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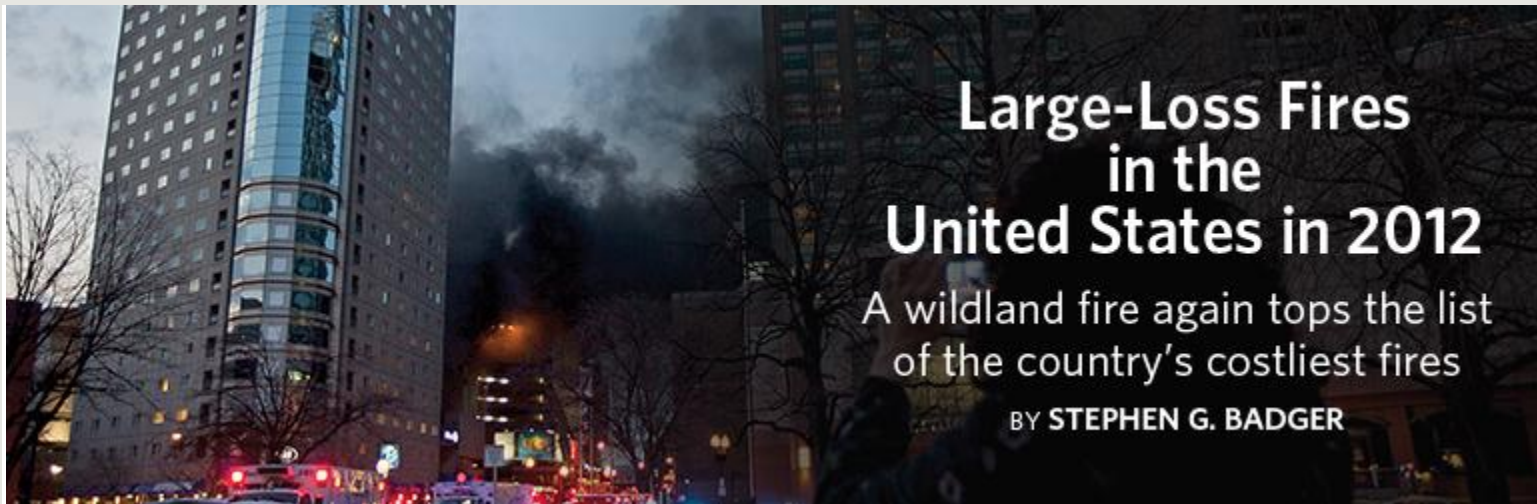
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## 2012 LARGE LOSS FIRES BY PROPERTY TYPE

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- [Read the NFPA Journal feature "Large-Loss Fires in the United States in 2012".](#)

### 2012 Large-Loss Fires by Property Type

#### MANUFACTURING

##### Pennsylvania

**Date, Time of Alarm, Dollar Loss**

October, 8:37 a.m., \$75 million

**Property Characteristics and Operating Status**

This was a very tall one-story, 75,000 square-foot (6,968 square-meter) printing plant of unprotected non-combustible construction that was in full operation at the time.

**Fire Protection Systems**

There was no automatic detection or suppression equipment present.

### Fire Development

The fire broke out in paper in a large printing press. The exact ignition sequence was not reported.

### Contributing Factors

The fire spread rapidly through the paper products. Within 10 minutes of arrival, firefighters went to a defensive attack on the fire. At the height of the blaze, 175 firefighters were on scene. One hundred and fifty gallons (568 liters) of high-expansion foam was used inside the structure to assist in extinguishment.

## Georgia

### Date, Time of Alarm, Dollar Loss

March, 5:15 a.m., \$50 million

### Property Characteristics and Operating Status

This was a 33-foot (10-meter) tall, one-story vehicle parts manufacturing plant of protected noncombustible construction with tilt-up concrete walls that was operating at the time. The floor area covered 741,233 square feet (68,863 square meters).

### Fire Protection Systems

There was a complete coverage smoke and heat detection system with manual pull stations present. The detectors activated and notified an alarm company, which in turn notified the fire department. There was a complete coverage wet-pipe sprinkler system present. The system activated properly but was soon damaged and rendered ineffective by a structural collapse. There were also hand-held extinguishers present. They were used by employees, but the number of extinguishers was not reported, and they were ineffective.

### Fire Development

This fire started when an employee left scraps of smoldering material hanging in a bin after the headliner had been cut out. (The headliner is foam material that is attached to the inside of the vehicle roof and covered with fabric.) This material then ignited other scrap material in the bin. Radiant heat ignited cardboard boxes stacked on a shelf 25 feet (8 meters) away, and fire spread throughout the building.

### Contributing Factors

Employees fought the fire and hunted for extinguishers for an unreported length of time before pulling a fire alarm or calling 911.

## Minnesota

### Date, Time of Alarm, Dollar Loss

May, 11:21 a.m., \$50 million

### Property Characteristics and Operating Status

This was a paper mill of varying height from one to six stories of unprotected noncombustible construction that was in operation with approximately 100 employees present. The ground floor area was not reported.

### Fire Protection Systems

No information was reported on any detection equipment. There was a sprinkler system present. The type of system and whether or not it operated was not reported. The system was compromised by the explosion, which displaced water lines.

### Fire Development

An air compressor overheated, igniting combustible oil vapors within the compressor. The fire spread to the mill air receiver tank through compressed air piping, and explosive oil vapors in the tank were ignited, causing an explosion and catastrophic rupture of the receiver tank. This blew out concrete walls and ignited stored rolls of paper.

### Contributing Factors

Smoke and flames coming from the top of an air compressor in the air compressor room were discovered by employees. Employees started to exit the building and the property fire brigade was notified. Two employees remained behind and one used an unreported extinguisher type on the fire. Minutes later, as the two employees started to exit, the receiver tank exploded, killing one and injuring the other. A firefighter was also injured fighting the fire.

## Illinois

### Date, Time of Alarm, Dollar Loss

April, 1:33 a.m., \$33.5 million

### Property Characteristics and Operating Status

This was a metal product galvanizing plant. No additional information was reported.

### Fire Protection Systems

No information was reported on any automatic detection or suppression equipment present.

### Fire Development

No information was reported.

### Contributing Factors

When firefighters arrived, smoke and fire were visible from this large industrial building, with fire venting through the roof. Damage estimates are \$30 million to the structure and \$500,000 to the contents.

## Ohio

### Date, Time of Alarm, Dollar Loss

October, 9:44 a.m., \$18 million

### Property Characteristics and Operating Status

This was a three-story paraffin manufacturing plant of unprotected ordinary construction that was operating at the time. The ground floor area was not reported.

### Fire Protection Systems

No information was reported on automatic detection equipment. There was a sprinkler system present and it operated. Its type and effectiveness were not reported.

### Fire Development

No information was reported.

### Contributing Factors

Upon arrival, firefighters found heavy black smoke showing from windows on all three stories and fire from the windows on the second and third stories. Fire equipment pumped into a sprinkler system and a defensive attack was initiated. There were two civilian injuries.

## Washington

### Date, Time of Alarm, Dollar Loss

August, 10:56 p.m., \$16.6 million

### Property Characteristics and Operating Status

This was a three-story sawmill of unprotected ordinary construction that covered 60,000 square feet (5,574 square meters). The mill was closed at the time with a security guard on duty.

### Fire Protection Systems

There was neither automatic detection nor suppression equipment present.

### Fire Development

The cause is listed as undetermined. It was reported as starting on the first floor.

### Contributing Factors

This sawmill was fully involved when firefighters arrived, with fire extending to a chip bin. A defensive attack was initiated after firefighters confirmed that there was no life hazard. An inadequate water supply was reported. Damage estimates are \$2 million to the structure and \$14.6 million to the contents.

## Minnesota

### Date, Time of Alarm, Dollar Loss

March, 3:24 p.m., \$14.9 million

### Property Characteristics and Operating Status

This was a one-story paper products manufacturing plant of protected noncombustible construction. The ground floor area was not reported. The mill was in operation at the time.

### Fire Protection Systems

There was no automatic detection equipment present. There was a wet-pipe sprinkler system present that operated and assisted in containing the fire. A flash fire above the system caused 700 sprinkler heads to open and flow. While the fire pump was unable to keep up with the demand to extinguish the fire, it was able to keep the fire in check as water was shuttled to the scene.

### Fire Development

After a conveyor belt malfunctioned, lint and paper built up on a natural gas-fired furnace. The build-up was ignited after it was heated to approximately 450 degrees F (232 degrees C). Fire spread to the ceiling, and a flash fire occurred that spread to a paper storage area.

### Contributing Factors

Damage estimates were about \$7 million to the structure and \$7 million to the contents. One firefighter was injured during the fire.

## WILDLAND

## Colorado

### Date, Time of Alarm, Dollar Loss

June 23, 12 p.m., \$453.7 million. (This was listed by officials as the start date, although there were reports of smoke in the area on the evening of June 22.)

### Setting

This was a wildland/urban interface fire called the Waldo Canyon Fire.

### Climate

On the day the fire started, the temperature was 94 degrees F (34 degrees C), winds 9 to 17 mph (14 to 27 kph) with gusts of 25 mph (40 kph), and the relative humidity was 28 percent. On several days during the fire, the National Weather Service issued "red flag warnings" indicating that conditions are ideal for wildfire ignition and rapid spread. During this

time, the state of Colorado was facing one of its worst droughts due to an unusually warm and dry winter.

#### Origin and path

The area of ignition for this fire was off a hiking trail on a ridge in the foothills near Colorado Springs. The cause is under investigation. The fire burned easterly for 17 days through canyons and valleys and into several residential areas.

#### Contributing Factors and Other Details

The first community was affected after only three days, with numerous structures burning. As the fire progressed, many voluntary and mandatory evacuations were ordered. This was the most destructive wildfire in the state's history. The fire was fueled by brush, oak, grass mountain shrub, pinyon juniper, ponderosa pine, Douglas fir, spruce, and limber pine. By the time the fire was extinguished, 18,247 acres (7,384 hectares) were burned and 346 structures, including homes and outbuildings, were destroyed. There were two civilian deaths attributed to this fire.

### Colorado

#### Date, Time of Alarm, Dollar Loss

June, 5:54 a.m., \$113.7 million

#### Setting

This was a wildland/urban interface fire called the High Park Fire.

#### Climate

At the time, the area had record low live fuel moisture, with high temperatures and low relative humidity. On the day of the fire, weather conditions in the area included a high temperature of 96 degrees F (36 degrees C), winds 8 to 20 mph (13 to 32 kph) with gusts of 28 mph (45 kph), and relative humidity of 38 percent. During this time, the state of Colorado was facing one of its worst droughts due to an unusually warm and dry winter.

#### Origin and path

This fire was started by a lightning strike during a dry thunderstorm in a mountainous area.

#### Contributing Factors and Other Details

This fire, along with the Waldo Canyon Fire, combined to make 2012 the costliest year for wildfires in Colorado history. By 10:30 p.m. on the day the fire started, it had already spread to 8,000 acres (3,237 hectares). The next day, several structures were confirmed as destroyed or damaged. The 87,284-acre (35,322-hectare) fire burned through grass, brush, and timber and claimed 371 structures, including 259 homes. One death was attributed to this fire. Many mandatory evacuations were ordered during this time.

### California

#### Date, Time of Alarm, Dollar Loss

August, 11:35 a.m., \$15 million

#### Setting

This was a wildland/urban interface fire called the Ponderosa Fire.

#### Climate

On the day of the fire, weather conditions in the area included a high temperature of 101 degrees F (38 degrees C), winds of 5 to 17 mph (8 to 27 kph), and gusts of 22 mph (35 kph).

#### Origin and path

The fire began when lightning struck and ignited an area of heavy vegetation.

#### Contributing Factors and Other Details

The fire destroyed 133 structures (including 52 homes and 81 outbuildings) and damaged six structures (1 home and 5 outbuildings). The fire also burned more than 27,676 acres (11,200 hectares). During the height of the fire, evacuations were ordered. More than 250 fire companies, 11 helicopters, 46 bulldozers, and 54 water tenders, with over 2,300 personnel, were involved in fire suppression activities over the course of the fire. Seven injuries were reported.

### Colorado

#### Date, Time of Alarm, Dollar Loss

March, 1:50 p.m., \$11.3 million

#### Setting

This was a wildland/urban interface fire called the North Fork Fire.

#### Climate

On the day the fire started, the temperature was 80 degrees F (27 degrees C), winds were 15 to 20 mph (24 to 32 kph) gusting to 55 mph (89 kph), and the relative humidity was 55 percent.

#### Fire Origin and Path

A 50-acre (20-hectare) prescribed burn took place four days prior to this fire. The controlled burn was secured the next day and was patrolled and monitored the next two days. Strong winds carried ground-level embers across the prescribed burn fire control lines, however, and ignited three spot fires. Two of the spot fires were quickly contained, but the third became established and could not be controlled by ground crews already on scene. The fire spread rapidly and became a wildfire.

#### Contributing Factors and Victim Locations

The day before the controlled fire's escape, a red flag warning was issued for strong and gusty winds. Within three hours of the fire's start, it had already spread to more than 100 acres (40 hectares), and within five hours it had burned into a residential area and ignited several structures. The resulting fire killed three people, burned 4,140 acres (1,675 hectares) and destroyed 27 homes. Two of the victims were a married couple, and both bodies were found at their home, one inside and one outside. The third victim was found in her home.

## RESIDENTIAL PROPERTIES

### Pennsylvania

#### Date, Time of Alarm, Dollar Loss

April, 2:38 p.m., \$25 million

#### Property Characteristics and Operating Status

This fire involved a three-story, 30-room, single-family home of heavy-timber construction with granite block walls. The structure covered 22,000 square feet (2,044 square meters) and was occupied when the fire broke out. The house included several attached buildings of various heights.

#### Fire Protection Systems

There was a complete coverage fire alarm system present that was connected to a security company. The system operated and notified the company, which in turn called the fire department using 911. There was no suppression equipment present.

#### Fire Development

The fire began in the ceiling/floor space in the basement of an attached one-and-a-half-story building. Fire investigators could not determine the cause of the fire. The fire spread to a dumbwaiter that went up to the attic area. On the first floor, the dumbwaiter had been removed and equipment was installed in its place. The fire spread behind this equipment and up the rest of the shaft to the attic. From there, it spread throughout the attic of the structure, then down to the third floor.

#### Contributing Factors

Three firefighters suffered minor injuries.

### Missouri

#### Date, Time of Alarm, Dollar Loss

August, 3 p.m., \$14 million

#### Property Characteristics and Operating Status

This was a four-story apartment building with 68 condominium units and was of unprotected wood-frame construction. The floor area was not reported. The building was occupied at the time.

#### Fire Protection Systems

There were smoke detectors as well as manual pull stations in the building. The detection system operated as designed. There was a sprinkler system present that had complete coverage in the occupied area of the building, and it operated. Its operation was reported as ineffective because there were no sprinkler heads in the attic, where the fire extended into the building, or on the balconies.

#### Fire Development

The fire originated on the second- or third-floor balcony and spread up the exterior, into the attic and fourth floor. No information was reported on the exact cause.

#### Contributing Factors

Due to the lack of sprinklers in the attic area and on balconies, the fire was not controlled in its early stages. The fire department reported that two thunderstorms during suppression activities contributed to the spread and intensity of the fire, but no additional information was provided.

### Ohio

#### Date, Time of Alarm, Dollar Loss

March, 12:37 p.m., \$10.9 million

#### Property Characteristics + Operating Status

This was a six-story, 45,000-square-foot (4,181-square-meter) apartment building with 150 units. The building was of fire-resistive construction and was occupied at the time.

#### Fire Protection Systems

There were smoke alarms in the hallways that activated. Although a partial sprinkler system was present, its type was not reported and it did not operate, as the fire was not in the protected area. Smoke and fire dampers on the first three floors operated properly.

#### Fire Development

While drilling footings for new patios, a construction worker drilled into the main gas line. He immediately shut down his vehicle, and escaped the area. He and several other people started to evacuate occupants from the building. Twenty minutes later a furnace started and ignited the gas. Flames on the outside of the apartment building reached as high as the third story, then spread into an apartment on the third story and burned down to the first story.

#### Contributing Factors

Firefighters had to wait two and a half hours for a shut-off valve to be located by the gas company. While waiting for the gas to be shut off, firefighters tried to contain the fire and keep it from entering the structure. Three firefighters and one civilian were injured during the fire.

## STORES AND OFFICES

### California

#### Date, Time of Alarm, Dollar Loss

August, 1:56 a.m., \$25 million

#### Property Characteristics + Operating Status

This was a one-story, 200,000-square-foot (18,581-square-meter) party goods store of unprotected ordinary construction. The store was closed at the time of the fire.

#### Fire Protection Systems

There was no automatic detection or automatic suppression equipment present.

#### Fire Development

This fire of undetermined cause broke out in a product storage area. No additional information was reported.

#### Contributing Factors

Upon arrival, firefighters found this store fully involved in fire, with the fire self venting the roof. A heavy roll-up door was opened and an attack on the fire was made, but firefighters switched quickly to a defensive attack. The loss was estimated as \$20 million to the structure and \$5 million to the contents.

### New York

#### Date, Time of Alarm, Dollar Loss

October, 3:45 a.m., \$10 million

#### Property Characteristics + Operating Status

This was a one-story, 10,000-square-foot (929-square-meter) automobile dealership of unprotected ordinary construction. The dealership was closed at the time of the fire.

#### Fire Protection Systems

There was no automatic detection or automatic suppression equipment present.

#### Fire Development

This fire originated as an unspecified short circuit at an electrical junction box in a storeroom. The fire spread to boxed materials and flammable fluids then throughout the business.

#### Contributing Factors

According to fire officials, the spread of fire throughout the building was influenced by the lack of detection and suppression equipment, as well as the storage of vehicles within. This led to a fire that was uncontrollable when firefighters arrived. A collapse of the building hindered firefighters in their ability to extinguish the blaze in its early stage. Heavy equipment was brought in to remove the collapsed area so firefighters could completely extinguish the fire.

## BASIC INDUSTRY

### Massachusetts

#### Date, Time of Alarm, Dollar Loss

March, 6:30 p.m., \$22 million

#### Property Characteristics + Operating Status

This fire involved two electric transformers. No information on their size, height, or construction was reported.

#### Fire Protection Systems

It was not reported if there were smoke alarms present. There was a suppression system present with partial coverage. The system did not operate, but no reason was reported.

#### Fire Development

The fire started when there was an electrical malfunction. No additional information was reported.

#### Contributing Factors

Heavy smoke was visible from a nearby fire station, and the first arriving ladder company ordered a second alarm. Signage warned of a water-reactive material present, so hose lines were not used to fight the fire. Two nearby high-rise hotels were evacuated. Blitz guns were set up to cool the surrounding structure. A second transformer in the structure blew out, causing a blackout over a wide area. The fire was extinguished with the use of foam.

### Hawaii

#### Date, Time of Alarm, Dollar Loss

August, 4:44 a.m., \$10 million

#### Property Characteristics + Operating Status

This 25-foot (7.6-meter) high, single-story, 8,000-square-foot (743-square-meter) structure for power generation and storage was of unprotected noncombustible construction. The facility was operating at the time.

#### Fire Protection Systems

There were heat and smoke detectors present. The system activated and alerted a central monitoring station that in turn notified the fire department. There was no automatic suppression equipment present.

#### Fire Development

This fire originated in a power unit known as an inverter and was caused by an electrical malfunction/failure. The exact sequence of events resulting in fire is not known at this time.

#### Contributing Factors

The loss was reported as \$400,000 to the structure and \$9.6 million to the equipment within.

### STORAGE PROPERTIES

#### Minnesota

##### Date, Time of Alarm, Dollar Loss

June, 9:39 a.m., \$10 million

##### Property Characteristics + Operating Status

This was a one-story food storage warehouse of unprotected ordinary construction. The warehouse covered 112,500 square feet (10,452 square meters) and was operating with five people in the office area.

##### Fire Protection Systems

There was a fire alarm system present that activated and alerted occupants. There was a wet-pipe sprinkler system present, which operated with 17 heads flowing. The system was ineffective, but the reason why was not reported.

##### Fire Development

The fire broke out in the ceiling/roof component, but the cause was listed as undetermined.

##### Contributing Factors

The loss was estimated at \$6 million to the structure and \$4 million to the contents.

#### California

##### Date, Time of Alarm, Dollar Loss

November, 2 p.m., \$10 million

##### Property Characteristics and Operating Status

This was a large steel flammable fluid storage tank. The tank was located in a flammable fluid processing plant. No information was reported on the size of the tank.

##### Fire Protection Systems

It was not reported if there was a smoke alarm system present. There was an unreported type automatic suppression system present that operated and was reported as not effective. No additional information was reported on the type of system or why it was ineffective.

##### Fire Development

The fire broke out in the tank, but the cause was listed as undetermined.

##### Contributing Factors

No additional information was reported.

### SPECIAL PROPERTIES

#### Arizona

##### Date, Time of Alarm, Dollar Loss

September, 3:15 p.m., \$10 million

##### Property Characteristics and Operating Status

This three-story apartment building was under construction and was of unprotected wood-frame construction. It was part of an apartment complex that covered 12 acres (5 hectares) with seven three-story, wood-frame buildings completed and occupied and five buildings of the same construction materials under construction. There were also eight garage buildings under construction. There was a security guard on site at the time of the fire.

##### Fire Protection Systems

There were no smoke alarms present at this point in construction. There was a sprinkler system partially installed, but it was not yet completed or operational.

##### Fire Development

A fire broke out in a second-story center apartment in the bathroom area. It was caused by plumbers' hot work igniting fiberboard being used in the wall construction around a water heater. Upon arrival of the fire department, three buildings under construction were already involved in fire.

##### Contributing Factors

At the time of the fire, the temperature was 102 degrees F (39 degrees C), winds were 5 to 10 mph (8 to 16 kph), and relative humidity was 18 percent. The fire destroyed five three-story apartment buildings in various stages of construction, as well as four garage buildings, and damaged two occupied three-story buildings. A sprinkler system in a nearby occupied building activated when the fire caused a window to break and ignited that building.

## Missouri

### Date, Time of Alarm, Dollar Loss

May, 5:11 a.m., \$10 million

### Property Characteristics and Operating Status

This was a four-story, 145,000-square-foot (13,471-square-meter), 73-unit apartment building that was under construction. Only a security person was on site at the time of the fire.

### Fire Protection Systems

No information reported.

### Fire Development

The cause is under investigation.

### Contributing Factors

The building was heavily involved in fire upon arrival of firefighters. A defensive attack was initiated. There was heat damage to several nearby buildings.

## VEHICLE FIRE

## Maine

### Date, Time of Alarm, Dollar Loss

May, 5:40 p.m., \$400 million

### Property Characteristics and Operating Status

This was a U.S. Navy nuclear submarine that was undergoing rehabilitation in dry dock with all operating systems off. The submarine was almost 362 feet (110 meters) long and nearly 33 feet (10 meters) wide. There were 50 shipyard employees and crew members working on board the vessel at the time of the fire.

### Fire Protection Systems

No information was reported.

### Fire Development

A lighter was used to ignite a bag of cotton rags in a state room in the submarine's forward compartment.

### Contributing Factors

This was the first and largest of two arson fires associated with this incident, and occurred on board the submarine. Crew members, shipyard firefighters, and fire departments from a number of surrounding communities fought this fire for 12 hours before it was finally extinguished. There were five injuries to personnel who fought this blaze. About three weeks later, a civilian employee of the shipyard was arrested after he was caught lighting the second fire outside the submarine. He pled guilty to two counts of arson. He was sentenced to 205 months in prison and ordered to pay \$400 million in restitution.

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