

Selected Published Incidents Involving Heating Equipment

**One-Stop Data Shop
Fire Analysis and Research Division
National Fire Protection Association**

September 2012



**National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471
www.nfpa.org**

This report includes articles from NFPA publications about fires involving heating equipment. Included are short articles from the “Firewatch” or “Bi-monthly” columns in *NFPA Journal* or its predecessor *Fire Journal* and incidents from either the large-loss fires report or catastrophic fires report. If available, investigation reports or NFPA Alert Bulletins are included and provide detailed information about the fires.

It is important to remember that this is anecdotal information. Anecdotes show what can happen; they are not a source to learn about what typically occurs.

NFPA’s Fire Incident Data Organization (FIDO) identifies significant fires through a clipping service, the Internet and other sources. Additional information is obtained from the fire service and federal and state agencies. FIDO is the source for articles published in the “Firewatch” column of the *NFPA Journal* and many of the articles in this report.

For more information about the National Fire Protection Association, visit www.nfpa.org or call 617-770-3000. To learn more about the One-Stop Data Shop go to www.nfpa.org/osds or call 617-984-7443.

Copies of this analysis are available from:

National Fire Protection Association
One-Stop Data Shop
1 Batterymarch Park
Quincy, MA 02169-7471
www.nfpa.org
e-mail: osds@nfpa.org
phone: 617-984-7443

NFPA Index No. 1749
Copyright © 2012, National Fire Protection Association, Quincy, MA

Mother, son die in house fire, Washington

A passerby called 911 at around midnight to report a fire that killed a 41-year-old mother and her 2-year-old son as they tried to escape from their single-family home. Firefighters found the two next to the crib in the child's second-floor bedroom, overcome by smoke.

The two-story, wood-frame house had smoke alarms outside the bedrooms and on each level. They operated as designed.

Investigators determined that a cloth dog bed placed too close to an operating portable space heater ignited and that the resulting fire spread to a couch, filling the house with heavy smoke. They believe the mother became disoriented when she went upstairs to rescue her son from his crib and sat down on the floor with the child.

The house, which was valued at \$171,500, sustained \$30,000 worth of damage. Its contents, which were valued at \$25,000, sustained an estimated loss of \$5,000.

Kenneth J. Tremblay, 2012, *NFPA Journal*, May/June, 36.

Elderly man dies in manufactured home fire, Idaho

A fire in a manufactured home, which was built before the Department of Housing and Urban Development promulgated its fire safety requirements, resulted in the death of an 85-year-old man.

The manufactured home, which was 65 feet (20 meters) long and 12 feet (4 meters) wide, had wooden walls and a metal roof. There was a bedroom at one end of the structure, and a bathroom, kitchen, and living room in the middle and at the opposite end. Instead of drywall, the builder had used wood paneling to cover the home's inside walls. There were no smoke alarms, and the house did not have sprinklers.

A neighbor discovered the fire when he saw smoke coming from the home. He went to the front door and called out to the elderly man, then went into the home to try to find him. However, they had to leave when heavy smoke turned to flames that quickly swept through the structure.

The fire department received a 911 call at 5:20 p.m., and responding firefighters found that the fire had flashed over before they arrived, totally engulfing the house. It had already spread to two vehicles parked beside it and was also threatening two adjacent manufactured homes.

Firefighters deployed three 1 3/4-inch hose lines and a 2 1/2-inch line, first on the exposures and then on the burning home. They managed to extinguish the blaze but, given the condition of the structure, did not attempt a rescue. They later found the victim's body laying on the floor in the kitchen, where he had succumbed to smoke inhalation.

Investigators determined that the fire started near the wood stove in the living room. The stove's door was open and a bucket of kindling was sitting directly in front of it. A dustpan was just inside the door of the stove, and it appeared that burned wood inside it had been pushed to the side. While the exact scenario is not clear, investigators deduced that the fire began in the area of the wood stove and the kindling bucket. The victim's son, who had visited his father earlier in the day, said that everything appeared to be normal, although his father had repeatedly told him he was cold. When he left, his father was sleeping and the heat was on. The wood stove was not in use, its door was shut, and three kindling buckets were lined up along the wall. The man also noted that his father had seemed weak.

The house and its contents, valued at \$25,000, were destroyed. A storage shed, a tool shed, and two vehicles sustained an additional \$13,500 in damage. Three other homes were also damaged, with losses totaling \$11,300.

Kenneth J. Tremblay, 2012, *NFPA Journal*, May/June, 30-31.

Fire above sprinklers causes significant loss, California

A fire that started when a gas-fired ceiling heater near a loading dock malfunctioned severely damaged a retail food store.

The single-story, wood-frame building, which was 300 feet (91 meters) long and 150 feet (46 meters) wide, had wooden walls, a flat roof, and a wet-pipe sprinkler system.

An occupant of the store discovered the fire and called 911 at 2:30 p.m. On arrival, the incident command ordered additional resources, including two ladder trucks. Only when the roof was properly vented were firefighters able to extinguish the blaze.

Investigators determined that the ceiling heater ignited the store's roof rafters and insulation. Although the building was sprinklered, the flames burned above the sprinklers, allowing the fire to spread over a 30-square-foot (3-square-meter) area.

The building, which was valued at \$397,000, sustained \$350,000 in structural damage. Its contents, valued at \$300,000, were destroyed. There were no injuries.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, March/April, 22.

Victim dies in bed in house fire, Maryland

Firefighters extinguishing a fire in the first-floor living room of a single-family house found the body of a man in his second-floor bedroom. Another occupant of the home called the fire department to report the fire at 5:30 a.m.

The two-story, wood-frame home, which was 40 feet (12 meters) long and 25 feet (8 meters) wide, had a brick exterior and an asphalt-shingled roof. There were no smoke alarms or fire sprinklers.

Investigators determined that an electric, radiator-type space heater placed too close to combustibles on the first floor ignited them. Heavy smoke and heat spread to the second floor where the victim was found. He died of smoke inhalation; alcohol intoxication may have been a contributing factor.

Loss figures were not reported.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, March/April, 15.

One dead in fire started by space heater, Oklahoma

An 80-year-old man died in his single-family home in a fire that started when a portable space heater ignited nearby curtains. The victim was using the space heater to keep warm during very cold weather.

The wood-frame house, which was 50 feet (15 meters) long and 30 feet (9 meters) wide, had a wooden roof covered with asphalt shingles. There was no fire detection or automatic suppression equipment.

A passerby noticed the fire and called 911 at 3:50 a.m.

Investigators determined that the space heater ignited the bedroom curtains and noted that the victim may have been visually impaired, which could have contributed to his death.

Estimates of damage to the house and its contents were not reported.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, January/February 16.

Fire causes major damage during renovations, Colorado

A seasonal, single-family home undergoing a substantial renovation was heavily damaged by a fire that is believed to have started after contractors installed wood siding around a flue pipe and exterior vent cap.

The two-story, wood-frame house, which was 62 feet (19 meters) long and 44 feet (13 meters) wide, had a wooden roof covered with asphalt shingles and wooden siding. It had no automatic sprinklers, and the monitored fire detection system was shut off during the renovation.

A neighbor noticed the fire in the home's kitchen and called 911 at 7:47 p.m. Firefighters responding to the alarm saw flames coming from the building before they arrived at the scene. By the time they got there, the fire had involved almost the entire interior of the house and was threatening an exposure 15 feet (5 meters) away. The firefighters also heard several explosions inside the house. When the incident commander ordered a defensive attack on the fire and the

neighboring structure, firefighters used two elevated master streams and three hose lines to bring the blaze under control.

Investigators noted a freestanding, natural-gas-fired stove in the area where the neighbor first noticed the fire. The owner reported that the stove had been in place for 15 years and that contractors reported it had been used continuously for at least two weeks before the fire. No previous issues had been noted. The investigators determined that some adjustments were made to the flue and cap when the siding was installed and that the siding was in direct contact with the flue. When the stove was used during the day, it heated the siding until ignited. The fire then spread throughout the open-plan house.

The home and contents, together valued at almost \$2 million, sustained more than \$1 million in damage. There were no injuries.

Kenneth J. Tremblay, 2011, "Firewatch," NFPA Journal, November/December, 18.

Space heater starts fatal fire, Oregon

A 48-year-old woman died of smoke inhalation in her single-family home when a portable space heater placed too close to bedding started a fire.

The interior walls of the two-story, wood-frame house, which covered an area of approximately 2,100 square feet (195 square meters), were covered by gypsum board, and the framed roof was covered with asphalt shingles. The home had been built in 1998. Hardwired, interconnected smoke detectors with battery backup were located in each bedroom, outside each bedroom, and in the hallways and common areas. There were no sprinklers.

When the owner of the house discovered the fire, she called 911 twice on her cell phone but hung up both times. However, an off-duty firefighter from another community was passing by and saw the fire. He and a neighbor called both called and reported the fire to 911 at 9:44 a.m.

Responding firefighters arrived to find smoke coming from the house and flames showing from a side window on the second floor.

Advancing a hose line into the building, they quickly extinguished the blaze before it had time to spread far. They found the victim in the bathroom off a bedroom, where the fire started. EMS treated on the scene and transported her to the hospital, where she died.

Investigators determined that, sometime after the portable space heater ignited the woman's bedding, she awoke and fled to the bathroom, where she was overcome by smoke. The coroner found high levels of alcohol and carbon monoxide in her blood stream.

Damage to the home valued at \$264,000 was estimated at \$180,000.

Kenneth J. Tremblay, 2011, "Firewatch," NFPA Journal, November/December, 16.

Early morning house fire kills sleeping man, California

A 46-year-old man died of smoke inhalation in the single-family home he rented when a burning log rolled out of a wood stove and ignited the wooden floor. The early morning fire spread to the first and second floors before neighbors detected it.

The two-story, wood-frame house, which was 100 feet (30 meters) long by 30 feet (9 meters) wide, was originally built as a one-story house in 1937. A second story was added in the 1980s, and an attached carport was converted to a garden shed. The property had no smoke alarms or sprinklers.

Neighbors were alerted to the fire by cracking and popping sounds, explosions, and light coming from the home's windows. Initially, there was some confusion about the nature of the fire, as the first 911 reports at 1:29 a.m. mentioned a medical emergency and a tree fire before a structure fire was finally confirmed. Firefighters, who arrived five minutes after the alarm, were told that an occupant might still be in the building.

Fire crews deployed hose streams to protect exposures, including a large wood pile outside the house, as additional engine and ladder companies set up a water supply and heavy stream appliances for a defensive attack. Most of the house, with the exception of the bedroom in which the victim was found, sustained significant fire damage.

Investigators discovered that the wood floor below the wood stove in the first-floor family room was damaged and determined that the area of origin was just in front of it.

The house, valued at \$850,000, and its contents, valued at \$30,000, were completely destroyed. Investigators believe that alcohol intoxication may have contributed to the victim's death.

Kenneth J. Tremblay, 2011, "Firewatch", *NFPA Journal*, May/June, 42.

Wall heater starts fire, killing two women, Washington

An 84-year-old woman with a physical disability died when she was trapped in her bedroom by a fire that began in her 69-year-old daughter's bedroom when a wall heater ignited bedding pushed up against it. A neighbor discovered the fire and called 911 at 4 p.m.

According to investigators, the victim's daughter, who had cognitive disabilities, awoke to find her bed on fire and tried to extinguish it, but the fast-spreading flames forced her from her first-floor bedroom. She managed to escape through the basement.

Firefighters found her mother dead of smoke inhalation in another first-floor bedroom at the other end of the house. A delay in alarm may have contributed to her death.

The single-family, three-story, wood-frame house, which was 55 feet (17 meters) long and 30 feet (9 meters) wide, had no smoke alarms or sprinklers. The home, valued at \$270,000, sustained \$80,000 in damage, and its contents, valued at \$50,000, sustained damage estimated at \$45,000.

Kenneth J. Tremblay, 2011, "Firewatch", *NFPA Journal*, May/June, 36-38.

Wall heater starts fatal fire, Oklahoma

Combustibles placed too close to a propane-fired wall heater in a single-family house caught fire, and the blaze spread through the house, killing a 15-year-old boy diagnosed with autism spectrum disorder.

The one-story, wood-frame house, which covered 1,800 square feet (167 square meters), had rock walls and a wooden roof covered by metal over asphalt and wood shakes. There were no smoke alarms or unsprinklers.

A passerby discovered the fire and reported it at 6:20 a.m. By the time firefighters arrived 8 minutes later, smoke and flames were coming out of every window of the house.

The boy's 50-year-old mother, who had managed to escape from the house, told fire crews that her son was still inside. Firefighters laid hose lines and tried to knock the fire down so they could search for the boy, but they were blocked by debris. They tried a second time from the rear, but were still unable to find him. When they finally extinguished the blaze, they discovered the boy's body in the kitchen.

Investigators determined that the fire started in a wall heater in the living room and intensified after two small cylinders of medical oxygen failed.

The blaze destroyed the house, which was valued at \$60,000, and its contents, valued at \$40,000.

Kenneth J. Tremblay, 2011, *NFPA Journal*, March/April, 25.

Child dies in fire in recreational vehicle, Iowa

An 8-year-old girl died of smoke inhalation and burns in a fire in a recreational vehicle that had been set up as living quarters.

The 30-foot (9-meter), metal-frame vehicle, which had metal siding and a fiberglass roof, was located in a salvage yard next to a garage, from which an extension cord had been run to supply it with electricity. There were no smoke alarms in the sleeping areas.

The day of the fire, the girl had stayed home with her father, who worked nearby, while her mother and another child were out. When her mother arrived home, she noted nothing unusual until she opened the door to the vehicle and thick, black smoke came rolling out.

Calling their daughter's name, the girl's parents emptied a fire extinguisher on the blaze, which momentarily squelched the flames. However, the fire roared back, quickly filling the interior and venting out the roof.

Firefighters received a 911 call reporting the fire at 5:41 p.m., and arriving units reported heavy smoke and fire showing from the vehicle. Crews quickly extinguished the blaze and found the child in a rear bedroom, overcome by smoke.

Investigators discovered that the family had slept inside the vehicle the previous night, using two portable electric heaters and a portable propane-fired heater for heat. They believe that the propane heater was placed too close to combustibles and ignited them.

The vehicle and its contents, together valued at \$5,000, were destroyed.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, January/February, 26-27.

Gasoline fire kills child, Colorado

A 21-month-old boy died of burns when a portable heater ignited vapor from gasoline his father and uncle were using to clean a boat engine in their garage. The garage, which was attached to a two-family, wood-frame house, had no sprinklers.

Shortly before the fire started, the uncle had gone into the house. Moments later, as the father opened the door from the garage to the house, he heard a whoosh and turned to see his son's clothing in flames. He grabbed the boy and ran out of the garage through the open garage door to the driveway, but the child had been too badly burned to survive. His father, though injured, survived.

Someone in the house called 911 at 11:57 a.m., and firefighters arrived 5 minutes later to find the garage filled with flames. The house was filled with smoke, and the second-story exterior was starting to burn. Crews fought the fire and cared for the two victims.

Investigators determined that the fire began when the portable electric heater ignited vapors from gasoline that had spilled from the 2 ½-gallon (9-liter) gasoline container.

The house, valued at \$250,000, and its contents, valued at \$80,000, sustained estimated damage of \$100,000 and \$75,000, respectively.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, January/February, 23.

Heater starts deadly fire, California

An 85-year-old woman died when clothing drying on a chair in front of a wall-mounted LP-gas heater in a bedroom of her unsprinklered single-family house ignited, starting a fire that spread throughout the house.

The one-story, wood-frame home, which was 100 feet (30 meters) long and 20 feet (6 meters) wide, had smoke alarms, but they did not activate.

The victim and her husband left the house after calling 911 at 7 p.m., but reentered it with a garden hose in an unsuccessful attempt to extinguish the blaze. Firefighters arriving 10 minutes after the alarm used a combination of exterior and interior attacks to put out the flames.

The victim was found dead on the ground outside. Her husband escaped unharmed through the back door.

The fire destroyed the house, which was valued at \$200,000, and its contents, valued at \$50,000.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, January/February, 22.

Space heater starts fatal house fire, North Carolina

A fire started by a portable electric space heater that had been placed too close to a pile of clothes in a bedroom fatally injured a 22-year-old man when it spread from the clothes to a dresser, rolled over the ceiling, and vented through the window of his single-family home.

A smoke alarm had been installed on the living room wall of the one-story, wood-frame house, but investigators could not determine if it had operated. The house had no sprinklers.

Firefighters arrived on the scene shortly after 6 p.m. to find heavy smoke coming from the gable ends of the house and flames venting from the rear bedroom window. After advancing a hose line through the front door, they found the victim and took him outside to perform CPR. Shortly afterward, the interior of the house flashed over.

The structure, valued at \$32,840, and its contents, valued at \$3,000, were destroyed.

Ken Tremblay, 2010, "Firewatch", *NFPA Journal*, September/October, 34.

Two die in fire caused by portable heater, North Carolina

A 13-year-old girl and a 13-month-old baby died of smoke inhalation when a portable electric heater ignited nearby combustibles in a bedroom of their single-family home. The wood-frame house had no smoke alarms or sprinklers.

An occupant of the one-story home called the fire department to report the fire at 9:43 p.m. On arrival, firefighters found heavy smoke coming from the house and fire showing from a window on the left side of the dwelling towards the rear. When they were told that children were trapped inside, crews entered with hose lines to search for them.

They found the baby lying on the bed and the 13-year-old on the floor next to it. Neither had a pulse.

Investigators determined that radiant heat from the heater ignited clothing and other items on the cluttered bedroom's floor. The fire spread to the furniture and rolled over the ceiling, igniting the entire room. The investigators also found that the natural gas meter had been shut off and locked.

The victims died of burns. Damage to the house, valued at \$37,000, was estimated at \$20,000. Damage to its contents, valued at \$20,000, was estimated at \$10,000.

Ken Tremblay, 2010, "Firewatch", *NFPA Journal*, September/October, 30.

Fatal Manufactured Home Fire, North Carolina

A 27-year-old man, a 28-year-old woman, a 7-year-old woman, a 7-year-old boy, and a 2-year-old girl died in their manufactured home in a fire that began when a portable electric heater ignited a sofa bed 3 to 6 inches (88 to 15 Centimeters) away.

The one-story, wood-frame home, which had metal exterior walls and a metal roof, was 65 feet (20 meters) long and 14 feet (4 meters) wide. The central living space was flanked at one end by a bedroom and at the other by two bedrooms. There were no smoke alarms or sprinklers.

A neighbor called 911 at 3:13 a.m. after hearing glass breaking and the home's occupant yelling to those still inside. Due to a language barrier, however, the dispatcher initially sent only the police. Responding to a second 911 call at 3:16 a.m., firefighters arrived 11 minutes later to find the home engulfed in flames. The blaze was threatening another home and two vehicles. Fire crews fought the fire defensively, placing the first hose lines to protect the exposures.

The sole survivor was treated by EMS for cuts and burns to his arms. He told firefighters that after he escaped, he went around the house, broke all the windows, and banged on the walls to alert the other occupants. In the process, he woke the neighbor who called 911.

After extinguishing the blaze, firefighters found three of the victims in the master bedroom and the fourth in one of the bedrooms at the opposite end of the house. They had all succumbed to smoke inhalation.

The house and its contents were destroyed.

Ken Tremblay, 2010, "Firewatch", *NFPA Journal*, May/June, 33-34.

Heating System Starts Fatal Fire, Michigan

A fire that started in a forced hot air gas-fired heating system spread through ductwork to upper portions of a two-story, single-family house, killing an 86-year-old woman. A smoke alarm outside the woman's bedroom operated, but she used a walker and a wheelchair, and was unable to escape.

The unsprinklered wood-frame house covered approximately 1,200 square feet (111 square meters).

The fire started in the basement near the furnace and spread through the forced air and return air ductwork to the attic. A neighbor who heard the operating smoke alarm called 911 at 4:30 a.m.

After the fire was extinguished, investigators had the furnace tested, and a valve connection problem was found. The home, valued at more than \$100,000, was a total loss. Its contents, similarly valued, were almost completely destroyed.

Kenneth J. Tremblay, 2010, "Firewatch", *NFPA Journal*, March/April 25.

Space Heater Starts Deadly Fire, Louisiana

Three occupants of a manufactured home managed to escape from a fire in the dwelling, but two 6-year-olds, an 8-year-old, and a 10-year-old died in the blaze.

The single-story dwelling, which was 15 feet (5 meters) wide and 80 feet (24 meters) long, had no smoke alarms or sprinklers.

A daughter who had been out for the evening returned home to find the house ablaze and, with the help of a neighbor, manage to rescue two of its occupants. A neighbor called 911, and the fire department responded at 12:05 a.m.

Arriving firefighters brought the fire, which started in a bedroom and spread down a hallway, under control and found all four victims in a bedroom at one end of the structure. They had died of smoke inhalation. The three survivors also suffered smoke inhalation injuries.

Investigators determined that a space heater in the bedroom of origin ignited clothing and that the fire spread to other combustibles.

The home, valued at \$70,000, sustained \$50,000 in damage. Its contents, valued at \$40,000, sustained \$25,000 in damage.

Kenneth J. Tremblay, 2010, "Firewatch", *NFPA Journal*, March/April 23.

Kerosene Heater Starts Fatal Fire, Arkansas

An 88-year-old woman died of burns and smoke inhalation she suffered when fuel from an operating kerosene heater spilled as it was being moved, setting their single-family, wood-frame house on fire.

The one-story home was built on a concrete slab and had an exterior brick veneer. The 2,000-square-foot (186-square-meter) structure had no smoke alarms or sprinklers.

The woman had asked her husband to look at the portable heater in the kitchen, which she said was making "a strange noise." As he started to move the heater outside, however, it "exploded on him." He dropped the heater and escaped, but his wife could not.

Firefighters arrived within minutes of a 7:29 a.m. 911 call and found heavy smoke and flames coming from the rear of the house. They tried to enter it to search for the trapped woman, but the heat kept them from making much headway. Hose lines were repositioned at the rear of the house to knock down some of the heavy fire, and teams cut a hole in the roof over the kitchen to allow heat and smoke to vent. When an interior crew entered the house, firefighters found the victim within 2 feet (61 centimeters) of the heater and extinguished the fire.

The woman had extensive burns to her head and face, as well as smoke inhalation injuries. Her 87-year-old husband suffered minor burns.

Damage to the house, valued at \$150,000, was estimated at \$100,000, while damage to its contents was approximately \$75,000.

Kenneth J. Tremblay, 2010, "Firewatch", *NFPA Journal*, January/February, 23.

Child Dies in Wood Stove Fire, Pennsylvania

A 2-year-old boy died of smoke inhalation injuries he sustained in a fire that began in a wall near a recently installed wood-burning stove.

The two-story, single-family, wood-frame house, which was 60 feet (18 meters) long and 20 feet (6 meters) wide, had no sprinklers. There was a smoke alarm on the first floor, but it had no batteries; there was no smoke alarm on the second floor.

The home's occupant installed the stove on the first floor, cutting into the wall to place the single-walled flue pipe. However, he neglected to install a thimble or use double-walled flue pipe, and radiant heat from the stove ignited the wall after several days of continuous burning.

A passerby saw the fire and called 911 at 7:30 a.m., but the fire had already heavily damaged the structure.

The home, valued at \$50,000, and its contents, valued at \$20,000, were completely destroyed.

Kenneth J. Tremblay, 2010, "Firewatch", *NFPA Journal*, January/February, 22.

Heater Ignites Bedding, North Carolina

A 45-year-old woman died in a fire started by a portable electric heater in her bedroom in her single-family home. The portable unit was the woman's only source of heat and had been left on all night because of the low temperatures.

A smoke alarm had been installed in the hallway outside the bedrooms, but investigators could not determine whether it operated. The wood-frame house had no sprinklers.

A passerby discovered the fire and asked a neighbor to call 911 before trying unsuccessfully to rescue the victim. Investigators learned that the woman, who had been drinking alcohol, was asleep when the heater next to the bed ignited her bedding.

The victim died of smoke inhalation, and the passerby was burned during the rescue attempt.

The house, valued at \$45,000, and its contents, valued at \$5,000, were completely destroyed.

Kenneth J. Tremblay, 2010, "Firewatch", *NFPA Journal*, January/February, 21.

Boy Killed in Manufactured Home Fire, Alaska

A 9-year-old boy died and his 12-year-old brother was injured in a fire that began when the flue pipe of a homemade wood stove in their 1970 manufactured home failed.

The home was actually made up of two unsprinklered manufactured homes placed side by side with a built-up, lean-to-style roof overhead. Occupants reported that the home had two smoke alarms, but investigators could not locate any, and a survivor did not hear a smoke alarm sound during the fire.

The occupants were eventually woken by smoke and heat, but not before the fire blocked the only working exit. Another door had been screwed shut, and the home had no emergency escape windows with no working phone, the residents were unable to call the fire department, and the fire was not reported for 20 minutes, when a passerby reported it by cell phone at 10:58 p.m.

Investigators determined that the occupants were burning unseasoned wood in the homemade wood stove and that the flue pipe had split, allowing creosote and burning materials to drop onto combustibles in the living room. The home's wooden wall paneling contributed to the rapid fire spread.

The home and its contents, valued at \$30,000, were destroyed.

Kenneth J. Tremblay, 2010, "Firewatch", *NFPA Journal*, January/February, 20-21.

Space heater causes fatal fire, Ohio

A 96-year-old woman died in her single-family home when a baseboard-style electric heater located too close to a family room couch started a fire that was further intensified when the aluminum regulator on a gas fireplace in the room failed. Fifteen minutes earlier, the woman had said goodbye to a visitor, who had not noticed that anything was wrong.

The two-story, wood-frame house had battery-operated smoke alarms on each level, which operated. The house was unsprinklered.

In a 12:11 p.m. call to the fire department, a passerby reported seeing fire at the rear of the house. While they were en route, firefighters were advised that a person was inside the house. Four minutes later, arriving firefighters found heavy black smoke coming from the home and fire showing across the house's rear facade.

The incident commander ordered two teams into the building, one for fire attack and the second for search and rescue. The second crew was driven back by the fire, but the first crew found the woman's body after they knocked down the blaze.

The house, valued at \$108,000, was destroyed, while its contents, valued at \$30,000, sustained \$15,000 in damage.

Kenneth J. Tremblay, 2009, Firewatch, NFPA Journal, May/June, 42.

Electric heat lamp starts fatal fire, Washington

An 80-year-old woman died in a fire that began when high winds knocked over an electric heat lamp she had placed on her patio to keep several cats warm. The lamp ignited wooden steps, and the resulting fire spread up the wood siding into the attic.

The one-story, wood-frame house did not have any smoke alarms or sprinklers.

A neighbor discovered the fire and called 911 at 12:31 a.m. Responding firefighters found the woman, with a phone in her hand, near the door of her bedroom, which was at the opposite end of the house from the patio. Unfortunately, she had already succumbed to smoke inhalation.

The house, valued at \$180,000, and its contents, for which no value was provided, were destroyed.

Kenneth J. Tremblay, 2009, Firewatch, NFPA Journal, May/June, 35.

Portable Heater Starts Fatal Fire, Oregon

A 39-year-old woman died in a fire that began in the bedroom of her single-family home when a portable space heater ignited some cardboard boxes.

The one-story, wood-frame house, which was 30 feet (9 meters) long and 24 feet (7 meters) wide, was unsprinklered, and investigators could not locate any evidence of smoke alarms.

A police officer on patrol discovered the fire and called in the alarm at 3:00 a.m.

Investigators, who found the house extremely cluttered, discovered that the woman was using a number of portable space heaters to heat the home. One of them had tipped over, igniting the boxes, and the fire spread to other combustible items nearby.

The fire destroyed the house, valued at \$40,000, and its contents, valued at \$10,000.

Kenneth J. Tremblay, 2009, *Firewatch*, *NFPA Journal*, March/April, 23.

Children Die in House Fire, Ohio

Despite the efforts of two babysitters to rescue them, three children under the age of 7 died in a fire that started in a first-floor room of their single-family house.

Smoke alarms had been installed in the basement and second floor of the three-story, wood-frame home, not the first, and investigators do not know if the second-floor alarm was operational at the time of the fire. The house had no sprinklers.

A neighbor saw flames and reported the fire around 12:30 p.m., and the call was relayed to an engine that was returning to the station from another call a few blocks away. When firefighters arrived a few minutes later, they discovered flames coming from the back of the building and heavy black smoke coming from the front.

The two injured babysitters, ages 13 and 11, were on the front lawn. They told the firefighters that three younger children were still in the house and pointed to a partially open window on the second floor when asked where they thought the children were.

Firefighters tried to enter the house using a ground ladder, but heavy black smoke and intense heat only allowed them to sweep the area around the window without success. Several crews managed to knock down the heavy fire at the rear of the house with hose lines and entered the home to search for the missing children. They found the 6-year-old victim on the first floor and the 1- and 2-year-olds in a second-floor bedroom. All had succumbed to smoke inhalation.

Investigators determined that baseboard heaters on the glassed-in porch ignited the curtains, and the fire spread to the cedar siding on the interior wall of the porch. At some point, one of the sitters heard a popping sound and went to investigate. She found the curtains on fire and told the 6-year-old, who was on the first floor, to get out of the house. She had gone up to the second floor to gather the other two children and the other sitter when the fire vented through the windows, resulting in flashover. As heat and smoke quickly filled the upper floors, the two sitters jumped from a second-floor window to the ground. Firefighters found the 6-year-old near the front door, which was locked and could not be opened.

Damage to the house was estimated at \$125,000, while damage to its contents was estimated at \$50,000. One firefighter was injured when he fell during extinguishment.

Kenneth J. Tremblay, 2009, "Firewatch", *NFPA Journal*, January/February, 20-21.

Children Die in Portable Heater Fire, California

Three children died in an early morning fire that began when a portable electric heater ignited fabric and carpet in the living room of the converted garage in which they lived. A lack of smoke detectors and building code violations contributed to the tragedy.

The single-story, wood-frame garage, which was 40 feet (12 meters) long and 12 feet (4 meters) wide, was built on a concrete slab and had an asphalt roof. There were no sprinklers.

Investigators believe the fire burned for 10 to 15 minutes before it was discovered.

The children, ages 6, 7, and 9, died of smoke inhalation. The building, which was valued at \$30,000, sustained property damage estimated at \$25,000. Its contents, valued at \$15,000, were destroyed.

Kenneth J. Tremblay, 2009, "Firewatch", *NFPA Journal*, January/February, 18-19.

Man Dies Trying to Remove Burning Mattress, Wisconsin

A 27-year-old man suffered third-degree burns over 90 percent of his body when he tried to remove his burning mattress from his third-floor apartment.

The three-story, three-unit, wood-frame building had one apartment on each floor. Battery-operated smoke alarms on the first and second floors failed to operate during the fire, and no smoke alarm was found on the third floor. The building was unsprinklered.

An occupant of an apartment on a lower floor heard screaming from the apartment above and called 911 at 6:46 a.m. Firefighters arrived minutes later to find heavy smoke coming from the third-floor unit. When they tried to enter the apartment, they found the doorway blocked by a burning mattress that lay on the kitchen floor.

They quickly extinguished the fire and found the unconscious victim in the bathroom. He was taken to the hospital and later airlifted to a burn unit, where he died.

Investigators determined that the man's bedding had come into contact with the electric baseboard heating unit and ignited. The fire then spread to the mattress and to other combustibles as he tried to drag it out of the unit. He managed to get the mattress into the kitchen but no further before he had to retreat to the bathroom.

The home, which was valued at \$150,000, and its contents, which were valued at \$8,000, sustained property damage of \$25,000 and \$5,000, respectively. None of the occupants of the two lower floors were injured.

Kenneth J. Tremblay, 2009, "Firewatch", *NFPA Journal*, January/February, 17-18.

Smoke Kills 100-year-old Woman, Nebraska

A 100-year-old woman with a hearing impairment died in a fire that started in her single-family home's heating system and spread until it was detected by a neighbor. The woman did not have her hearing aids in place, and investigators believe the smoke alarm was not loud enough to alert her to the fire without them.

The unsprinklered, single-story, wood-frame house was 60 feet (18 meters) long by 30 feet (9 meters) wide. Its smoke alarm was located in the hallway near the bedrooms.

Investigators determined that the fire began in a basement furnace. It was an older model that required the operation of certain valves, and the investigators think the woman was unsure what position the valves should be in. When the furnace operated with the return line shut off, it malfunctioned and started the fire, which was not detected until smoke reached the upper level.

The house, valued at \$100,000, and its contents, also valued at \$100,000, were destroyed.

Kenneth J. Tremblay, 2008, "Firewatch," *NFPA Journal*, September/October, 29.

Natural gas leak causes explosion and fire, Massachusetts

Six people were injured in a fire in a two-family, wood-frame home that started when a gas water heater ignited an uncontrolled release of natural gas leaking into the house.

Six college students occupied the two-and-a-half-story, unsprinklered house. Smoke alarms were reportedly located on all floors, but investigators could not be sure because of the extensive damage.

A police officer was nearby helping a construction crew that was digging up the road when the house exploded and collapsed. Approximately 10 seconds later, a second explosion occurred, and fire was seen in the debris. The officer called the fire department at 11:08 a.m., and firefighters arrived within minutes to find 75 percent of the house involved in fire. A house next door was also damaged and threatened by fire when crews arrived. Firefighters used large master streams to control the fire, then multiple hand lines to extinguish it.

Investigators determined that gas entered the home under pressure and that it ignited with explosive force when it reached the basement water heater.

The house, valued at \$220,000, and its contents, valued at \$110,000, were destroyed. The house next door was condemned, and several other homes and some vehicles were also damaged. The six victims, who were taken to area hospitals with serious to minor injuries, ranged in age from 21 to 47.

Kenneth J. Tremblay, 2008, *Firewatch*, *NFPA Journal*, September/October, 23.

Furniture on Floor Furnace Ignites Fatal Fire, California

A 29-year-old man died and a woman was injured in an early-morning fire that began after a sofa placed over a floor furnace in the man's single-family home ignited and burned undetected. The one-story, wood-frame house, which measured 36 feet (11 meters) by 40 feet (12 meters), had no smoke alarms or sprinklers.

Firefighters responding to the 3:34 a.m. 911 call found the woman outside the burning house from which she had escaped by crawling through a bedroom window, sustaining numerous lacerations. Fire crews who entered the house in search of the other occupant found him in the bathtub, dead of smoke inhalation. Apparently, he had become aware of the fire but went to look for his cat rather than escape. The cat was found dead in one of the bedrooms.

Investigators found that the furnace's thermostat had been turned up and determined that the heat had caused the sofa to ignite. The fire burned in a V-pattern from the living room to other areas of the home and down to a crawl space below.

Damage to the house, valued at \$700,000, was estimated at \$200,000. Its contents, valued at \$400,000, were destroyed.

Kenneth J. Tremblay, 2006, "Firewatch," NFPA Journal, September/ October, 32.

Wisconsin

Dollar Loss: \$10,000,000

Month: February

Time: 10:20 PM

Property Characteristics and Operating Status:

This fire originated in a three-story, eight-unit condominium building that was under construction. It was of unprotected wood-frame construction and covered 25,000 square feet (2,322 square meters). There were 34 buildings in the complex, and the fire ultimately involved nine buildings. Some were complete but unoccupied and some were still under construction. Two buildings were completed and occupied. No one was on the construction site when the fire broke out.

Fire Protection Systems:

There was no detection equipment installed yet. There was a sprinkler system present, but its type and coverage was not reported. The system was not operational.

Fire Development:

Before leaving for the day, workers placed a portable heating unit in an elevator shaft to melt ice. The heater overheated wood framing materials installed in the shaft. The fire spread, engulfing the structure and spreading to another building that was under construction and a completed but unoccupied building. The fire department was notified by a neighbor in one of

the occupied buildings. Upon arrival, firefighters found one building had burned to the ground, one was fully engulfed and one had upper stories burning.

Contributing Factors and Other Details:

The buildings in the complex were only 20 feet apart, allowing the fire to spread to two other buildings, and embers ignited spot fires on several other of the nine buildings in the area, as well as dumpsters and construction equipment.

Stephen G. Badger, 2006, "Large-Loss in the US- 2005," NFPA Fire Analysis and Research, Quincy, MA.