash fire, April, 1993, **1994:**6.98

Aircraft crash fire, Jan., 2009, 2010:6.68

Aircraft fire, Nov., 2005, 2006:6.75

Apartment building fire, 1996, 1997:2.22

Apartment building fire, Jan. 16, 1997, 1998:6.90

Apartment building fire, 1999, 2000:3.36

Apartment building fire, 2006, 2007:3.24

Apartment building fire, 2009, 2010:3.38, 4.24

Arts center fire, June, 2005, 2006:6.74

Building-under-construction fire, Aug., 2004, 2005:6.44

Catastrophic fires

Aircraft explosion, Sept. 11, 1991, 1992:4.72

Apartment building, Aug. 21, 1993, 1994:5.100

Apartment building, Oct., 2000, 2001:5.76

Apartment building, Dec., 2003, **2004:**5.70

Automobile, July 12, 1993, 1994:5.108

Board and care facility, Aug., 2012, 2013:5.62

Board and care facility, Apr. 11, 1993, **1994:**5.105

Bus, Sept., 2005, 2006:5.63

Church, Feb. 15, 1999, 2000:5.60

Crop fire, March, 2003, **2004:**5.72

Day care center, Feb., 2011, 2012:5.74

Dormitory, Apr. 19, 1993, 1994:5.95

Dwelling, Oct. 7, 1991, 1992:4.68

Dwelling, Feb. 2, 1995, **1996:**5.92

Dwelling, July 22, 1995, 1996:5.92

Dwelling, Oct. 21, 1995, 1996:5.93

Dwelling, Oct. 26, 1998, 1999:5.53

Dwelling, July, 2000, 2001:5.76

Dwelling, Jan., 2011, 2012:5.71

Fuel storage tank, May, 2007, 2008:5.61

Group home, March 24, 1991, 1992:4.70

Homeless shelter, Jan., 2009, 2010:5.66

Manufactured home, Dec. 12, 1999, 2000:5.58

Manufactured home, Feb., 2001, 2002:5.82

Manufactured home, April, 2005, **2006:**5.61

Manufactured home, Jan., 2006, 2007:5.58

Manufactured home, Jan., 2008, 2009:5.81, 82

Manufactured home, March, 2011, 2012:5.69

Manufacturing plant, July 5, 1990, **1991:**4.67

Motor vehicle, Jan. 18, 1994, 1995:5.68

Office building, March, 2007, 2008:5.61

Oil storage tank, April, 2003, 2004:5.71

Refinery, March, 2005, 2006:5.62

Ship, Oct. 9, 1993, **1994:**5.108

Storage facility, April 7, 1992, 1993:5.67

Storage facility, July, 2003, 2004:5.72

Trailer, Jan., 2001, 2002:5.82

Vacant dwelling, Nov. 12, 1990, 1991:4.68

Wildland, March, 2006, 2007:5.62

Chemical plant fire, 2000, **2001**:6.23

Chemical plant fire, March, 2000, 2001:6.61

Chemical warehouse fire, 1990, **1991**:6.26

Church fire, 1992, **1993:**6.30

Church fire, 1996, **1997:**1.27

Church fire, Feb. 15, 1999, **1999**:4.76, **2000**:5.60

Church fire, 2003, **2004:**3.22

Church fire, Jan., 2010, **2011:**7.55

College building fire, May, 2008, 2009:6.84

College laboratory fire, 1996, 1997:5.23

Condominium fire, Dec. 14, 1996, 1997:6.58

Dental office fire, 2009, 2010:2.26

Dwelling fire, 1995, **1996:**5.25

Dwellings, multiple, fire, 1995, 1996:4.21

Dwelling fire, March 20, 1997, **1998:**6.90

Dwelling fire, Dec. 6, 1999, 2000:6.93

Dwelling fire, 2001, 2002:2.24

Dwelling fire, July, 2002, **2003:**6.79

Dwelling fire, Nov., 2003, 2004:6.56

Fatal fires

Apartment building, 2001, 2002:3.32

Apartment building, 2004, **2005:**5.32

Apartment building, 2005, 2006:2.28

Apartment building, 2007, 2008:3.24

Apartment building, 2009, 2010:1.22, 4.23, 5.34

Apartment building, 2012, 2013:4.21

Board and care facility, Aug. 13, 1990, 1991:4.68

Brush, 2012, 2013:6.25

Camping trailer, 2012, **2013:**3.28

Church, Feb. 15, 1999, 2000:4.55

Dwelling, 1994, 1995:2.29

Dwelling, 1997, **1998:**5.17

Dwelling, 1999, 2000:3.34

Dwelling, 2001, **2002:**3.30, **2002:**4.19, **2002:**6.18

Dwelling, 2002, 2003:1.15

Dwelling, 2003, **2004:**4.16, **2004:**6.17

Dwelling, 2004, 2005:3.28, 2005:5.28

Dwelling, 2006, **2007:**5.29

Dwelling, 2007, 2008:6.18

Dwelling, 2008, 2009:2.24, 6.25

Dwelling, 2009, 2010:3.34, 36, 6.26

Dwelling, 2010, **2011:**2.24, 25, 26

Dwelling, 2011, 2012:4.25, 6.26

Dwelling, 2012, **2013:**4.20

Hotel, 1996, 1997:4.19

Laboratory, 1991, 1992:5.28

Manufactured home, 2006, 2007:6.18

Manufactured home, 2007, 2008:2.24

Manufactured home, 2011, **2012:**5.24

Manufacturing plant, 1996, 1997:2.24

Manufacturing plant, June 23, 1999, 2000:6.84

School explosion, March 18, 1937, **1993:**5.94

Shed, 1992, **1993:**2.20

Storage facility, April, 1992, 1993:6.87

Storage facility, 2009, 2010:2.28

Grass fire, 1991, 1992:2.28

Hospital fire. 2009, **2010:**1.27

Hospital fire. 2011, **2012:**3.39, 5.29

Ink manufacturing plant fire, 1992, 1993:1.28

London Consolidated School explosion, New London, March 38, 1937, 2010:5.80

Manufacturing plant fire, 1990, 1991:6.24

Manufacturing plant fire, July 5, 1990, **1991:**6.78

Manufacturing plant fire, March, 1991, 1992:6.75

Manufacturing plant fire, June, 1991, 1992:6.79

Manufacturing plant fire, Jan., 1992, 1993:6.83

Manufacturing plant fire, July, 1993, 1994:6.94

Manufacturing plant fire, Oct., 1994, 1995:6.102, 108

Manufacturing plant fire, 1995, 1996:6.23

Manufacturing plant fire, July, 1995, 1996:6.64

Manufacturing plant fire, Aug., 1995, 1996:6.64

Manufacturing plant fire, Apr. 23, 1996, 1997:6.49

Manufacturing plant fire, Jan. 31, 1997, **1998:**6.86

Manufacturing plant fire, Aug. 28, 1997, 1998:6.87

Manufacturing plant fire, 1998, 1999:5.20

Manufacturing plant fire, 1999, 2000:3.38

Manufacturing plant fire, Dec. 2, 1999, 2000:6.83

Manufacturing plant fire, Dec., 2006, 2007:6.77

Manufacturing plant fire, Feb., 2007, 2008:6.42

Manufacturing plant fire, 2008, 2009:2.25

Manufacturing plant fire, 2010, 2011:3.46, 7.22

Manufacturing plant fire, Feb., 2010, 2011:7.58

Manufacturing plant fire, Oct., 2011, 2012:6.62

Motor vehicle repair shop fire, 1990, 1991:2.31

Nightclub fire, 1991, **1992:**6.25

Office building fire, 2012, 2013:5.28

Office building/warehouse fire, Oct., 1994, 1995:6.99

Oil refinery fire, 2004, 2005:2.18

Oil refinery fire, March, 2005, 2006:5.62, 6.75, 2007:4.78

Prescribed burn spreads beyond containment, 1994, 1995:2.31

Railroad rolling stock fire, Oct. 25, 1997, 1998:6.91

Refinery fire, April, 1991, 1992:6.75

Restaurant fire, Sept., 2008, 2009:6.83

Restaurant fire, 2011, 2012:4.29

School fire, May, 1998, 1999:6.97

School fire, Nov., 1998, 1999:6.97

School fire, 2007, 2008:4.24

Ship fire, Nov. 11, 1997, 1998:6.91

Ship fire, Mar., 1998, 1999:6.94

Special property fire, 1993, **1994:**4.29

State Fire Marshal's fire safety campaign urges students to "have an exit strategy" in public spaces, **2007:**3.98

Storage facility fire, 1994, **1995:**1.31, **1995:**6.38

Storage facility fire, June/July, 1995, 1996:6.66

Storage facility fire, June 26, 1999, **2000:**6.90

Storage facility fire, Dec., 2005, 2006:6.72

Storage facility fire, Feb., 2011, 2012:6.66

Store fire, July, 1995, **1996:**6.70

Store fire, Sept., 1995, 1996:6.72

Store fire, 2000, 2001:4.22

Store fire, 2001, **2002:**4.18

Store fire, 2003, **2004:**1.17

Store fire, 2008, **2009:**4.20

Store fire, May, 2009, **2010**:6.69

Store fire, Oct., 2011, 2012:6.64

Store fire, 2012, **2013**:6.24

Truck fire, April, 2009, 2010:6.68

Utility company transformer fire, 1997, 1998:1.22

Warehouse fire, 1993, 1994:4.32

Warehouse fire, June, 1993, 1994:6.96

Warehouse fire, Nov., 1993, 1994:6.95

Warehouse fire, July, 1994, 1995:6.108

Warehouse fire, 1997, 1998:5.18

Warehouse fire, July, 1998, 1999:6.94

Warehouse fire, Aug., 2000, 2001:6.62

Warehouse fire, 2001, 2002:6.75

Warehouse fire, Aug., 2010, 2011:7.56

Wildland fire, 1994, 1995:2.31

Wildland fire, March, 2006, **2007**:6.80

Wildland fire, April, 2011, 2012:6.65, 66

Wildland fire, Sept., 2011, 2012:6.65

Wildland/urban interface fire, Jan., 2006, 2007:6.81

TEXAS CITY, TEXAS

BP Refinery explosion and fire, March 23, 2005, 2007:4.78

Explosion and fire of ships carrying ammonium nitrate, April 16, 1947, **2012**:3.112

THAILAND

Catastrophic manufacturing plant fire, May 10, 1993, 1994:1.42

Royal Jomtien hotel fire, July 11, 1997, fire investigation report, 1998:2.34

Santika Pub nightclub fire investigation points to needed fire safely regulations, **2010:**1.42 THEATERS

Planning for fires in theaters and other entertainment venues, **2010**:2.34

Rowe, Alan, International Alliance of Theatrical Stage Employees Local 728, on NFPA role in entertainment industry, **2013:**4.14

THEATER FIRES

California, 1995, 1996:1.24

California, 1996, **1997:**3.29

Florida, 1995, **1996:**2.26

Georgia, 1999, 2000:6.14

Iroquois Theatre fire, Chicago, Ill., Dec. 30, 1903, 1995:4.75, 2003:6.104

Massachusetts, 2005, 2006:4.29

Missouri, 2010, 2011:5.14

Nevada, 1998, **1999:**3.44

North Carolina, 2008, 2009:1.17

THERMAL ENERGY GENERATING PLANT FIRES

Catastrophic, New Jersey, Dec. 25, 1992, 1993:5.67

THERMAL IMAGING CAMERA

Apartment building fire, victim found with, 2010:6.22

Hospital fire, burning bearing found by, **2010**:3.42

Store fire, fire source found by, 2012:2.21

Warehouse fire, fire source found by, 2012:2.20

THOMAS, H. EMERSON

Interview with, **1995:**5.86

Profile of, **1998:**6.39

THROUGH-PENETRATION PROTECTION SYSTEMS

Update on systems, 1994:1.54

TIRE FIRES

California, 1998, 1999:4.21

Hagersville, Ont., 1990, **1991:**1.50

Illinois, Oct., 2003, 2004:6.57

Illinois, Jan., 2009, dwelling constructed with tires, 2009:2.17

Pennsylvania, March 13, 1996, 1997:6.59

Saint Amable, Que., 1990, 1991:1.55

TORCHES

ABS piping ignited by, **1991:**6.73

Acetylene

Concealed space fire ignited by, 1994:6.93

Ethyl alcohol vapors ignited by, 1993:5.67

Methane leak ignited by, 2007:5.60

Plastic greenhouse cover ignited by, 1992:4.25

Spark ignites open sludge-oil pit, 2005:6.46

Butane, ignites insulation materials, 1996:1.22

Cutting

Ammonium nitrate powder ignited by, **1994:**5.105

Burglars cutting through metal door ignite combustibles, 2003:1.14

Cardboard, plywood ignited by, 1995:6.104

Cardboard ignited by, 1994:6.97

Carpets ignited by, 1994:6.97

Ceiling material ignited by, 1995:6.108

Foam insulation ignited by, 1998:6.84

Gasoline vapors ignited by, 1995:6.38

Hot metal filings ignite insulation, **1997:**2.23

Methane gas vapors ignited by, 1993:5.67, 1993:6.82

Office building fire ignited by, 2001:3.26

Slag and hot metal ignite combustibles, 1997:3.29

Slag ignites insulation, combustibles, **2002:**4.18

Slag ignites paper and insulation, 1997:5.52, 6.59

Spark ignites open sludge-oil pit, 2005:6.46

Sparks or embers ignite methane in mine fire, **2004:**5.72

Trash ignited by, 2000:3.38, 2008:5.26

Wood chips and sawdust ignited by, 2010:6.66

Wood-framed wall ignited by, 2011:3.49

Wood ignited by, **1995**:5.35, **2003**:3.18, **2003**:6.78

Wooden support structure ignited by, 2012:3.28

Decorative torch, ignites garage contents, 2002:2.24

Dental office torch ignites alcohol, 2010:2.26

Drugs, illegal, heating of, ignites combustibles, 2005:6.16

Hot slag from torches ignites plastic modules, 1993:5.67

Hydraulic oil residue ignited by, 1992:3.32

Newspaper, ignites wood joists, 1994:5.96

Oil well explosion and fire, possible cause of, 1992:4.71

Open-flame, ignites pipe insulation materials, 1991:6.23

Patio torch, NFPA issues urgent warning on gel fuel for, 2011:5.12

Plastics ignited by, 1999:6.91

Plumber's

Insulation ignited by, 2003:1.14, 2008:6.43

Structural members ignited by, **2006:**6.72

Structural wood framing ignited by, 1998:3.42

Water sealer vapors ignited by, 2008:3.21

Propane

Cellulose insulation ignited by, **2004:**2.18

Combustible crates and plastic ignited by, 1991:6.73

Restaurant fire ignited by, 1991:2.32

Roof drain fire ignited by, 1997:6.53

Roof framing ignited by, 1998:2.19

Roof ignited by, 1997:6.19, 2004:3.18

Shingles, trim ignited by, 1997:2.21

Structural framing ignited by, 2005:1.20

Wood beneath aluminum siding ignited by, **2006:**3.30

Roofing

Exterior wall ignited by, **2012:**4.22

Insulation ignited by, 1995:3.40

Roof-covering glue ignited by, **2003:**5.20

Roof ignited by, **1994:**3.29, **1994:**6.95, **1995:**6.98, **1996:**6.73, **1997:**2.21, 6.19, 53,

2001:6.62, 2010:6.64, 2012:6.66

Wooden roof members ignited by, 1994:6.96

Soldering, ignites wood furring, 1999:6.96

Spark ignites rubber seal, 1993:6.85

Warehouse fire ignited by, 2001:6.22

Welding

Electric, ignites blanket, 2010:2.28

Electric, ignites residual plastic in shredder, 1996:5.23

Gasoline from punctured pipeline ignited by sparks, 2005:5.60

Polyurethane mats ignited by, 1994:5.30

PVC solvent vapors ignited by, 1996:6.23

Wood wall coverings ignited by, 1999:6.97

TORONTO, CANADA

Alan Speed is fire chief of new amalgamated metropolitan Toronto Fire Services, **2000**:4.37

Hazardous materials response teams, 1992:1.38

Hoarding conditions exacerbate fuel load in apartment building fire, 2012:1.44

Large-loss-of-life fire, S. S. Noronic, Toronto, Canada, Sept. 17, 1949, 1997:1.58

Switch gear fire shuts down telecommunications system, July, 1999, 2000:4.67

TOWNHOUSE FIRES. See APARTMENT BUILDING FIRES

TOXICITY, COMBUSTION

Review of major issues concerning toxicity, 1996:6.90

TRACTOR FIRES

Catastrophic, Ohio, July, 2001, 2002:5.82

TRAILER FIRES. See also CAMPING TRAILER FIRES

Catastrophic, fireworks storage, Arkansas, July 4, 1999, 2000:5.60

Catastrophic, Texas, Jan., 2001, 2002:5.82

Catastrophic, vacant construction trailer, Massachusetts, Jan. 27, 1998, 1999:5.55

Truck trailer, Connecticut, 1998, 1999:3.46

Truck trailer, Virginia, 2008, 2009:4.22

TRAINING. See also FIREFIGHTER TRAINING

Crowd manager training is essential but what should it include, 2010:4.70

Fire inspectors

NFPA Fire Inspector Certification program, 1991:3.57

NFPA Fire Inspector Certification program training helps Dow Corning with insurer, **2011:**2.58

NFPA introduces Fire Inspector I Certification Program, 1998:3.116

NFPA increases online training with certificate programs, 2002:6.27

NFPA introduces training seminars at 1997 Fall Meeting, 1998:2.64

NFPA offers new initiatives for training on codes and standards, 2000:5.92

NFPA online learning center provides cost-effective certificate courses, 2003:6.17

TRAINS. See RAILROAD ROLLING STOCK FIRES

TRANSFORMERS

Electrical generating plant fire, Virginia, Jan., 2006, 2007:6.83

Electrical room fire protection and enclosure requirements, 2008:5.38

Electrical substation fire, Ohio, Nov., 2005, 2006:6.75

Electrical substation fire, Virginia, April, 2000, 2001:6.64

Fire, Massachusetts, March, 2012, 2013:6.56

Fire, Texas, 1997, **1998:**1.22

Mechanical malfunction ignites fires, spreads to power plant, 2010:6.68

Overheated transformer explodes in generating plant fire, 1999:4.22

Polychlorinated biphenyls (PCBs) in, 1991:1.116

Substation fire, Montana, July, 1998, 1999:6.95

TRASH. See RUBBISH AND TRASH

TRAVEL TRAILER FIRES. See CAMPING TRAILER FIRES

TRENCH, NANCY J.

Profile of, **1993:**3.21

TRIANGLE SHIRTWAIST CO. FIRE

Ninetieth anniversary of fire, **2001:**5.104

100 years after fire, review of what has changed and not changed, 2011:2.44

Outrage, reform as results, 1993:3.72

TRUCK ACCIDENTS

Increased truck-related fatalities spur revamp of federal safety program, 1999:5.30

TRUCK FIRES. See also TANK TRUCK FIRES; VEHICLE FIRES

California, 1991, 1992:6.26

California, April, 2007, 2008:6.45

Catastrophic

Alabama, Feb., 2007, 2008:5.62

Arizona, May, 2006, 2007:5.62

Arkansas, Jan. 9, 1995, **1996:**5.99

Arkansas, July, 2002, 2003:5.75

California, Jan. 23, 1990, 1991:4.70

California, Dec. 25, 1991, 1992:4.73

California, March 3, 1994, 1995:5.68

California, June 23, 1995, **1996:**5.100

California, June 27, 1995, 1996:5.100

California, Sept. 9, 1995, 1996:5.100

California, May 4, 1997, 1998:5.55

California, July 29, 1998, 1999:5.56

Colorado, June, 2002, 2003:5.75

Florida, July, 2003, **2004:**5.73

Florida, Feb., 2004, 2005:5.60

Georgia, Apr. 3, 1996, 1997:5.54

Idaho, July 4, 1997, 1998:5.55

Illinois, March 15, 1999, 2000:5.61

Indiana, March 20, 1993, 1994:5.106

Indiana, Dec., 2007, 2008:5.63

Kansas, Dec. 22, 1997, 1998:5.56

Kansas, Aug., 2005, 2006:5.63

Louisiana, June, 2004, 2005:5.61

Maryland, Jan. 16, 1993, 1994:5.108

Michigan, July 12, 1998, 1999:5.56

```
Missouri, April 16, 1990, 1991:4.70
```

Missouri, Oct., 2006, 2007:5.63

Nevada, June 27, 1999, 2000:5.61

New York, May 20, 1991, 1992:4.72

New York, Mar. 11, 1998, 1999:5.56

North Carolina, July, 2009, 2010:5.68

Ohio, Dec. 4, 1992, 1993:5.68

Oregon, March 25, 1997, 1998:5.55

Oregon, Aug., 2003, 2004:5.72

Pennsylvania, June 20, 1999, 2000:5.61

Tennessee, June 19, 1990, 1991:4.70

Tennessee, Nov. 11, 1994, 1995:5.68

Tennessee, April 3, 1997, **1998:**5.55

Texas, Jan. 18, 1994, 1995:5.68

Utah, May 25, 1999, 2000:5.61

West Virginia, July 26, 1990, 1991:4.69

Wisconsin, Nov. 11, 1994, 1995:5.67

Catastrophic, Arizona, Sept., 2000, 2001:5.79

Catastrophic, Arizona, Nov., 2000, 2001:5.79

Catastrophic, Minnesota, Oct., 2000, 2001:5.79

Catastrophic, Missouri, Jan., 2000, 2001:5.79

Connecticut, March, 2004, 2005:6.48

Fatal

California, 1995, 1996:1.21

Massachusetts, 1996, 1997:5.24

Florida, Dec., 1998, 1999:6.94

Illinois, Aug., 1993; tractor trailer, **1994:**6.96

Illinois, 2010, **2011:**3.48

Massachusetts, 2010, 2011:5.19

Michigan, 1991, 1992:6.29

Michigan, 1993, 1994:6.34

Oklahoma, 1996, 1997:3.33

Pennsylvania, 1992, **1993:**1.28

South Carolina, 1990; pickup truck crash triggers fuel storage fire, 1991:2.32

Texas, 1993; alternative fuel pick-up, **1994**:4.29

Texas, April, 2009, 2010:6.68

TRUCK TERMINALS

Potential high-risk/large-loss hazard requires pre-incident planning, 2003:3.28

TRYON, GEORGE H. (HITCH), III

Remembering aviation fire-safety leader, 2008:4.102

TUNNELS

Boston's "Big Dig" Central Artery/Tunnel Project fire safety is guided by NFPA 502, *Road Tunnels, Bridges, and Other Limited Access Highways,* **2003:**3.42

In entertainment facility, fire spread through, 1998:6.92

Eurotunnel (Channel tunnel) fire, November 18, 1996, analysis, 1997:2.58

Eurotunnel (Channel tunnel) fire led to revamped safety procedures and training, 2002:2.74

Fire detection system performance, international research report on, 2008:4.62

Fire protection for Eurotunnel (Channel tunnel), 1996:1.85

Hydroelectric plant tunnel, catastrophic fire, Colorado, Oct., 2007, 2008:5.60

NFPA standards for bridges and tunnels provide fire protection guidance, 2003:3.56

Road tunnel fire safety, **2000:**4.74

Road tunnel safety in U. S. and abroad, 2006:3.26

TUSCALOOSA, ALABAMA

City receives Jensen award to fund smoke alarm installation and educational campaign, **2007**:4.72

U

UNDERGROUND STRUCTURES. See also TUNNELS

Electrical vault, catastrophic fire in, **1991:**4.69

Laboratory under construction fire, Massachusetts, Feb., 2005, 2006:6.68

SubTropolis storage/manufacturing facility, Kansas City, Missouri, requires unique fire protection measures, **1998:**6.68

Tank storage facility fire, South Carolina, 2004, 2005:3.30

UNDERWRITERS LABORATORIES, INC.

NFPA 72, The National Fire Alarm Code, and UL standards work together, 1993:5.25

UL and Fire Protection Research Foundation complete Smoke Characterization Project, **2007**:3.17

UNIFORM FIRE CODE™

2009 edition, changes give fire inspectors and building owners access to wide range of technical expertise, **2008**:3.52

2009 edition, changes proposed to improve occupant and responder safety in high-rise buildings, **2007:**2.36

2012 edition, proposed changes, overview of, 2011:3.66

Applicability, requirements, and resolution of conflict with other codes, explained, **2007**:2.30

Code identifies levels of materials, offer safety requirements, 2002:6.23

Connecticut adopts code, 2006:2.18

Fire alarm system replacement and abandonment requirements, 2008:4.34

Kentucky adopts code, 2006:6.12

Maryland adopts code, 2007:2.13

School bulletin boards and decorations, requirements for, 2012:5.38

School lockdown procedures can run counter to NFPA 1, *Fire Code*, egress requirements, **2013:**5.55

Sports venues, fire alarm challenges of, **2004:**3.38

Sports venues, operational requirements for, 2004:3.34

Tents, requirements for, 2012:4.36

Vermont adopts code, 2006:1:11

UNITED KINGDOM

Buncefield Oil Depot, Hertfordshire, fire, Dec. 11, 2005, 2006:3.86

Eurotunnel (Channel tunnel) fire, November 18, 1996, analysis, 1997:2.58

Eurotunnel (Channel tunnel) fire led to revamped safety procedures and training, 2002:2.74

Fire protection for Eurotunnel (Channel tunnel), 1996:1.85

King's Cross Underground Station fire, London, Nov., 1987, 2010:6.96

2004, 2005:5.44 2005, **2006:**5.46

UNITED STATES Arson fires: types of fires and firesetters, **1998:**6.58 Board and care facility fires, 2000-2004 statistics, 2007:1.13 Catastrophic fires (multiple-death fires) 1990, **1991:**4.60 1991, **1992:**4.62 1992, **1993:**5.56 1993, **1994:**5.88 1994, **1995:**5.48 1995, **1996:**5.86 1996, **1997:**5.46 1997, **1998:**5.42 1998, **1999:**5.46 1999, **2000:**5.52 2000, **2001:**5.71 2001, 2002:5.76 2002, 2003:5.70 2003, 2004:5.64 2004, **2005:**5.50 2005, **2006:**5.54 2006, **2007:**5.52 2007, 2008:5.52 2008, 2009:5.78 2009, 2010:5.62 2010, **2011:**5.72 2011, 2012:5.68 2012, 2013:5.58 Fire deaths (See FIRE DEATHS, U. S.) Fire department profile, 2011, **2013:**4.79 Fire departments, NFPA survey, 1993:4.59 Fire losses (See also subentry: Fireworks) 1990, **1991:**5.36 1991, **1992:**5.32 1992, **1993:**5.78 1993, **1994:**5.57 1994, **1995:**5.93 1995, **1996:**5.52 1996, **1997:**5.76 1997, **1998:**5.72 1998. **1999:**5.88 1999, **2000:**5.80 2000, **2001:**5.81 2002, 2003:5.58 2003, 2004:6.66

```
2006, 2007:5.64
  2007, 2008:5.46
  2008, 2009:5.72
  2009, 2010:5.56
  2010, 2011:5.80
  2011, 2012:5.76
  2012, 2013:5.66
  State by state report, 1999:3.106
Fire service calls, 2003 report, 2005:3.16
Firefighter fatalities
  1990, 1991:4.46
  1991, 1992:4.40
  1992, 1993:4.44
  1993, 1994:4.55
  1994, 1995:4.83
  1995, 1996:4.63
  1996, 1997:4.46
  1997, 1998:4.50
  1997-2007 fatalities, changes over 30-year period, 2007:4.48
  1998, 1999:4.54
  1999, 2000:4.46
  2000, 2001:4.66
  2001, 2002:4.68
  2002, 2003:4.56
  2003, 2004:4.44
  2004, 2005:4.48
  2005, 2006:4.50
  2006, 2007:4.58
  2007, 2008:4.74
  2008, 2009:4.60
  2008 preview, 2009:3.23
  2009, 2010:4.74
  2009 preview, 2010:3.26
  2010, 2011:4.62
  2010 preview, 2011:3.30
  2011, 2012:4.74
  2012, 2013:4.64
  Training, 1996-2005 fatalities related to, 2006:4.40
  Vehicle accidents, 1998-2007, fatalities related to, 2008:4.91
Firefighter injuries
  1990, 1991:6.42
  1991, 1992:6.56
  1992, 1993:6.56
  1993, 1994:6.57
  1994, 1995:6.63
  1995, 1996:6.103
```

```
1996, 1997:6.66
  1997, 1998:6.48
  1998, 1999:6.46
  1999, 2000:6.40
  2000, 2001:6.49
  2001, 2003:1.62
  2002, 2003:6.64
  2003, 2004:6.58
  2004, 2005:6.50
  2005, 2006:6.76
  2006, 2007:6.84
  2007, 2008:6.46
  2008, 2009:6:66
  2009, 2010:6.70
  2010, 2011:7.60
  2011, 2012:6.68
  2012, 2013:6.60
Fireworks
  Deaths and injuries, 1997; 1980-1996 data compared, 1999:3.116
  Losses and casualties caused by, 1992:4.56, 1993:4.55, 1994:4.78, 1995:4.61, 1996:4.79,
         1997:4.78
Large-loss fires
  1990, 1991:6.28
  1991, 1992:6.40
  1992, 1993:6.73
  1993, 1994:6.84
  1994, 1995:6.94
  1995, 1996:6.58
  1996, 1997:6.44
  1997, 1998:6.80
  1998, 1999:6.84
  1999, 2000:6.78
  2000, 2001:6.57
  2001, 2002:6.70
  2002, 2003:6.74
  2003, 2004:6.48
  2004, 2005:6.40
  2005, 2006:6.64
  2006, 2007:6.72
  2007, 2008:6.38
  2008, 2009:6:74
  2009, 2010:6.62
  2010, 2011:7.54
  2011, 2012:6.60
  2012, 2013:6.50
  History of study, 1995:5.87
```

Regional fire experience, 2007-2011 statistics, 2013:2.12

Smoke detector experience of, 1994:5.36

Sprinkler use, **1993:**6.44

Total cost of fire (loss, prevention, protection)

2003, **2006:**2:74

2005, **2008:**3.18

2008, **2011:**4.73

2009, **2012:**2.11

2010, **2013:**3.16

Vehicle Fire Trends and Patterns report released by NFPA, 2008:4.14

Vehicle fires, overview of problem and some solutions, 2007:1.54

Wildland fires (See WILDLAND FIRES, Fire season overview)

UNITED STATES GOVERNMENT. See also HOMELAND SECURITY; INSIDE THE

BELTWAY COLUMNS; NATIONAL AERONAUTICS AND SPACE

ADMINISTRATION (NASA); OCCUPATIONAL SAFETY AND HEALTH

ADMINISTRATION (OSHA); PENTAGON ATTACK AND FIRE

Agencies required to use voluntary consensus standards, **1996**:6.40

Bureau of Alcohol, Tobacco, and Firearms (ATF), develops new fire research laboratory, **2000:5**.76

Bureau of Alcohol, Tobacco, and Firearms National Response Teams aid in catastrophic fire investigations, **1998:**3.92

Capitol complex buildings need improved fire safety, evacuation plans, and terrorist protection, **2003**:3.86

Capitol fire protection offers special challenges, **2000**:6.57

Capitol Visitor Center's acceptance testing reviewed by former Chief Fire Marshal Kenneth Lauziere, **2010**:6.38

Chemical Safety and Hazard Investigation Board investigation, Environmental Quality Co., Apex, N. Carolina, hazardous waste facility explosion and fire,Oct. 5, 2006, **2008**:6.68

Congress considers natural disaster relief policy reform, 1997:5.31

Congress considers tax incentives for residential sprinklers, 2004:2.28

Contract with America's effect on fire service and fire safety, 1995:3.46

Department of Energy adopts performance-based codes, 1997:3.94

Department of Housing and Urban Development manufactured housing standards committee considers pro-sprinkler argument, **2012:**2.12

Federal Communications Commission provides emergency radio frequencies, establishes 311 number, **1997**:4.29

Federal Emergency Management Agency Building Performance Assessment Team World Trade Center collapse study, **2002:**5.47

Federal haz-mat response critiqued, **1995:**1.19

Federal haz-mat response needs simplification, standardization, 1995:3.27

Federal records, fire protection of, 2002:2.50

FEMA Citizen Corps affiliates with NFPA, Risk Watch®, 2003:2.68

FEMA Citizen Corps program chooses *Risk Watch*® as first affiliate program, **2003:**1.33

FEMA Project Impact focus groups gauge public awareness of disaster mitigation, 2000:2.32

FEMA's disaster management role, 1995:4.46

Fire-safe cigarette legislation introduced by Congressman Joe Moakley, ongoing struggle to pass, **2002:**6.42

Hazardous material reporting requirements of DOT, EPA, and NFPA give material's life cycle history, **2006**:6.58

Homeland Security Department must standardize first responder preparation, 2003:5.34

Homeland Security Department should incorporate fire service factors, 2003:2.19

Justice Department death, disability, and educational benefits for public safety officers and survivors, **2008:**4.82

National reporting systems, including NFIRS, for fire investigations, 1998:3.80

NFPA and offshore oil industry work to resolve dueling federal fire standards, **2001**:5.46 Regulatory reform poses dangers, **1997**:3.41

Smithsonian Institution contracts with SimplexGrinnell for fire protection services, **2005**:4.72 Staffing for Adequate Fire and Emergency Response Firefighters Act (SAFER) to help fire departments add firefighters, **2004**:1.46

Technology Transfer Act helps, but not all federal agencies update regulatory references to NFPA standards, **1997**:6.29

Treasury Building fire, June 26, 1996, **2001:**4.96

Treasury Building fire indicated life safety deficiencies, 1996:6.52

U.S. Fire Administration/NFPA report on rural fire problem, 2008:4.68

U.S. Fire Administrator Ernest Mitchell, Jr., talks about his vision for USFA, 2012:2.24

U.S. Fire Administrator Kelvin Cochran talks about his ambitions for USFA, 2010:1.9

U.S. Forest Service Fire Adapted Communities program discussed by program manager Pam Leschak, **2012**:4.16

UNIVERSITY BUILDING FIRES. See COLLEGE BUILDING FIRES UP TO CODE COLUMNS

Assembly occupancy seating, improving accessibility of, 2002:1.24

NFPA 101®, *Life Safety Code*®, and NFPA 5000, *Building Code*TM, respond to mixed use and multiple use building needs, **2002:**3.38

NFPA 5000, *Building CodeTM*, and NFPA 1, *Uniform Fire CodeTM*, identify hazardous materials levels, offer safety requirements, **2002:**6.23

NFPA 5000, *Building Code*TM, balances aircraft hangar structural safety and economics, **2002**:5.24

NFPA 5000, Building Code™, includes performance-based design option, 2002:2.28

NFPA 5000, *Building Code*TM, sprinkler system requirements for renovated healthcare facilities, **2002:**4.22

Passive fire protection systems, **1997:**2.30

Revised sprinkler standard has more information in an accessible format, **1997:**1.34 UPS (uninterruptible power supply)

Fighting fires in system, 1994:5.33

URBAN FIRE FORUM

Global trends discussed at fifth forum, 1995:1.104

UTAH

2002 Winter Olympics fire protection based on NFPA standards, 2002:1.44

Apartment building fire, 1994, 1995:6.36

Apartment building fire, 1995, **1996:**2.23

Catastrophic fires

Aircraft, July 9, 1992, 1993:5.68

Aircraft, April, 2009, 2010:5.69

Dwellings, Nov. 18, 1992, 1993:5.64

Helicopter, May, 2000, 2001:5.79

Motor vehicle, , Aug., 2007, 2008:5.63

Truck/motor home, May 25, 1999, 2000:5.61

Wildland-urban interface, June, 2007, 2008:5.63

Church, Dec., 2010, 2011:7.55

Dwelling fire, Dec., 1993, **1994:**6.90

Fatal fires

Apartment building, 1996, **1997:**5.21

Dwelling, 1997, 1998:6.23

Dwelling, 2010, **2011**:2.23, 3.38

Furniture manufacturing plant fire, 1990, 1991:2.31

Manufacturing plant fire, 1990, 1991:5.28

Manufacturing plant fire, 1993, 1994:3.29

Manufacturing plant fire, Feb. 1, 1997, **1998:**6.86

Nursing home fire, 1991, **1992:**4.27

Office building fire, 1990, 1991:2.30

Office building fire, 1994, 1995:3.40

Public assembly building fire, 1991, 1992:1.23

Refinery fire, 1993, 1994:6.36

Restaurant fire, 2011, 2012:3.39

School fire, March, 1995, 1996:6.73

School fire, July, 2005, **2006**:6.75

School fire, 2012, 2013:2.23

Shopping mall fire, 2008, 2009:5.29

Storage, outside, fire, July, 2004, 2005:6.49

Storage, outside, fire, 2006, **2007:**5.30

Store fire, 2010, **2011:**3.33

University of Utah fire prevention program, 2005:1.52

Vacant building fire, 2011, 2012:2.18

Warehouse fire, 2006, **2007:**3.23

Wildland fire, July 2, 1999, 2000:6.94

Wildland/urban interface fire, 2010, 2011:6.17

UTILITIES. See also ELECTRIC GENERATING PLANT FIRES; POWER PLANT FIRES

Connected utilities in abandoned properties hamper wildland firefighting, 2011:6.18

Electricity shut off, catastrophic fire factor, 2006:5.60

Electricity shut off, fatal fire factor, **1998:**5.17, **2002:**1.20, **2002:**2.25, **2006:**2.28, 5.32, **2007:**4.27

Electricity shut off for nonpayment, catastrophic fire factor, 1994:5.97, 1995:5.53

Electricity shut off for nonpayment, fatal fire factor, 1996:6.22, 2003:6.14, 2009:2.24, 4.17

Electricity shut off for repair, catastrophic fire factor, 1995:5.59

Gas shut off, fatal fire factor, 2010:5.30

Gas shut off for nonpayment, catastrophic fire factor, **1994:**5.96

Illegally supplied power to dwelling, factor in catastrophic fire, 1997:5.51

Power outage, factor in apartment building fire, 2008:5.23

Power outage, factor in dwelling fire, **2013:**1.20

Power outage, factor in manufactured home fire, 2012:5.26

Power outage, factor in townhouse fire, 2006:4.24

Transformer fire, Texas, 1997, 1998:1.22

Water shut off for nonpayment, catastrophic fire factor, 1994:5.96

Water shut off for nonpayment, fire factor, 2009:5.24

V

VACANT BUILDINGS

Columbus, Ohio, fire service addresses ason threat of foreclosure-swelled inventory of vacant homes, **2009:**5.44

Statistical examination of fire problem in vacant homes, **2009:**6.12

VACANT BUILDING FIRES

Apartment building, Massachusetts, Aug. 29, 1999, 2000:6.95

Apartment building, Massachusetts, 2001, 2002:6.18

Apartment building, Pennsylvania, 2002, 2003:2.22

Bowling alley, Michigan, 1991, 1992:2.29

Catastrophic

Apartment building, New Jersey, July, 2012, 2013:5.59

Club, Georgia, Dec. 12, 1990, 1991:4.68

Construction trailer, Massachusetts, Jan. 27, 1998, 1999:5.55

Department store, California, Oct. 22, 1991, 1992:4.71

Dwelling, California, July 22, 1990, 1991:4.67

Dwelling, Maryland, March 1, 1990, 1991:4.67

Dwelling, Pennsylvania, Aug. 1, 1992, 1993:5.67

Dwelling, Texas, Nov. 12, 1990, 1991:4.68

Dwelling, Virginia, March 18, 1999, 2000:5.60

Restaurant, South Carolina, Jan. 9, 1999, 2000:5.60

Dance studio, in shopping center, 1998, 1999:4.21

Dwelling, Alabama, 2009, 2010:6.21

Dwelling, Arizona, 2008, 2009:5.24

Dwelling, Massachusetts, 2001, 2002:2.25

Dwelling, Nevada, Feb. 19, 1999, 2000:6.95

Dwelling, Tennessee, 2011, 2012:1.17

Dwelling, Virginia, May 3, 1999, 2000:6.93

Furniture store, Minnesota, 1998, **1999:**6.20

Manufacturing mill complex, New York, Dec., 1993, 1994:6.98

Manufacturing plant, Alabama, 2002, 2003:5.18

Manufacturing plant, Alaska, April 25, 1997, 1998:6.92

Manufacturing plant, New York, 1995, 1996:5.26

Manufacturing plant, Wisconsin, 2011, 2012:1.20

Massachusetts, 2000, 2001:6.18

New York, Nov., 2005, 2006:6.69

New York, May, 2007, 2008:6.42

School, Indiana, June 25, 1999, **2000**:6.95

School, Virginia, 1995, 1996:5.25

Store, New York, 2000, 2001:5.26

Store, Utah, 2011, 2012:2.18

Tavern, Illinois, 1998, **1999:**1.18

Warehouse, Maryland, May, 2005, 2006:6.68

Warehouse, Massachusetts, Dec. 3, 1999, 2000:4.54

Warehouse, Massachusetts, June 24, 1999, 2000:6.88

Warehouse, Minnesota, Sept., 2002, 2003:6.79

Warehouse, North Carolina, 2008, 2009:5.27

VAGRANTS

Mansion fire started by, 2001:6.18

Victim of catastrophic fire, 1992:4.69

Victims of catastrophic fire in vacant construction trailer, 1999:5.55

Victims of catastrophic fire in vacant restaurant, 2000:5.60

VAN FIRES. See TRUCK FIRES

VANCOUVER, WASH.

Emergency response system analysis and enhancement program, 1991:1.78

VAPOR CLOUD

Ignited, cause of explosion, fire, 1993:5.68

Ignited, cause of refinery fire, 2008:6.42

Ignited by heat source, cause of explosion, fire, 1991:6.74

Ignited by natural gas burner flame, cause of explosion, fire, 2010:6.67

Ignited by unknown source, cause of explosion, fire, 1993:5.67, 1993:6.87

Ignited by unknown source, cause of fire, 1993:6.82

Ignited by utility pole transformer, cause of explosion, fire, 1993:6.30

VAPORS, FLAMMABLE. See also GAS FIRES; GASOLINE

Acetone vapors ignited by unknown source, 2012:6.62

Aircraft fuel vapors ignited by molten copper, 1994:5.106

Alcohol vapor ignited by dental torch, **2010**:2.26

Alcohol vapor ignited by static discharge, 2011:3.47

Crude oil vapors ignited by cigarette lighter, 1994:5.104

Crude oil vapors ignited by cigarette lighter, catastrophic fire cause, 1991:4.69

Crude oil vapors ignited by open flame, catastrophic fire cause, 1991:4.68

Cutting operation ignited, 1991:4.68

Ether vapors, ignite laboratory fire, 2012:2.19

Ether vapors, ignited by static electric discharge, 2012:6.63

Ethyl alcohol vapors, ignited by torch in tank storage fire, 1993:5.67

Flammable liquid vapors ignite flash fire, 1994:5.29

Floor sealant vapors ignited open flame from gas-fired heater, 2007:6.22

Floor stripper vapors ignited, 1994:5.105

Fume collector vapor fire extinguished by sprinkler, 2010:6.27

Hydrocarbon and naphtha vapors, ignited by ruptured heat exchanger, 2011:5.77

Lacquer thinner vapors ignited by pilot light, 1994:5.104

Methane vapors, ignited by torch in mine fire, 1993:5.67, 1993:6.82

Methyl t-butyl ether vapors ignite, causes flash fire, 1993:6.27

Oil vapors ignited by air compressor, 2013:6.52

Pentane vapors, ignited by electrical arc from forklift controls, 1991:6.26

Pentane vapors ignited by hot plate, **1992:**3.33

Petroleum distillate vapors ignite, create fireball, in methamphetamine manufacture, 5.20

Solvent vapors ignited by spark from forklift, 1992:4.28

Solvent vapors ignited by sparks from grinding operations, 2010:5.34

Solvent vapors ignited in tunnel fire, **2008:**5.60

Vapors in pipeline ignited by cutting operations, 2013:5.65

Vapors in sump ignited by grinding operations, **2010**:2.28

Varnish remover vapors ignited by spark, 1991:6.24

Water sealer vapors ignited by plumber's torch, 2008:3.21

VAULTS

Electrical arc fire, in belowgrade room, 1995:5.35

VEHICLES

Alternative fuel filling station service becomes more common, 2002:6.46

Catalytic converter heat sparks grass fire, 2013:3.32

Fire Protection Research Foundation research connects the *NEC*®, alternative energy technologies, and firefighter safety, **2010**:4.34

Natural gas fueled, handling incidents involving, 1994:4.84

NFPA 52, Vehicular Gaseous Fuel Systems Code, 2010 changes, 2009:3.86

NFPA 70, *National Electrical Code*® electric vehicle supply equipment/consumer interface requirements, **2012:**1.40

NFPA electric vehicle emergency-response training and research address EV issues while Tesla Motors deals with high-profile roadway fire, **2013:**6.9

NFPA electric vehicle summit addresses codes and standards issues, 2011:2.20, 4.12, 5.13

NFPA electric vehicle training prepares emergency responders for incidents, **2010**:2.58, 6.36, **2011**:1.42, 2.20

NFPA electric vehicle training program for emergency responders adapted for Canada, **2013:**3.16

NFPA has launched evsafetytraining.org Website devoted to electric vehicle safety, 2010:5.27

NFPA takes lead in electric vehicle infrastructure preparation, **2011**:1.42, 2.20

NFPA's Electric Vehicle Emergency Field Guide aids emergency responders, 2012:4.15

Racing at motorsports venues (See MOTORSPORTS VENUES)

Storage facility fire, Maine, 2001, 2002:6.75

VEHICLE ACCIDENTS. See also AUTOMOBILE FIRES; RAILROAD ROLLING STOCK FIRES; TRUCK FIRES

Firefighter fatalities related to, **1996**:4.72, 74, 79, **1997**:4.51, **1998**:4.61, 62, **1999**:4.56, 59, 67, 68, 69, **2000**:4.60, **2001**:4.79, **2002**:4.77, **2004**:4.49, 53, 55, 56, 57, **2005**:4.51, 56, 58, **2006**:4.54, **2007**:4.62, 70, **2008**:4.79, 4.85, 88, 89, 91, **2009**:4.63, 4.67, **2011**:4.63, 64, **2012**:4.77, 4.83, **2013**:4.67, 69

Firefighter injuries related to, **1996**:6.107, **1997**:6.69, 73, 76, **1998**:6.55, **1999**:6.52, **2000**:6.46, **2003**:1.65, 6.70, 71, **2004**:6.59, 6.64, **2005**:6.51, 56, **2006**:6.77, 85, **2007**:6.85, 90, **2008**:6.48, 53, 54, **2009**:6:70, **2010**:6.72, **2011**:7.63, 65, 67, **2012**:6.70, **2013**:6.62, 64

Seat belt use factor in fire apparatus accidents, 1999:2.38

Seat belt use reduces casualties, 1999:1.32

Truck-related fatalities increase, spur revamp of federal safety program, 1999:5.30

Wildland fire, caused by, Texas, March, 2006, 2007:5.62, 6.80

VEHICLE FIRES. See also AIRCRAFT CRASH FIRES; AUTOMOBILE FIRES; BUS FIRES; FORKLIFT FIRES; RAILROAD ROLLING STOCK FIRES; SHIP FIRES; TRUCK FIRES

Alternative-fuel vehicle, **1994:**4.29

Ambulance, Ohio, 1998, 1999:6.20

Bomb explosion ignites multiple vehicles, 1994:5.104, 1994:6.90

California, Nov. 18, 1999, 2000:6.94

California, Nov., 2005, 2006:5.64

California, 2010, 2011:2.27

Catastrophic

Alabama, Feb., 2007, 2008:5.62

Arizona, Feb., 2005, 2006:5.63

Arkansas, July, 2002, 2003:5.75

California, June 23, 1995, 1996:5.100

California, March, 2000, 2001:5.79

California, July, 2006, 2007:5.62

California, Jan., 2007, 2008:5.62

California, Dec., 2007, 2008:5.63

California, Feb., 2010, 2011:5.79

Colorado, June, 2002, **2003:**5.75

Florida, March, 2000, 2001:5.79

Florida, Nov., 2002, 2003:5.75

Florida, Jan., 2012, 2013:5.62

Idaho, June, 2007, 2008:5.63

Indiana, Dec., 2007, 2008:5.63

Iowa, July, 2000, 2001:5.80

Massachusetts, March, 2007, 2008:5.62

Minnesota, June, 2002, 2003:5.75

Missouri, Oct., 2006, 2007:5.63

New Mexico, March, 2002, 2003:5.75

New York, June, 2005, 2006:5.63

New York, Nov., 2006, 2007:5.63

North Carolina, Aug., 2003, 2004:5.73

South Carolina, March, 2002, 2003:5.75

South Carolina, July, 2007, 2008:5.62

Texas, Sept., 2005, 2006:5.63

Utah, Aug. 2007, 2008:5.63

Viriginia, Nov., 2006, 2007:5.63

Washington, Aug. 24, 1999, 2000:5.61

Washington, Aug., 2002, 2003:5.75

Condominium parking garage, New Jersey, Sept., 2005, 2006:6.72

Fire losses show significance of vehicle fires, 1996:5.79

Fire statistics and fire safety information, 1998:2.88

Forklift hits aerosol containers which explode, 1996:4.23

Gondola car, 1994:3.28

Minnesota, 2008, 2009:4.21

New York, 2008, 2009:6.24

NFPA and AAA team up to prevent fires, 2006:1:12

Overview of U.S. problem and some solutions, 2007:1.54

Propane delivery vehicle and other, at retail propane filling station, 2000:6.14

Service station fire, vehicles ignited in, 1999:5.55

Statistics compared to aircraft fire statistics, 1995:4.120

Storage facility, New Mexico, 1999, 2000:6.14

Stored recreational vehicle, Oregon, 2011, 2012:2.22

Stored vehicles destroyed in museum fire, 2004:6.57

Subway car, 1991:4.31

Tennessee, Aug. 9, 1999, 2000:6.94

Tunnels, vehicle fires in, 2008:4.65

U. S. Vehicle Fire Trends and Patterns report overview, 2010:5.70

U. S. Vehicle Fire Trends and Patterns report released by NFPA, 2008:4.14

Vehicle conversion facility, vehicle ignited at, **1996:**6.65

Washington, 2010, 2011:3.44

Wildland fires ignited by vehicles, 1993:6.89

VENDETTA, JOHN R.

Profile of, **2000**:6.34

VENEZUELA

Parque Central high-rise, Caracas, fire report shows lack of sprinkler maintenance, testing, **2005**:2.46

VENTILATION. See also FANS

Closed windows allow vapors to accumulate, 1994:5.104, 105

Fire spread by, **1994:**5.97, **1998:**5.49, **1999:**6.90

Inadequate

Boat fire factor, **1991:**4.31

Mine fire and explosion factor, **2011:5**.77

Warehouse fire factor, 1993:6.87

Lack of sidewall openings, roof vents hampered ventilation, **1998:**6.91

Positive pressure ventilation evaluated by NIST at retired high school, 2008:5.78

Renovations eliminating windows hampered ventilation, 2004:2.17

Roof vents, fire spread to, 1999:5.21

Rooftop ventilation unit, clothes dryer fire spread to, 2011:4.22

Smoldering fire intensified by, **1998:**4.21

Window fan, in operation, helps spread fire, 1998:4.19

Window lexan layer hard to penetrate, 1994:6.89

VENTILATION SYSTEMS. See also DUCTS; HVAC SYSTEMS

Air handler units factor in fire spread, **1997:**3.33

Automatic system using fusible links controls warehouse fire, 2003:6.16

Fire spread through, **1996**:6.72, **1998**:6.85, **2003**:6.81

NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, 2001 edition, reflects advances in industry, **2002:**1.60

NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations, common questions answered, **1997:**1.33

Store fire venting system affects sprinkler operation, 1999:6.94

```
VENTS
  Fire spread through, 1996:6.64, 2008:1.19
  Link on vent operates, prevents fire spread, 2004:5.14
VERMONT
  Apartment building fire, 2004, 2005:5.24
  Board and care facilities fire, 1995, 1996:3.36
  Catastrophic fires
     Dwelling, Dec., 2005, 2006:5.62
     Manufactured home, Feb., 2000, 2001:5.75
  Dormitory fire, 2005, 2006:2.28
  Fatal fires
     Apartment building, 1996, 1997:2.22
     Apartment building, 2010, 2011:7.17
     Dwelling, 2009, 2010:2.24
  Multiple-occupancy/dwelling fire, 1989, 1991:1.27
  NFPA 1, Uniform Fire Code<sup>TM</sup> and NFPA 101, Life Safety Code® adopted by state, 2006:1:11
  Office building fire, 2011, 2012:6.18
VERTICAL FIRE SPREAD
  High-rise office building fire, 1991:5.64
VERTICAL OPENINGS. See also STAIRWAYS
  Fire spread through, 1993:1.29, 1993:5.66, 1995:5.33, 2005:6.44, 2013:6.55
VIDAL, DAVID J.
  Profile of, 1993:4.19
VIRGINIA
  Apartment building fire, 1992, 1993:3.35
  Apartment building fire, 1993, 1994:3.28
  Apartment building fire, 1997, 1998:5.15, 6.22
  Apartment building fire, 2001, 2002:4.20
  Apartment building fire, Feb., 2003, 2004:6.56
  Apartment building fire, 2010, 2011:2.28, 3.40
  Building-under-construction fire, Sept., 2008, 2009:6.82
  Catastrophic fires
     Aircraft, Sept. 10, 1995, 1996:5.99
     Apartment building, May 18, 1998, 1999:5.50
     Automobile, Aug. 1, 1994, 1995:5.68
     Automobile, July, 2001, 2002:5.82
     Coal mine, Dec. 7, 1992, 1993:5.66
     Dwelling, Jan. 20, 1996, 1997:5.50
     Dwelling, May 15, 1996, 1997:5.50
     Dwelling, July 8, 1996, 1997:5.51
     Dwelling, Sept. 10, 1996, 1996:5.99
     Dwelling, Nov. 19, 1997, 1998:5.46
     Dwelling, Dec. 25, 1998, 1999:5.51
     Dwelling, May, 2004, 2005:5.58
     Hospital, Dec. 31, 1994, 1995:5.64
     Manufacturing plant, March, 2000, 2001:5.78
```

Motor vehicle, Nov., 2006, 2007:5.63

Office building, Sept., 2001, **2002:**5.82, **2002:**6.75 (*See also* PENTAGON ATTACK AND FIRE)

Vacant building, March 18, 1999, **2000:**5.60

Church fire, July, 1994, 1995:6.98

College building fire, 2001, **2002:**6.75

Condominium fire, 2004, 2005:4.18

Dwelling fire, May 3, 1999, **2000:**6.93

Dwelling fire, 2005, 2006:4.26

Dwelling fire, 2012, **2013:**6.19

Electric generating plant fire, Jan., 2006, 2007:6.83

Electric substation fire, April, 2000, 2001:6.64

Electric substation fire, Nov., 2003, 2004:6.57

Fatal fires

Apartment building, 2001, 2002:1.21

Apartment building, 2004, 2005:6.18

Apartment building, 2006, **2007:**5.26

Apartment building, 2011, **2012**:6.25

Apartment building, 2012, 2013:6.21

Dwelling, 2003, 2004:6.16

Dwelling, 2006, 2007:4.28, 2007:6.18

Dwelling, 2007, 2008:3.21

Dwelling, 2008, 2009:5.26

Dwelling, 2009, 2010:1.25

Dwelling, 2010, 2011:4.15

Dwelling, 2011, 2012:3.31, 6.24

Manufacturing plant, March, 2000, 2001:6.61

Trailer, 2008, **2009:**4.22

Hotel fire, 2001, 2002:2.26

Hotel fire, 2011, 2012:4.24

Manufacturing plant fire, Nov., 1992, 1993:6.82

Manufacturing plant fire, Feb., 1993, 1994:6.93

Manufacturing plant fire, April, 1995, 1996:6.63

Manufacturing plant fire, 1996, 1997:4.22

Manufacturing plant fire, Sept. 1, 1996, **1997**:6.50

Manufacturing plant fire, 2002, 2003:2.25

Manufacturing plant fire, July, 2006, **2007**:6.77

Nursing home fire, 2012, **2013**:6.23

Office building fire, 1991, **1992:**2.25

Power plant fire, Feb., 1995, **1996:**6.72

Railroad rolling stock fire, Mar., 1998, 1999:6.95

Recreational facility fire, 2012, 2013:4.25

Refinery fire, 2001, 2002:6.75

Restaurant fire, 1995, 1996:3.36

Restaurant fire, 1996, 1997:2.21

School fire, 1995, **1996:**5.25

School fire, 2012, 2013:3.29

Shopping mall fire, 2011, **2012:**5.30

Storage facility fire, Sept. 12, 1999, 2000:6.90

Storage facility fire, 2010, **2011:**7.23

Store fire, 1998, **1999:**5.21

Store fire, 2012, **2013:**3.32

Suffolk, Virginia, uses grant for community fire and life safety education programs, 2005:5.74

Warehouse fire, 1990, **1991:**5.25

Warehouse fire, April, 1992, 1993:6.86

Warehouse fire, 1994, **1995:**2.30

Warehouse fire, Sept., 2005, 2006:6.73

Warehouse fire, 2010, 2011:1.27

VOIDS. See CONCEALED SPACES

VOLUNTEER FIRE SERVICE. See also VOLUNTEER VIEWS COLUMNS

Cee Lo Green song honors volunteers, 2011:4.11

Contracting with municipal fire department, Austin, Tex., 1991:2.104

Firefighter fatalities, 2006:4.56

NFPA 1720, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, annual meeting review, 2001:2.80

NFPA's Volunteer Firemen magazine, 1995:5.90

Recruiting and retaining volunteers, Elsmere Volunteer Fire Department, N. Y., 1991:4.82

Staffing levels and response times addressed by proposed NFPA standards, 2000:6.51

Volunteer Protection Act of 1997 protects volunteers from liability, 1998:2.27

VOLUNTEER VIEWS COLUMNS

Administrative officer's role, 1991:2.114

Analyze risk before risking lives, **1995:**1.21

Apply mutual aid to fire investigations, 1993:1.12

Are professionalism and fun compatible?, 1992:6.22

Change required for survival, 1991:1.114

Changes in fire services difficult, but necessary, 1994:4.20

Combination career/volunteer departments, 1991:3.36

Discipline promotes effective performance, 1993:2.85

Encouraging participation in fire service organizations, 1993:3.136

Financial incentives to improve recruitment, retention, 1995:2.21

Fire service leaders should lead by example, 1993:4.83

Fireground behavior after fire is out, 1995:6.26

Flexibility, technology meet increased need for training, 1994:5.18

Future of fire service funding, 1993:5.120

Importance of NFPA standards to fire service, 1992:3.36

Insurance Services Office rates alternate water supplies, 1991:5.83

Membership evaluation of fire department, 1995:4.28

Membership input to department decisions, **1994:**1.20

NFPA Volunteers in Transition Conference, July, 1990, report on, **1991:**6.20

Participatory management enhances morale, 1992:1.96

Personal protective gear's improved thermal protection increases heat stress, 1993:6.17

```
Pride keeps morale high, 1994:3.18
  Public information officer can improve media coverage, 1994:6.20
  Reconciling fire fighter safety and customer service needs, 1992:4.86
  Records and department historian preserve the past, 1995:3.28
  Recruiting a new generation of volunteers, 1995:5.24
  Recruiting and retaining volunteers, 1994:2.20
VON ESSEN, THOMAS
  Profile of, 1999:1.36
W
WACO, TEXAS
  Branch Davidian complex fire investigation, Congressional testimony, 1995:6.91
WALLS
  Collapse
     Dwelling fire, catastrophic, 1997:5.50
     Fire fighting hampered by, 1991:6.37, 1992:6.78, 1995:6.103, 1995:6.107, 1996:6.70
     Firefighter fatalities related to, 2011:4.65, 2012:4.79
     Firefighter injuries related to, 2000:6.17, 49, 2008:6.54
     Garage fire, 2013:6.18
  Combustible, fire spread through, 1991:6.75
  Cripple wall burns, causes floor collapse, 1996:5.96
  Fiberglass, fueled fire, 1991:6.75
  Fire spread within, 1992:6.79, 1996:2.24, 2009:5.82, 2010:5.33, 6.68
WALLS, FIRE
  Catastrophic fire contained by, 1991:4.64, 67, 2004:5.70
  Concrete, fire spread through doors in, 1991:6.75
  Contained fire spread, 1993:1.28, 1993:6.82, 1993:6.87, 1994:5.30, 98, 102, 105, 1994:6.93,
         97, 1995:5.34, 1995:6.38, 104, 1998:2.18, 5.16, 1998:6.92, 2000:6.85, 91, 96,
         2003:3.18, 2005:1.14, 18, 6.44, 2006:1.20, 2007:2.17, 5.32, 2008:3.21, 6.18,
         2009:5.28, 2011:7.55, 59, 2012:1.22, 6.66, 2013:4.24
  Damaged, factor in fire spread, 1997:5.24, 6.56
  Explosion rips open, 1994:6.90
  Failed, allowed fire spread, 1998:6.88
  Fire spread over, 1994:6.93
  Inadequate, fire spread to roof, 1991:5.26
  Lack of, allowed fire spread in manufacturing plant fire, 1993:6.83
  Lack of, allowed fire spread in sawmill fire, 1992:6.79
  Lack of, allowed fire spread in school fire, 2005:6.49
  Lack of, factor in fire spread, 1997:6.56
  New York-Presbyterian Hospital conducts self-examination of fire walls/barriers to improve
         fire safety, 2007:5.76
  Penetrations in wall, fire spread through, 1998:2.20, 2005:4.22, 2012:4.29
  Unprotected openings allowed fire spread, 1993:6.86, 1995:6.103
WARE, D. HAROLD
  Profile of, 2000:4.41
WAREHOUSES
```

Detection system requirements of high-challenge warehouses focus of NFPA study, **2012**:2.58 Doubled height for palletized 55-gal. drum storage using new storage/sprinkler design criteria, **2000**:1.66

Fixed fire protection schemes to achieve complete extinguishment in large warehouses, **2011:**4.42

Oxidizers pose fire risk in warehouse occupancies, 2001:6.70

Sprinkler system design, 1993:4.16

Statistics on U.S. fires, 2007-2011, **2013:**5.72

Underground SubTropolis facility, Kansas City, Missouri, requires unique fire protection measures, **1998**:6.68

WAREHOUSE FIRES. See also STORAGE FACILITIES FIRES

Adhesive materials, California, 1990, 1991:6.26

Agricultural products

Colorado, Nov., 1998, 1999:6.92

Florida, Jan., 1995, 1996:6.68

Idaho, Jan., 1998, 1999:6.92

Washington, Oct., 2006, 2007:6.78

Aircraft parts, Missouri, 1991, 1992:6.26

Army surplus materials, California, 2000, 2001:3.28

Automotive parts

Massachusetts, 2002, 2003:2.24

Michigan, 1997, 1998:6.24

Michigan, Dec., 1992, 1993:6.87

North Carolina, Aug. 12, 1997, 1998:6.88

Pennsylvania, 2008, 2009:3.44

Tennessee, March, 2004, 2005:6.47

Bottles, Colorado, Nov., 1992, 1993:6.87

California, 1991, **1992:**1.23

Cardboard cartons, Illinois, Aug. 19, 1999, 2000:6.88

Carpet

Georgia, April, 1993, **1994:**6.97

Georgia, March, 1993, 1994:6.97

Texas, 1993, 1994:4.32

Chemicals

North Carolina, 1992, 1993:2.21

Texas, 1990, 1991:6.26

Clothing

Nebraska, 2011, 2012:2.20

Pennsylvania, 1991, **1992:**2.27

Texas, 2001, 2002:6.75

Sporting goods, West Virginia, 2001, 2002:1.19

Cold storage

California, Sept. 25, 1996, 1997:6.57

Illinois, Aug., 1993, 1994:6.96

Indiana, Feb., 1998, 1999:6.92

Massachusetts, Dec. 3, 1999, 2000:4.54, 2000:5.59

```
Missouri, March, 1992, 1993:6.85
  Oregon, 1993, 1994:3.27
  Texas, 1994, 1995:6.108
  Washington, Oct., 1992, 1993:6.85
  Washington, 2004, 2005:5.24
  Wisconsin, May, 1991, 1992:6.75
  Wisconsin, May 3, 1991, 1991:6.37
Cosmetics
  New York, 1993, 1994:1.30
  Virginia, 1990, 1991:5.25
Cotton
  Missouri, Feb. 24, 1997, 1998:6.88
  Missouri, March 16, 1997, 1998:6.87
Coupon clearing house products, Iowa, April, 1995, 1996:6.66
Distillery, Kentucky, May, 2000, 2001:6.61
Dryers, Massachusetts, June 24, 1999, 2000:6.88
Electronic equipment, California, 2002, 2003:6.15
Electronic equipment, Minnesota, Nov., 2004, 2005:6.47
Electronic equipment, Texas, Aug., 2010, 2011:7.56
Fabric, North Carolina, 2001, 2002:3.36
Fertilizer, Virginia, April, 1992, 1993:6.86
Fertilizer/packaging materials, Maryland, 2000, 2001:6.22
Fiberglass products
  Alabama, 1992, 1993:4.26
  New Jersey, 1989, 1991:2.33
Film, California, Nov., 2005, 2006:6.73
Flammable and combustible liquids tanks, Iowa, Feb., 1995, 1996:6.68
Flooring, Texas, 1993, 1994:4.32
Foam products, Iowa, 1997, 1998:1.25
Food
  Arizona, Nov., 1992, 1993:6.86
  California, 1991, 1993:1.28
  California, 1996, 1997:3.34
  Louisiana, Aug. 24, 1990, 1991:6.73
  Minnesota, June, 2012, 2013:6.56
  North Carolina, April, 2009, 2010:6.67
  Washington, Jan. 5, 1995, 1996:5.96
Foundry and warehouse, Maryland, 2001, 2002:1.19
Frozen food
  Indiana, Feb., 1998, 1999:6.92
  Massachusetts, Nov. 15, 1999, 2000:6.88
  Texas, July, 1998, 1999:6.94
Fuel storage, Washington, July, 2007, 2008:6.45
Furniture
  Georgia, March, 1993, 1994:6.97
  Illinois, 1994, 1995:3.38
```

New Hampshire, May, 2000, 2001:6.62

North Carolina, 1994, 1995:6.38

South Carolina, June 18, 2007, **2008:**4.84, 5.60, **2011:**1.18

South Carolina, 2008, **2009:**6.27

Texas, May, 2009, 2010:6.69

Virginia, Sept., 2005, 2006:6.73

Virginia, 2010, 2011:1.27

General

Alabama, Oct. 2, 1997, 1998:6.88

Colorado, Dec., 2002, 2003:6.78

Georgia, March 10, 1999, 2000:6.90

Indiana, April, 1992, 1993:6.87

Indiana, Oct. 8, 1996, 1997:6.57

Louisiana, March 21, 1996, 1997:6.54

Massachusetts, Jan., 1992, 1993:6.84

Massachusetts, 1994, 1995:1.32

Michigan, Oct. 16, 1996, 1997:6.56

New Jersey, Jan. 10, 1996, 1997:6.56

Ohio, Feb., 2000, 2001:6.62

Pennsylvania, Aug., 1992, 1993:6.85

Pennsylvania, May, 2000, 2001:6.62

Rhode Island, May, 1992, 1993:6.86

Rhode Island, 1994, 1995:3.39

Texas, Aug., 2000, **2001:**6.62

Virginia, 1994, 1995:2.30

Hawaii, 1989, 1991:1.31

Heating and air conditioning supply, Nebraska, Apr. 12, 1996, 1997:6.57

Home and garden supplies/pharmaceuticals, Arizona, Aug., 2000, 2001:6.61

Home and garden supplies/pharmaceuticals, Arizona, Aug., 2000, fire investigation report, **2001:**6.70

Hops, Washington, Sept., 1993, 1994:6.97

Household goods, South Carolina, Feb. 10, 1997, 1998:6.88

Illinois, 2009, **2010:**2.26

Illinois, 2010, 2011:3.48

Indiana, March 18, 1997, 1998:6.88

Industrial, Florida, March, 2006, 2007:6.77

Kentucky, 2004, 2005:1.20

Leather, Oklahoma, 1990, 1991:4.26

Louisiana, Dec., 2010, 2011:5.77

Lumber, New Jersey, 1998, 1999:3.43

Magazines, Illinois, Jan., 1993, 1994:6.96

Maryland, May, 2005, 2006:6.68

Maryland, June, 2007, 2008:6.45

Metal products, Tennessee, 1990, 1991:5.25

Metal products, Utah, 2006, 2007:3.23

Michigan, 1995, 1996:3.39

```
Minnesota, July, 1995, 1996:6.66
Minnesota, 2005, 2006:4.27
```

Motor vehicles, California, 1996, 1997:6.23

Moving and storage, Arizona, 2004, 2005:2.26

New Jersey, 2004, 2005:6.22

North Carolina, Oct., 1998, 1999:6.92

North Carolina, 2008, **2009:**5.27

Ohio, Jan., 1994, 1995:6.110

Ohio, 2004, 2005:1.20

Paint, California, 1992, 1993:4.26

Paint, New York, 2002, 2003:3.20

Paper

Florida, 1995, **1996:**1.24

Illinois, Oct. 29, 1996; paper records, 1997:6.56

Maine, Dec., 2008, 2009:6.81

Massachusetts, Nov., 1993, 1994:6.97

Michigan, 1993, 1994:6.34

Michigan, 2011, 2012:2.23

Pennsylvania, June, 2006, 2007:6.77

Texas, Nov., 1993, 1994:6.95

Wisconsin, April 21, 1999, **2000**:6.90

Peanuts, Texas, June, 1993, 1994:6.96

Pennsylvania, Dec., 1998, **1999**:6.92

Pennsylvania, 2006, 2007:2.18, 3.23

Pennsylvania, Jan., 2008, 2009:6.81

Pennsylvania, April, 2008, 2009:6.81

Pharmaceuticals, New York, 1993, 1994:1.30

Picture tubes, Indiana, July, 1993, 1994:6.96

Plastics

Florida, 1995, **1996:**1.24

Illinois, 2000, 2001:2.24

Indiana, Dec., 1998, 1999:6.91

Pennsylvania, Aug. 27, 1996, 1997:6.56

Tennessee, , Nov., 2006, 2007:6.78

Plumbing and electrical supplies, Georgia, May, 1992, 1993:6.86

Potato processing and storage, North Dakota, June 11, 1999, 2000:6.88

Promotional items, Iowa, April 22, 1997, 1998:6.87

Refrigerated, Colorado, July 23, 1997, 1998:6.87

Retail goods

Kansas, 1994, **1995:**4.39

Washington, 1995, **1996:**4.23

Rubber, Louisiana, Aug. 24, 1990, 1991:6.73

Rubber, New York, April, 2003, 2004:6.57

Secondhand goods, Michigan, Dec., 1995, 1996:6.69

Seed cleaning, Oregon, 1998, 1999:3.44

Siding, Texas, 1993, 1994:4.32

```
Texas, 1997, 1998:5.18
  Texas, 2008, 2009:2.25
  Texas, Oct., 1994, 1995:6.99
  Tires, Montana, 2009, 2010:4.32
  Tobacco
     North Carolina, April, 1992, 1993:6.87
     North Carolina, Sept.. 29, 1997, 1998:6.87
  Warehouse stores present special hazards, need special attention, 1998:1.50, 4.44
  Washington, 2002, 2003:6.16
  Winery, California, June, 2000, 2001:6.62
  Wisconsin, 2009, 2010:1.26
  Wisconsin, Dec., 2006, 2007:5.61
  Wood products, Washington, Sept., 1992, 1993:6.86
WARMING FIRES
  Catastrophic fire cause, 1991:4.68, 69
WARWICK, RHODE ISLAND
  The Station nightclub, NIST investigation summary, 2005:3.44
WASHINGTON
  Apartment building fire, 1995, 1996:1.22
  Apartment building fire, 1996, 1997:1.25
  Apartment building fire, 1997, 1998:6.23
  Apartment building fire, 1998, 1999:5.19
  Apartment building fire, 1999, 2000:6.17
  Apartment building fire, 2000, 2001:4.23
  Apartment building fire, 2002, 2003:2.22
  Apartment building fire, 2003, 2004:1.15, 2004:3.18
  Apartment building fire, 2004, 2005:6.18
  Apartment building fire, 2005, 2006:1.18
  Apartment building fire, 2007, 2008:6.19
  Apartment building fire, 2010, 2011:5.16
  Arsonists use pyrotechnic accelerants to ignite series of fires, 1992:6.67
  Barracks/club fire, May 11, 1990, 1991:6.77
  Boat fire, 2001, 2002:3.34
  Boat fire, 2002, 2003:3.20
  Building-under-construction fire, 2005, 2006:6.24
  Building-under-construction fire, March, 2006, 2007:6.81
  Building-under-construction fire, June, 2009, 2010:6.64
  Building-under-renovation fire, 2001, 2002:6.75
  Building-under-renovation fire, Nov., 2009, 2010:6.63
  Catastrophic fires
     Apartment building, June, 2010, 2011:5.76
     Apartment building, Jan., 2011, 2012:5.70
     Automobile, July, 2004, 2005:5.60
     Board-and-care facility, April 27, 1998, 1999:5.54
     Dwelling, Dec. 17, 1992, 1993:5.66
     Dwelling, Apr. 7, 1995, 1996:5.91
```

Dwelling, May 31, 1996, 1997:5.49

Dwelling, April, 2011, 2012:5.69

Manufactured home, Aug. 8, 1990, 1991:4.65

Manufacturing plant/warehouse, Jan. 5, 1995, 1996:5.96

Motor vehicle, Aug., 2002, 2003:5.75

Motor vehicle, Aug. 24, 1999, 2000:5.61

Oil refinery, Nov. 25, 1998, 1999:5.54

Oil refinery, April, 2010, **2011:**5.77

Recreational vehicle, Feb., 2009, 2010:5.69

Wildland, July, 2001, 2002:5.82

Detention facility fire, 2002, 2003:3.14

Dormitory fire, 2003, 2004:6.16

Dwelling fire, 2000, **2001:**1.20

Fatal fires

Apartment building, Nov. 13, 1997, **1998:**6.90

Apartment building, 1998, 1999:3.48

Apartment building, 2009, **2010**:4.26

Apartment building, 2010, 2011:2.24

Automobile repair shop, 1995, 1996:6.21

Board and care facility, April 27, 1998, fire investigation report, 1998:5.34

Boat, 1999, 2000:1.21

Dwelling, 1994, 1995:6.36

Dwelling, 1998, 1999:4.19

Dwelling, 2000, 2001:6.21

Dwelling, 2008, 2009:3.35

Dwelling, 2009, 2010:1:24

Dwelling, 2010, 2011:3.36, 5.17

Dwelling, 2011, 2012:3.36, 6.21, 24

Grain mill and storage facility, 1991, 1992:4.28

Hotel, 2012, 2013:4.19

Manufactured home, 2012, **2013**:2.21

Pipeline, June 10, 1999, 2000:6.96

Wildland/urban interface, July, 1994, 1995:6.111

Group home fire, 1992, **1993:**1.25

Hotel fire, 2004, **2005:**1.17

Lumber mill fire, 2000, 2001:2.24

Manufactured home fire, 1996, **1997:**3.30

Manufacturing plant fire, Jan., 1993, 1994:6.95

Manufacturing plant fire, Sept. 1, 1996, **1997**:6.49

Manufacturing plant fire, June, 1998, 1999:6.90

Manufacturing plant fire, May, 2002, 2003:6.78

Manufacturing plant fire, Aug., 2003, 2004:6.53

Manufacturing plant fire, June, 2006, 2007:6.76

Manufacturing plant fire, 2009, **2010**:3.44, **2010**:6.27

Manufacturing plant fire, May, 2009, 2010:6.66

Marina fire, 1990, 1992:1.26

Marina fire, Jan., 2002, 2003:6.78

Mill fire, Aug., 2012, 2013:6.53

Nursing home fire, 1995, **1996:**4.24

Office building fire, 1993, **1994:**2.29

Office building fire, 2012, 2013:2.18

Pier fire, July, 2006, 2007:6.78

Restaurant fire, 2005, **2006:**3.30

School fire, 1998, 1999:3.43

School fire, Jan., 2002, 2003:6.81

School fire, 2004, **2005:**1.14

School fire, 2006, 2007:3.23

Ship fire, Sept. 16, 1991, 1992:6.48

Ship fire, Jan. 2, 1999, 2000:6.94

Ship fire, 2001, **2002:**6.75

Shopping mall fire, 1999, **2000**:3.32

Shopping mall fire, 2003, **2004:**4.18

Shopping mall fire, 2012, **2013:**4.19

Storage facility fire, March, 1995, 1996:6.68

Store fire, 1990, **1992:**3.32

Store fire, 1998, 1999:5.22

Store fire, 1999, **2000:**2.21, 22

Store fire, Dec. 28, 1999, 2000:6.91

Store fire, 2001, 2002:3.34

Store fire, 2004, **2005:**3.32

Store fire, 2007, **2008:**3.32

Store fire, 2009, **2010**:2.27

Train, elevated, fire, 2004, 2005:3.24

Warehouse fire, Sept., 1992, 1993:6.86

Warehouse fire, Oct., 1992, **1993:**6.85

Warehouse fire, Sept., 1993, 1994:6.97

Warehouse fire, 1995, 1996:4.23

Warehouse fire, 2002, **2003**:6.16

Warehouse fire, 2004, 2005:5.24

Warehouse fire, Oct., 2006, 2007:6.78

Warehouse fire, July, 2007, **2008:**6.45

Warehouse under renovation fire, 1990, 1991:4.31

Wildland fire, Cerro Grande fire, June, 2000, kept from Hanford Site nuclear waste-processing facility, **2001:**5.64

Wildland fire, Thirty-Mile fire, Okanagon National Forest, July 10, 2001, 2002:2.64, 66

Wildland/urban interface fire, Sept., 1992, 1993:6.89

Wildland/urban interface fire, July, 1994, **1995**:2.48, 6.111

Wildland/urban interface fire, 2010, 2011:6.17

WASHINGTON, D. C.

Airports equipped with state-of-art fire protection and security systems, 1998:4.80

Apartment building fire, March, 2008, **2009:**6.77

Capitol Visitor Center's acceptance testing reviewed by former Chief Fire Marshal Kenneth Lauziere, **2010**:6.38

Catastrophic fires

Dwelling, Jan. 7, 1993, **1994:**5.97

Dwelling, Jan., 2009, 2010:5.63

Dormitory fire, 1990, 1991:4.25

Dwelling fire, July, 2009, 2010:6.68

Smithsonian Institution contracts with SimplexGrinnell to provide fire protection services, **2005**:4.72

Store fire, April, 2007, 2008:6.44

United States Capitol complex buildings need improved fire safety, evacuation plans, and terrorist protection, **2003:**3.86

United States Capitol fire protection offers special challenges, 2000:6.57

United States Treasury Building fire, June 26, 1996, 1996:6.52, 1997:6.53

WASTEWATER TREATMENT PLANTS

Fire protection, **1991:**1.44

WASTEWATER TREATMENT PLANT FIRES

Illinois, Dec., 2010, **2011:**7.59

Massachusetts, 2009, 2010:2.28

WATER MIST SUPPRESSION SYSTEMS

Design principles of system, 1994:3.46

Large warehouses, fire protection systems for, 2011:4.42

NFPA 750, 2000 edition, helps ensure evolving technology is used and maintained correctly, **1999:**6.58

NFPA 750, fall meeting review, **1999:**5.97

NFPA 750, questions answered, 1999:4.26

WATER SPRAY SYSTEMS

Manual system limits fire spread in chemical plant fire, 1996:6.64

Mine fire and explosion, nonoperational system factor in, 2011:5.77

NFPA 15, Water Spray Fixed Systems for Fire Protection, annual meeting review, 2001:2.81

WATER SUPPLY. See also UTILITIES

Alternative supplies rated by Insurance Services Office, 1991:5.83

Chemical countermeasures for fuel spills that threaten water supply, 1999:2.74

Fire service operations hampered by (See FIRE SERVICE OPERATIONS HAMPERED)

Private fire service main installation, 1997:3.37

Public, backflow prevention discussed by fire protection, water supply industries, 1997:6.26

Public, preventing contamination by sprinkler system backflow, 1997:4.68

Residential sprinklers offer major water savings compared to firefighting operations, 2011:2.54

Sprinklered/nonsprinklered buildings water consumption, community impact of, **2011:**3.22

WAYSIDE INN FIRES

After two fires, suppression devices were installed, 1994:6.75

WEAPONS OF MASS DESTRUCTION. See also DISASTER RESPONSE; TERRORISM

NFPA 472, Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition, can be used to develop HAZMAT/WMD emergency responder training program, 2008:2.54

WEATHER

Drought (See DROUGHT)

Fire service operations hampered by (See FIRE SERVICE OPERATIONS HAMPERED)

Fire spread, factor in, 2003:5.16, 2006:6.72, 2013:6.55

Firefighter fatalities related to, 1998:4.61

Hurricane damage results in fatal dwelling fire, **2012:**4.21

NFPA 5000, NFPA *Building Code*TM, references best guidelines for natural disasters, **2001:**4.42

At Suncor Energy Inc. oil sands operation, teamwork helps fight dangerous cold weather fire, **2005**:6.58

Thunder storms (See LIGHTNING)

Tropical Storm Allison overwhelmed Houston, Texas, hospitals, incident investigation report, **2002:**4.48

Wildland fire factor, **2003**:6.80, **2009**:6.79, 80, **2011**:6.17, 18, 19, 21

Wind (See WIND)

Winter safety tips offered by NFPA, 2013:1.10

WEATHER EMERGENCIES

Florida tornadoes, Feb. 22, 1998, fire service response to, 1998:3.60

Hurricane Sandy and Hurricane Katrina tested hospitals' emergency management provisions, **2013:**1.52

Hurricane Sandy generator use resulted in numerous carbon monoxide poisonings and deaths, **2013:**1.10

Hurricane Sandy highlights importance of emergency power in health care facilities, **2013:**1.48 Joplin, Missouri, tornado, May 22, 2011, destroyed St. John's Regional Medical Center; lessons from tornado applied to new facility, **2013:**1.44

WEBB, WILLIAM E.

Profile of, **2000:**5.46

WELDING AND CUTTING OPERATIONS. See also GRINDING OPERATIONS; TORCHES

Apartment building fire cause, 2008:5.26

Apartment complex fire cause, 1994:2.28

Boat fire caused by, 2003:6.81

Boat manufacturing plant fire cause, 2009:6.75

Cellulose insulation ignited by, 1995:2.32

Construction debris ignited by, 2005:6.44

Conveyor belt ignited by sparks, 1996:6.68

Cutting oil ignited by hot metal, 1998:6.84

Cutting operations ignite rubbish in pile, **1999:**6.97

Cutting torches (See TORCHES)

Fiber board ignited by, 2013:6.57

Fiber board insulation ignited by, 1994:6.94

Flammable gases ignite, flames cause tank explosion, 2009:5.83

Flammable vapor ignited by, 1991:4.68

Flammable vapor in storage tank facility fire ignited by, 2012:1.21

Flammable vapors in refinery fire ignited by, 1996:5.96

Foam insulation ignited by, 1995:6.106

Food processing plant fire ignited by, 1996:6.64, 2009:6.77

Grain elevator fire cause, 1997:4.20

Grease and wood structural members ignited by welding operations, 2010:6.63

Grease residue ignited by, 1993:6.85

Hay ignited by, **2006:**6.72

Heat transferred to decaying plywood deck, 1997:6.50

Hot materials ignite manure and feathers on conveyor belt, 2010:6.68

Hot slag drops on combustibles, ignites store fire, 2005:1.20

Hot slag from torch ignites paper, insulation, 1997:6.59

Hot slag ignites combustibles in store fire, 2012:2.21

Hot slag ignites conveyor belt, 2003:6.81

Hot slag ignites foam insulation shavings, 1998:4.21

Hot slag ignites food processing plant fire, 1996:6.64

Hot slag ignites nut hulls in warehouse fire, 1997:3.34

Hot slag ignites stored paper in warehouse fire, 2009:6.81

Hot slag on conveyor belt ignites food processing plant fire, 1998:6.84

Hotel and casino fire cause, 2009:6.77

Leaking gas from welding equipment ignites explosion, 1998:6.86

Molten slag ignites furniture, 2000:6.91

NFPA 51B, Fire Prevention During Welding, Cutting, and Other Hot Work, 2009 edition, changes previewed, **2008:**6.14

NFPA 51B, Fire Prevention During Welding, Cutting, and Other Hot Work, change in scope of 1999 edition, 1999:5.78

NFPA maritime codes, standards, and training guide marine industry hot work, 2004:4.38

Paper wrapping ignited by, 1995:3.39

Polyester waste ignited during welding of machinery, **2004:**6.52

Robotic welder ignites lubricants, 2011:3.46

Roofing materials ignited by, 1999:4.22

Rubber curtain, dock seal ignited by, 1997:6.56

Sawdust ignited by sparks, 1991:4.31

Sparks blown from cutting operation ignite warehouse fire, **2001:**6.22

Sparks fall onto partition wall, ignite framing and joists, 2010:6.64

Sparks from metal cutting blade used on metal rod ignite church fire, 1999:6.17

Sparks ignite cardboard in store fire, **2007**:6.79

Sparks ignite gasoline from ruptured pipeline, 2005:5.60

Sparks ignite scenery, 1998:6.92

Sparks ignite wooden structural members, 2009:6.82

Store fire cause, **2008:**6.44

Styrofoam insulation ignited by, 1994:6.93

Tank farm fire ignited by, 1996:6.62

Torch ignites ammonium nitrate powder, 1994:5.105

Torch ignites blanket, **2010:**2.28

Torch ignites cardboard, 1994:6.97

Torch ignites cardboard, plywood, 1995:6.104

Torch ignites carpets, 1994:6.97

Torch ignites ceiling material, 1995:6.108

Torch ignites foam decorative material, 2009:5.29

Torch ignites foam insulation, 1998:6.84

```
Torch ignites gasoline vapors, 1995:6.38
  Torch ignites hydrocarbon vapors, 2009:4.22
  Torch ignites polyurethane mats, 1994:5.30
  Torch ignites PVC solvent vapors, 1996:6.23
  Torch ignites wood, 1995:5.35
  Torch ignites wood wall covering, 1999:6.97
  Vapors from unpurged tank pipes ignited, 2007:5.61
  Vapors in contaminated wastewater in tanker truck ignited by, 1999:4.22
  Vapors in gasoline storage tank ignited, 2010:5.68
  Warehouse fire, possible cause of, 1993:6.86
  Waste wrapping paper ignited by, 1999:5.20
  Welding rod arc ignites lint, 1999:6.94
WELDON, CURT
  Profile of, 1991:3.14
WELLS, JACK
  Interview with, 1995:3.85, 1995:4.97
  Profile of, 2000:1.36
WENTWORTH, FRANKLIN
  Remembering first full-time NFPA secretary-treasurer, 2008:5.112
WEST VIRGINIA
  Bus fire, 2003, 2004:4.16
  Catastrophic fires
     Aircraft, Oct. 7, 1992, 1993:5.68
     Apartment building, Jan., 2007, 2008:5.57
     Coal mine, March 19, 1992, 1993:5.67
     Coal mine, Jan., 2006, 2007:5.60
     Dwelling, March 7, 1993, 1994:5.96
     Dwelling, Nov. 21, 1997, 1998:5.50
     Dwelling, Jan., 2009, 2010:5.64
     Dwelling, March, 2012, 2013:5.59
     Dwelling-under-construction, April, 2006, 2007:5.60
     Manufactured home, Dec., 2006, 2007:5.59
     Manufacturing plant, Dec., 2010, 2011:5.79
     Mine, Jan., 2003, 2004:5.72
     Mine, April, 2010, 2011:5.77
     Motor vehicle, July 26, 1990, 1991:4.69
     Service station/convenience store, Jan., 2007, 2008:5.60
     Truck, May 11, 1993, 1994:5.108
  Fatal fires
     Apartment building, 2001, 2002:4.20
     Apartment building, 2004, 2005:4.16
     Dwelling, 2003, 2004:2.19
     Dwelling, 2004, 2005:4.18
     Dwelling, 2008, 2009:1.23
     Dwelling, 2009, 2010:5.30
     Dwelling, 2011, 2012:6.25
```

Historic building fire, 1996, **1997:**6.22

Manufacturing plant fire, April, 1994, 1995:6.102

Mercantile building fire, 2012, 2013:4.18

Office building fire, March, 1995, **1996:**6.70

University building fire, 1993, **1994:**4.30

WET CHEMICAL EXTINGUISHING SYSTEMS

Nozzles blocked, failed to extinguish fire, 1992:3.34

Satisfactory performance, 2003:2.20

WEYAUWEGA, WISC.

LP-Gas railroad tank car derailment, March 4, 1996, 1996:3.89

WEYMOUTH, MASS.

Hospital fire, Jan. 24, 1993, 1993:5.49

WHARVES. See PIERS AND WHARVES FIRES

WHAT'S HOT PRODUCT SPOTLIGHT

2005, **2005:**2.87, 5.96

2006, **2006:**1.72, 2:90, 3.138, 4.82, 5.90, 6.94

2007, **2007:**1.69, 2.92, 3.138, 4.100, 5.104, 6.104

2008, **2008:**1.76, 2.98, 3.138, 4.101, 6.83

2009, **2009:**1.77, 2.76, 3.132, 4.74, 5.86, 6.92

2010, **2010:**1.77, 2.77, 3.116, 4.84, 5.76, 6.92

2011, **2011:**2.82, 3.126, 4.78, 5.93

2012, **2012:**1.77, 2.77, 4.85, 5.89

2013, **2013:**1.70, 2.84, 4.84, 5.76, 6.70

WILDFIRE MANAGEMENT COLUMNS

Brazilian delegation learns from Montana hotshot team, 1993:6.32

Fire, ecological friend or foe of forests, 1994:4.33

Hantavirus poses health threat to fire fighters, 1994:2.31

Internet's fire protection applications, 1995:6.41

Laughter as workplace morale booster, 1991:2.116

National Interagency Incident Management System (NIMS), discussion, 1991:3.123

NFPA 1051, Wildland Fire Fighter Professional Qualifications, approved, 1995:5.39

NFPA standard for wildfire personnel qualifications, 1994:1.33

NFPA survey, managers top concerns, 1992:5.96, 1993:2.83

NFPA survey, national issues, 1992:2.66

NFPA survey identifies wildfire concerns, 1992:1.74

Politics, media, and public relations addressed at meeting, 1993:3.103

Rural fire protection: a shared responsibility, 1994:5.35

Training needed to counteract stress, fear, and panic, 1995:4.41

Wildland fire fighting rules to prevent fire fighter fatalities, **1994:**3.33

Wildland/urban interface, fire fighting problems at, 1991:1.118

Wildland/urban interface, public safety education, 1991:4.32

Working with the public to change policy, 1993:5.20

WILDFIRE WATCH

Applying inclusive emergency preparedness for those with disabilities to wildfire mitigation planning, **2013**:2.40

Creating a wilderness city, where humans can coexist with environment, 2009:3.56

Fire Adapted Communities has made encouraging progress in addressing wildfire risk, **2013**:6.38

Fire Adapted Communities initiative offers large, sustainable vision of wildfire, 2012:4.46

Hidden costs of wildfire and who pays them, 2013:1.42

Mitigation efforts help limit losses, 2012:5.46

New tools ensure wildland/urban interface development is done right, 2013:3.48

NFPA study assesses how effectively regulations address wildfire risk, 2012:2.42

Review of 2011 fire season and successful NFPA initiatives, 2012:1.42

Visit to Russia is part of NFPA effort to fight wildfire through international outreach, 2013:5.44

Wildfire professionals should balance media overviews of fires with information from detailed reports, **2012**:6.42

Wildland/urban interface is not a pre-established location but a set of conditions, **2013:**4.40 WILDLAND

2012 season predicted to be active, widespread, 2012:3.11

Aging wildfire-fighting air fleet may lead to decrease in missions in 2003, 2003:4.32

Australian wildland fires offer insights on evacuation strategies, 2009:2.18

Bark beetle infestation damages forest, increasing fire risk in western U.S., 2011:6.59

California to charge wildland/urban interface homeowners an annual firefighting fee, **2011:**6.34

Californians moved by recent fires to become "Firewise," 2004:2.70

Congress to take up Bush's Healthy Forest Initiative again, 2003:2.38

Environmental conditions, including global warming, in part responsible for some of largest wildfires ever seen, **2011:**6.52

Feather River Hospital, Paradise, California, July, 2008, evacuation report, 2011:1.60

Firefighter's first person account of Australian wildfire, 1996, 1997:2.49

Firewise® Communities marks tenth year helping communities prepare for fire, 2011:6.28

Firewise® Communities outreach after California wildfires, 2004:2.70

Firewise® Communities preparedness elements incorporated into International Association of Fire Chiefs program, **2010**:3.30

Firewise® Communities reaches milestone with 500th community joining program, 2010:1.15

Firewise® Communities reaches milestone with 860th community joining program, 2013:1.9

Firewise® Communities supports homeowners and fire departments in defending against wildfire, **2007:**6.44

Firewise® Communities take control of fire safety, doubling participants in 18 months, **2008**:2.21

Firewise® landscaping, 1994:2.84

Firewise® Learning Center offers online community wildfire assessment course, 2009:6.15

Firewise Mapper interactive online tool links Firewise Communities with crucial wildfire information, **2013:**1.9

Firewise® program community planning workshops, 2000:2.66

Firewise® workshops underway for forest professionals, 2007:3.18

Global warming could result in larger wildfires but prevention efforts can limit danger, **2009:**6:60

Health Forest Initiative's pros and cons discussed, 2003:2.58

Homeowner responsibility for wildfire protection efforts, 1994:2.4

Mulch fires, hazards of, 2011:6.77

necplusTM is Web-based NEC[®] subscription service, **2007**:5.84

NFPA 1144, Protection of Life and Property from Wildfire, and NFPA 1141, Fire Protection in Planned Building Groups, 2008 editions, include changes to reduce wildfire losses, **2007:**6.36

NFPA 1144, *Protection of Life and Property from Wildfire*, provides home owners and developers with tools to improve fire and life safety, **2003:**2.46

NFPA Backyards & Beyond Educational Conference, 2011:3.28

NFPA Backyards & Beyond Educational Conference emphasizes technological advances in wildfire mitigation and preparedness, **2011**:6.8

NFPA codes and standards, 1998:2.44

NFPA codes and standards help to manage wildland/urban interface, 2011:6.60

NFPA develops youth program on wildfire safety, 2013:2.11

NFPA expands reach to address global wildfire problem, 2011:6.36

NFPA partners with Canadian Partners in Protection to expand fire safety initiatives in Canada, **2011:** 3 28

NFPA releases DVD highlighting resident-firefighter partnership in wildfire preparation, **2013:**3.14

NFPA Wildland Fire Operations Division works with international partners to address global wildfire problem, **2011:**6.22

NFPA Wildland Fire Protection Division manager Dave Nuss's vision for newly created division, **2010**:2.13

NFPA's wildfire blog keeps close tabs on Black Forest Fire, Colorado, June 2013, 2013:4.11

Pyne, Stephen, interview, on history of U.S. relationship with wildfire, 2011:6.10

Rim Fire, California, threatened San Francisco water supply and power supply, **2013:**5.11 Staffing for fires, **2004:**2.68

Stay and Defend or Leave Early (SDLE) model for how and when people evacuate a fire area, **2011:**6.42

Surviving a wildland burnover, **1998:**2.47

United States statistics, 2004-2008, **2011:**6.73

U.S. Forest Service Fire Adapted Communities program discussed by program manager Pam Leschak, **2012**:4.16

Waldo Canyon, Colorado, fire offers lessons on pre-fire mitigation, 2012:5.60

Waldo Canyon, Colorado, fire report indicates how wildfire safety programs affected fire damage and response, **2013:**3.12

Weeks Act of 1911 created national forests, reduced threat of forest fires, 2011:2.17

Wildland/urban interface, fire fighting problems at, 1991:1.118

Wildland/urban interface, Firewise® program community planning workshops Communities Workshops are successful part of safety program for, **2002:**4.82

Wildland/urban interface, NFPA codes and standards help to manage, 2011:3.47

Wildland/urban interface fire threat requires vigilance from homeowners and agencies, **1998**:6.94

Wildland/urban interface fires, organizational and tactical challenges for fire service of, **2011:**6.64

Wildland/urban interface fires, questions answered, 1999:2.30

Wildland Urban Interface Hazard Scale developed by NIST, U.S. Forest Service links fire risk assessment to codes, standards, practices, **2013:**1.11

WILDLAND FIRES. See also WILDFIRE MANAGEMENT COLUMNS

```
Fire season overview
  1990, 1991:1.59
  1991, 1992:1.54
  1992. 1993:1.36
  1993, 1994:2.79
  1994. 1995:2.36
  1995, 1996:2.45
  1996, 1997:2.46
  1997, 1998:2.42
  1998, 1999:2.54
  1999, 2000:2.62
  2000, 2001:2.66
  2001, 2002:2.62
  2002. 2003:2.52
  2003, 2004:2.62
Alaska, June 2, 1996, wildland/urban interface, 1997:6.59
Arizona, June, 2002, 2003:6.80
Arizona, June 18, 2002, Show Low Fire District, 2003:2.62
Arizona, June, 2003, wildland/urban interface, 2004:6.55
Australia, wildland/urban interface, 2010, 2011:6.19
California, Brentwood-Bel Air, Nov., 1961, 2011:6.80
California, June 27, 1990, College Hills Fire, Glendale, 1991:1.60
California, June 27, 1990, Los Padres National Forest, 1991:1.61
California, Aug. 6, 1990, 1991:6.74
California, Oct., 1991, 1992:6.74
California, 1992, 1993:4.28
California, Aug., 1992, 1993:6.88
California, Aug., 1992, wildland/urban interface, 1993:6.89
California, Sept., 1992, 1993:6.88, 89
California, Oct., 1993, wildland/urban interface, 1994:6.99
California, Nov., 1993, wildland/urban interface, 1994:6.99
California, June, 1994, wildland/urban interface, 1995:6.111
California, Aug., 1994, wildland/urban interface, 1995:6.111
California, Aug. 13, 1997, 1998:6.92
California, Sept. 27, 1997, wildland/urban interface, 1998:6.92
California, Aug. 28, 1999, 2000:6.94
California, Dec. 21, 1999, 2000:6.94
California, Oct. 16, 1999, 2000:6.94
California, Feb., 2002, 2003:6.80
California, Oct., 2003, 2004:6.55
California, Oct., 2003, wildland/urban interface, 2004:6.55
California, Oct., 2006, wildland/urban interface, 2007:6.81
California, Dec., 2006, wildland/urban interface, 2007:6.81
California, Jan., 2007, wildland/urban interface, 2008:6.43
California, June., 2007, wildland/urban interface, 2008:6.43
```

```
California, Oct., 2007, wildland/urban interface, 2008:6.43
California, Nov., 2007, wildland/urban interface, 2008:6.43
California, June, 2008, wildland/urban interface, 2009:6.80
California, Aug., 2008, wildland/urban interface, 2009:6.80
California, Nov., 2008, 2009:6.79
California, May, 2009, wildland/urban interface, 2010:6.67
California, Aug., 2009, wildland/urban interface, 2010:6.67
California, 2010, wildland/urban interface, 2011:6.16
California, Aug., 2012, wildland/urban interface, Ponderosa Fire, 2013:6.54
California, Aug., 2013, Rim Fire threatened San Francisco water supply and power supply,
       2013:5.11
California, evacuations for, 1994:2.85
Canada, wildland/urban interface, 2010, 2011:6.19
Catastrophic
  Arizona, 1990, Tonto National Forest, 1991:1.60, 1991:4.70, 1991:6.78
  California, Oct. 20, 1991, 1992:4.72
  California, Nov. 2, 1993, wildland/urban interface, 1994:5.108
  California, fire apparatus crash, July, 2002, 2003:5.75
  California, Oct., 2003, 2004:5.72, 2004:5.73
  California, Oct., 2006, 2007:5.62
  California, Oct., 2007, 2008:5.62
  California, Aug., 2008, 2009:5.84
  Colorado, July 3, 1994, 1995:5.67
  Colorado, March, 2012, 2013:5.65
  Nevada, Sept., 2008, 2009:5.84
  Texas, March, 2006, 2007:5.62
  Utah, fire service aircraft crash, April, 2009, 2010:5.69
  Washington, July, 2001, 2002:5.82
Colorado, South Canyon, July, 1994, 1995:2.51, 2007:4.56
Colorado, Sept., 2010, wildland/urban interface, 2011:7.58
Colorado, March, 2012, wildland/urban interface, North Fork Fire, 2013:6.54
Colorado, June, 2012, wildland/urban interface, High Park Fire, 2013:6.54
Colorado, June 23, 2012, wildland/urban interface, Waldo Canyon Fire, 2013:3.12, 5.60, 6.54
Colorado, June, 2013, wildland/urban interface, Black Forest Fire, 2013:4.11
Firefighter fatalities related to, 1995:4.86, 87, 93, 2000:4.56, 2001:4.77, 78, 79, 2002:4.79,
       2003:4.63, 2004:4.57, 2006:4.53, 2007:4.62, 68, 69, 70, 2009:4.66, 67, 2011:4.70,
       2012:4.81, 2013:4.71, 72
Firefighter injuries related to, 1997:6.76, 2000:6.48, 2003:6.71, 2007:6.91
Florida, 1992, 1993:3.36
Florida, May to July, 1998, 1999:6.97
Georgia, April, 2007, 2008:6.43
Greece, wildland/urban interface, 2010, 2011:6.21
Historical overview, 1996:2.66
Idaho, 1992, 1993:4.26
Idaho, 1996, wildland/urban interface, 1997:4.21
Idaho, 2010, wildland/urban interface, 2011:6.18
```

Kansas, Feb. 21, 1996, **1997**:6.59

Los Alamos National Laboratory and Hanford Site nuclear facilities protected from wildland fires by aggressive suppression efforts, **2001**:5.64

Massachusetts, 2002, 2003:2.20

Montana, Mann Gulch, 1949, 1995:2.42

Montana, July, 2000, 2001:6.64

New Jersey, 1995, **1996:**2.26

New Mexico, March, 2002, 2003:6.80

New Mexico, May, 2000, 2001:5.64, 2001:6.63

New York, Aug., 1995, 1996:6.74

Oregon, Oct., 1991, **1992:**6.76

Oregon, Aug., 1992, 1993:6.89

Oregon, Aug., 1994, wildland/urban interface, 1995:6.111

Peshtigo, Wis., wildland/urban interface, 1871, 1994:2.86

Peshtigo, Wis., wildland/urban interface, 1871, Looking Backward column, 2003:2.78

Portugal, wildland/urban interface, 2010, 2011:6.21

South Africa, January, 1999, 2000:2.68

South Carolina, April, 2009, wildland/urban interface, 2010:6.67

Texas, 1994, **1995:**2.31

Texas, Jan, 2006, wildland/urban interface, 2007:6.81

Texas, March, 2006, 2007:6.80

Texas, April, 2011, wildland/urban interface, 2012:6.65, 66

Texas, Sept., 2011, wildland/urban interface, 2012:6.65

Utah, July 2, 1999, 2000:6.94

Utah, 2010, wildland/urban interface, 2011:6.17

Vehicle crash and fire, nearby wildfire smoke as factor in, 2013:5.63

Washington, Sept., 1992, wildland/urban interface, 1993:6.89

Washington, July, 1994, Fish Hatchery Complex, 1995:2.48

Washington, July, 1994, wildland/urban interface, 1995:6.111

Washington, June, 2000, 2001:5.64

Washington, Thirty-Mile fire, Okanagon National Forest, July 10, 2001, 2002:2.64, 66

Washington, 2010, wildland/urban interface, 2011:6.17

Wisconsin, wildland/urban interface, 2010, **2011:**6.19

WILLIAMSBURG, VIRGINIA

Colonial Williamsburg includes Fire Protection Research Foundations in program to insure fire protection method appropriate to physical environment, **2013**:6.28

Colonial Williamsburg successfully balances fire protection and historic preservation,

2003:1.40

WILLIAMSON, ROBERT BRADY

Profile, 2007:5.22

WIND

Direction change necessitated exposure protection, 2000:6.86

Fire generated, contributes to wildland fire spread, 1995:6.111

Fire pit embers reignited by, 2011:7.58

High, caused power lines to come together, ignited wildland fire, 2012:6.65

High, caused trees to fall onto power lines, ignited wildland fire, 2012:6.65

```
High, caused wall collapse in building-under-construction fire, 1991:3.27
```

High, factor in fuel transfer/docking fire, **2007:**4.21

High, factor in prescribed burn igniting wildland fire, 2013:6.54

High, fire tactics adjusted to accommodate, 2012:3.40

High, hampered fire fighting operations, **1996**:3.40, **1997**:6.57, **2002**:3.34, **2002**:5.18, **2008**:6.42, **2009**:6.83, 84, **2010**:6.64, **2011**:7.57

High, intensified fire spread, **1991**:6.73, 74, 75, **1992**:4.25, 4.72, 5.25, 6.74, 76, **1993**:6.30, 81, 86, 88, 89, **1994**:2.28, 3.29, 5.108, 6.36, 90, 98, 99, **1995**:5.54, 67, 6.99, **1996**:2.24, 2.26, 5.93, 6.62, 69, 70, 74, **1997**:4.21, 6.50, 54, 56, 57, 59, **1998**:6.85, 90, **1999**:3.43, 4.21, 6.91, 92, 97, **2000**:6.93, 94, 95, **2001**:2.24, 3.36, 5.77, 6.63, 64, **2003**:2.20, 22, 3.18, 20, 6.77, 78, 80, **2004**:1.15, 2.16, 6.21, 54, 56, **2005**:1.20, 5.28, 58, 6.44, 47, **2006**:6.71, 72, **2007**:5.25, 62, 6.76, 80, 81, 82, **2008**:3.26, 5.62, 6.43, 43, **2009**:6.79, 80, **2010**:6.67, **2011**:6.18, 19, **2012**:5.75, **2013**:3.32, 6.25

High, knocked over heat lamp, 2009:3.35

Sparks from cutting operation spread by, 2001:6.22

Studies seek to better understand wind-driven structural fires, 2009:4.14

Tactics for wind-driven conditions at high-rise building fires subject of Fire Protection Research Foundation study, **2008**:6.24

WIND TURBINES

National Electrical Code®, 2011 edition, provisions address renewable energy technology, **2010:**3.72

WINDOWS

Blocked

By air conditioner, catastrophic fire factor, 1998:5.45

By air conditioner, fatal fire factor, **2009:**5.24

By furniture, fatal fire factor, **1994**:6.33, **2009**;4.20, 5.24, 6.20, **2010**:6.21

By storage, door, catastrophic fire factor, 1994:5.96

Broken by heat, catastrophic fire factor, 1991:4.66

Chimney effect from broken window, factor in catastrophic fire, 2005:5.56

Closed windows allow vapors to accumulate, 1994:5.104, 105

Conflict between security and fire safety, 1994:3.110

Failed, factor in catastrophic fire, 1992:4.67, 68, 2005:5.56

Failed, factor in fatal fire, 2005:5.28, 2007:4.25, 5.28

Failed, fire spread from, 2008:6.23

Failed, fire spread to interior through, 1998:5.53, 2000:6.16

Fire vented through, **1991**:4.67, **1993**:5.62, 64, **1994**:5.28, 100, 102, 105, **1994**:6.34, 64, **1995**:5.53, 54, 56, 58, 59, **1996**:5.91, **1996**:6.70, **1997**:5.21, 49, 51, 52, 53, 6.20, **1998**:2.18, **1999**:5.52, **1999**:6.18, **2001**:5.75, **2001**:5.77, **2005**:4.16, **2006**:2.28, 4.24, 6.18, 20, **2007**:6.19, **2008**:2.24, 3.26, 17, **2009**:1.19, 3.39, **2010**:1.21, 2.24, 5.34, 63, **2011**:3.34, 5.22, **2012**:5.24, **2013**:1.18, 3.22

Furniture blocks access in catastrophic fire, 1992:4.69

Glazing developments offer alternatives to wired glass, also raises code questions, 1998:6.76

Hurricane shutters blocked access, factor in catastrophic fire, 2005:5.58

Inoperable, unbreakable, factor in catastrophic fire, 1997:5.54

Lexan layer hampered ventilation, suppression, 1994:6.89

Nailed shut, factor in catastrophic fire, 1998:5.50

NFPA 80, Fire Doors and Other Opening Protectives, 2010 changes, 2009:3.86

Open, allowed wind to spread fire, 2005:5.58, 2009:5.79

Security bars

Catastrophic fires, factor in, **1991**:4.64, **1996**:5.93, **1997**:5.51, **1998**:5.45, 50, **1999**:5.50,

5.53, **2000**:5.57, **2001**:5.76, 77, **2004**:5.68, **2005**:5.56, 58, **2006**:5.60, 61, **2007**:5.58

Fatal fires, factor in, **1991:**4.26, **1994:**3.110, 5.95, 96, **1995:**2.29, **2001:**4.22, 6.20,

2002:3.30, **2004:**2.19, **2009:**2.24

Smoke, ventilation through, **2013:**1.27

Steel screens hinder escape in catastrophic fire, 1993:5.62

Transom windows failed, factor in fire spread, 1993:6.28

WINECOFF HOTEL FIRE

Atlanta, 1946, 2006:6.104

WINSTON-SALEM, NORTH CAROLINA

Sara Lee Knitwear Products "green" building protected with performance based design, fire models, **2005**:2.40

WINTERTHUR MUSEUM, DELAWARE

Life safety protection system, 1992:5.63

WIRING, ELECTRICAL. See ELECTRICAL FIRES

WISCONSIN

Apartment building fire, 1999, 2000:4.18

Apartment building fire, 2008, 2009:1.17

Apartment building fire, 2009, 2010:6.22

Board and care facility fire, 2011, 2012:2.18

Building-under-construction fire, Feb., 2005, 2006:6.68

Catastrophic fires

Aircraft, Dec. 10, 1993, **1994:**5.106, **1994:**6.98

Automobile, April, 2001, 2002:5.82

Board and care facility, Dec. 31, 1990, 1991:4.69

Drilling rig, July 9, 1991, 1992:4.72

Dwelling, March 13, 1990, 1991:4.66

Dwelling, May 10, 1990, 1991:4.65

Dwelling, Oct. 4, 1990, 1991:4.66

Dwelling, April 22, 1991, 1992:4.68

Dwelling, Feb. 28, 1996, 1997:5.49

Dwelling, March 10, 1996, **1997:**5.50

Dwelling, Nov. 1, 1998, 1999:5.53

Dwelling, July 10, 1999, 2000:5.58

Manufacturing plant, May 16, 1991, 1992:4.71

Manufacturing plant, July, 2008, 2009:5.83

Truck, Nov. 11, 1994, 1995:5.67

Warehouse, Dec., 2006, **2007:**5.61

CNG vehicle fueling station fire, 1999, 2000:2.23

Fatal fires

Apartment building, 2005, 2006:2.28

Apartment building, 2006, 2007:2.22

Apartment building, 2007, **2008:**3.26

Apartment building, 2012, 2013:3.28

Church rectory, 2004, **2005**:6.19

Dwelling, 1998, **1999:**2.23

Dwelling, 2006, 2007:3.28

Dwelling, 2008, 2009:2.23

Dwelling, 2011, 2012:4.27

Dwelling, 2012, 2013:3.24, 2013:3.26

Manufacturing plant, 2009, **2010:**5.34

Garage, parking, fire, 2010, **2011:**4.20

Historic building fire, 2008, **2009:**3.42

LP-Gas railroad tank car derailment, March 4, 1996, 1996:3.89

Manufacturing plant fire, 1994, 1995:2.30

Manufacturing plant fire, Sept. 28, 1999, 2000:6.88

Manufacturing plant fire, July, 2002, 2003:6.77

Manufacturing plant fire, July, 2005, 2006:6.71

Manufacturing plant fire, Aug., 2008, 2009:6.77

Manufacturing plant fire, 2009, 2010:3.43

Manufacturing plant fire, 2011, **2012:**1.20, 2.20

Museum fire, June, 1994, 1995:6.98

Office building fire, 1996, 1997:2.23

Processing plant fire, 1993, **1994:**6.36

Public assembly mixed use building fire, 1993, 1994:3.29

Railroad rolling stock fires, March 4, 1996, 1996:3.89, 1997:6.60

Restaurant fire, 2002, 2003:2.20

Shopping mall fire, 1989, **1991:**1.29

Warehouse fire, 2009, 2010:1.26

Warehouse fire, May, 1991, **1992:**6.75

Warehouse fire, May 3, 1991, **1991**:6.37

Warehouse fire, April 21, 1999, **2000:**6.90

Wildland/urban interface fire, 2010, 2011:6.19

WITZEMAN, LOU

Profile of, **1997:**5.37

WOBURN, MASS.

Nursing home fire, Oct. 30, 1992, **1993:**5.49, **2012:**5.96

WOOD AND WOOD PRODUCTS. See also MANUFACTURING PLANT FIRES; MILL FIRES

Aged paneling contributes to fire spread, **2008:**1.19

Aged plywood interior contributes to fire spread, 1995:6.107

Aged wood responsible for rapid fire spread, 2000:6.86

Cabinet shop fire, California, 2006, 2007:6.22

Creosote-treated wood fuels wharf fire, 1999:6.96

Engineered wood construction's relationship with fire detailed in two studies, 2009:4.38

Exposed lumber fuels building-under-construction fire, 1999:6.96

Fire starts in sawdust, spreads to combustibles, **1994**:4.30

Furniture warehouse fire, Virginia, Sept., 2005, 2006:6.73

Logging vard fire, Utah, 2006, **2007:5**.30

Lumberyard fire, Indiana, June, 1998, **1999:**6.92

Lumberyard fire, Pennsylvania, March 25, 1999, 2000:6.91

Lumberyard fire, Michigan, May 19, 1999, 2000:6.88

NFPA 664, Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities, 2012 edition proposed changes address dust issues, **2011**:3.80

Sauna wooden structural members ignited by electrical timer/thermostat failure, 2013:4.25

Very dry wood allowed rapid fire spread, **2000**:6.92

Welding torch ignites wood wall coverings, 1999:6.97

WOOD FRAMING

Electrical wiring malfunction ignites framing, store fire, 2007:5.31

Fire started in, 1999:6.91

Ignited by electric cord, catastrophic fire factor, 1992:4.67

Ignited by electrical wiring, catastrophic fire factor, 1992:4.68, 2009:5.82

Ignited by electrical wiring, fatal dwelling factor, 2009:5.26

Ignited by overheated dishwasher pump dwelling fire, 2009:5.24

WOOD SHINGLES, SHAKES

Cigarette, ignited by, in dwelling fire, 1996:5.25

Early twentieth century NFPA tracts addressed dangers of shingle roofs, 2009:6.96

Fire-retardant treatment, effectiveness of, 1991:1.24

Fire spread to shingles under metal siding, 1997:6.52

Fire spread up cedar siding, **2006:**6.72

Fireworks, ignited by, 1997:3.30

Fireworks, ignited by, in dwelling fire, 1996:4.21

Incendiary fire spread to, 1997:6.56

Lightning, ignited by, in church fire, 1999:3.43

Pile of removed shakes ignited by cigarette, 1997:3.30

Produced flaming brands in wildland fire, 1992:4.72

Spotlight ignites shingles, 1997:1.27

Wildland fire spread factor, **1993:**6.89

WOOD STOVES

Camping stove fuel used to kindle, ignites fatal fire, **1997:**6.20

Catastrophic fire caused by, 1991:4.64, 68

Child throws flammable liquid into stove, ignites fatal fire, 2009:1.21

Creosote and burning materials drop onto combustibles from split flue pipe, **2010:**1.20

Creosote from chimney in wall void ignited by stove heat, 2005:1.17

Diesel fuel used to kindle, ignited fatal fire, 2009:6.25, 2013:3.26

Gasoline used to kindle, ignited catastrophic fire, 1991:4.68

Gasoline used to kindle, ignited fatal fire, 2007:2.18

Heat from faulty stove pipe connection of homemade stove, ignites catastrophic fire, 1997:5.51

Heat from faulty stove pipe installation ignites wall, 2010:1.22

Point of fire origin in area of stove, **1998:**5.46

Possible fire cause, 2012:3.30

Radiant heat from flue ignites stored wood, 1992:5.25

Stove pipe ignites combustibles in camp fire, 2011:3.44

Structural framing ignited by, in catastrophic fire, 1997:5.49

Structural framing ignited by wood-fired heater, 1999:5.51

Wood floor below wood stove damaged in fire, 2011:3.42

WOODEN STRUCTURAL MEMBERS

Damage service cable, which ignites joist, 1996:5.93

Ignited by plumber's torch, **2006:**6.72

WOOLDRIDGE, JERRY

Profile of, **2000:**6.37

WORCESTER, MASSACHUSETTS

Cold-Storage and Warehouse Building Fire Looking Back column, 2003:4.80

Warehouse fire, Dec. 3, 1999, 2000:4.54

WORLD TRADE CENTER, N. Y., N. Y.

Feb. 26, 1993, terrorist attack

Catastrophic fire, 1994:5.104

Human behavior during evacuation, 1995:2.59

Large loss fire, **1993:**6.91, **1994:**6.90

Sept. 11, 2001, terrorist attack

After event, research organizations and other agencies eye safety improvements, 2002:3.100

Artistic and historic treasures lost in attack, 2003:1.52

Catastrophic fire, Sept., 2001, 2002:5.82

Comparing sizes of World Trade Center floor area and aircraft, 2002:5.17

Congress pushes for World Trade Center collapse study by National Institute of Standards and Technology, **2002**:5.34

Engineers analyze why buildings collapsed, 2001:6.36

Evacuees share lessons learned, 2002:5.54

Federal Emergency Management Agency Building Performance Assessment Team WTC collapse study, **2002:**5.47

Fire services view opportunities for change post 9/11, 2002:5.48

Jay Jonas, New York City Fire Department deputy chief, interviewed on his 9/11 experience, **2012:**3.22

Large-loss fire, Sept., 2001, 2002:6.75

McKinsey & Company report evaluates emergency response to attack, 2003:2.72

National Institute of Standards and Technology investigation may aid code revisions to prevent structural collapse, **2002:**5.44

National Institute of Standards and Technology report concludes WTC building 7 brought down by fire, **2009:**1.14

National Urban Search & Rescue teams were dispatched to site to search for 9/11 survivors, **2002:**1.62

Need for first responder preparedness and protective equipment improvements demonstrated by attack, **2001**:6.46

NFPA investigator recalls his work at Ground Zero, 2011:5.48

NFPA members lost, remembrance of, **2001**:6.96

NFPA post-9/11 code and standards have made America safer; changes reviewed, 2011:5.42

NFPA reviews related standards and considers appropriate changes, 2001:6.43

NIST World Trade Center Report's controversial recommendations for changes in high-rise design, **2007**:3.160

Post-impact collapse of WTC brings new focus on fire-resistive materials' durability, **2005:**5.80

Search and rescue operations follow NFPA emergency rescue standards, ${\bf 2001:}6.41$ WYOMING

Catastrophic pipeline fire, Aug., 2011, **2012:**5.75 Dormitory fire, 2005, **2006:**6.23 Dormitory fire, March, 2004, **2005:**6.45 Fatal dwelling fire, 1991, **1992:**5.26 Manufacturing plant fire, 1993, **1994:**3.30 Sawmill fire, 1990, **1992:**1.26

Y

YUMA, ARIZ.

Manufacturing plant fire, Nov. 12, 1992, 1993:4.33

Z

ZOO FIRES

Pennsylvania, 1995, 1996:6.24