

# **Selected Published Incidents Involving Medical Oxygen**

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

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This report includes articles from NFPA publications about fires involving medical oxygen. 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.

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### **House fire claims life of resident, Ohio**

A 53-year-old man who used a wheelchair died of smoke inhalation in a fire at a house he shared with his brother.

The one-story, single-family, wood-frame house was 40 feet (12 meters) long by 20 feet (6 meters) wide. A battery-operated smoke alarm in the hallway operated and woke the victim's brother, who was able to escape. There were no sprinklers.

The brother called 911 at 1 p.m. to report the fire, and firefighters arrived to find smoke and flames coming from the windows at the front of the house. They tried to force open the front door, but it was blocked by the victim, who had tried to escape in his wheel chair. He was found just inside the door of an enclosed porch. After firefighters took the door off its hinges, they finally managed to remove him and extinguish the fire, which had spread to the porch, the eaves, and the attic.

The victim's brother told fire department investigators that his brother was on medical oxygen.

The house, valued at \$8,500, sustained damage estimated at \$5,000. Its contents, valued at \$5,000, sustained an estimated \$3,000 in damage.

Kenneth J. Tremblay, 2014, "Firewatch", *NFPA Journal*, July/August, 34-35.

### **Home oxygen contributes to fatal fire, New Hampshire**

A 48-year-old man on oxygen therapy died in a fire that started when a cigarette he was smoking ignited bedding material and spread to the entire bedroom and throughout the home.

The single-story, metal-frame manufactured home, which was 10 feet (3 meters) wide and 60 feet (18 Meters) long, had no sprinklers. However, hardwired and interconnected smoke alarms in the bedrooms and living room operated and alerted two other occupants of the home, who were able to escape.

The fire department received a 911 call at 6:03 a.m., and responding firefighters found the home fully involved in fire. The incident commander ordered hose lines to two sides of the building to knock down the fire and protect the exposures.

Firefighters knew about the victim, but they fire prevented them from rescuing him. Once they brought the blaze under control, they found the man, who had limited mobility due to a chronic medical condition, lying over the edge of the bathroom tub with the water running. The woman who lived in the house was taken to the hospital for evaluation.

The house, which was valued at \$40,000, and its contents, valued at \$20,000, were destroyed.

Kenneth J. Tremblay, 2014, "Firewatch", *NFPA Journal*, January/February 33.

### **Woman dies in fire involving medical oxygen, Missouri**

Despite the help of a neighbor, a 73-year-old woman who had recently returned home after surgery and used medical oxygen died in a fire in her single-family home. She and her husband, who managed to escape, both had difficulty walking. She used a walker, and he used an electric scooter.

The two-story, wood-frame house, which was 66 feet (20 meters) long and 30 feet (9 meters) wide, had smoke alarms, but they were not operational. There were no sprinklers.

The fire was reported by a neighbor, who had gone to his kitchen to get a drink of water and noticed smoke and flames coming from the victims' front door. After calling 911 at 12:15 a.m., he ran over and found the woman's husband sitting on a lawn chair behind the home. When he asked him where his wife was, he said that she was still inside.

The neighbor entered the house, got to his knees because of the intense heat and smoke, and called out to the woman. She answered and told him she was in a living room chair. He crawled through the living room until he found her and dragged her along the floor and out the door.

Arriving firefighters found flames enveloping the entire front door, and a captain advised that the structure was fully involved. The engine and ladder crews worked together to deploy hose lines to knock down the fire and enter the house, while additional companies arrived to help the two occupants, first moving them farther away from the burning home. Although neither initially reported any problems, the woman said she had difficulty breathing and was taken to the hospital. While en route, she told the EMS crew that she had lit a cigarette while using medical oxygen and had seen a flash.

Her husband told the fire investigators that the oxygen concentrator, which was found at the point of fire origin, was plugged in at the time of the blaze. The investigators determined that the fire was caused by smoking while using medical oxygen, which intensified the fire.

The fire did \$70,000 worth of damage to the house, which was valued at \$140,000. Its contents, valued at \$90,000, also sustained an estimated \$70,000 in damage.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, September/October 28.

### **Woman on home oxygen dies while smoking, Michigan**

A 50-year-old woman weighing more than 400 pounds (181 kilograms) died of smoke inhalation in a fire that started while she was smoking while on home oxygen. Two other occupants of the single-family house, one of whom was also on home oxygen, managed to escape but were unable to help the victim.

The one-story, wood-frame house, which was 48 feet (14 meters) long and 27 feet (8 meters) wide, had no smoke alarms or sprinklers.

One of the occupants called 911 at 9:25 a.m., and responding firefighters found the interior of the home filled with heavy smoke. Several oxygen cylinders ruptured during the blaze.

Investigators determined that the victim was lighting a cigarette while using medical oxygen when the plastic oxygen tubing melted and ignited. She pulled the tubing from her nose and dropped it on the couch, which caught fire, too. Another occupant, also using medical oxygen, immediately shut off her own cylinder, but the victim's was left on. When the victim tried to stand, she fell to the floor. The two other occupants tried unsuccessfully to help her up.

The house, valued at \$80,000, and its contents, valued at \$20,000, were completely destroyed.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, September/October 27.

### **Overloaded power strip starts fatal fire, California**

A 55-year-old man, who had several disabilities, including blindness, died of exposure to heat and smoke in a fire that started in the bedroom where he was sleeping.

The man lived alone in a 900-square-foot (84-square-meter), single-story, wood-frame house. The house was equipped with a battery-operated smoke alarm, but the battery was reported to have been removed on the evening of the fire, when smoke from cooking set it off. The house had no fire sprinklers.

A neighbor heard banging and other activity about an hour before the fire was reported. This was not uncommon, but when it continued, the neighbor investigated, saw the fire, and called 911 around 4 a.m.

Investigators determined that several electrical appliances with large-diameter power cords were plugged into a power strip that was covered by clothes and books. The overloaded strip eventually generated enough heat to ignite the items covering it, and the fire spread to other combustibles in the room. A home oxygen generator and a spare oxygen bottle became involved and contributed to the fire's intensity.

The house and its contents, valued at \$100,000 and \$40,000, respectively, were destroyed. In addition to the victim's disabilities, blood tests revealed that he was both intoxicated and had both legal and illicit drugs in his blood stream when he died.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, March/April, 14.

### **Smoke kills two women with functional needs, Ohio**

A 77-year-old woman and her 58-year-old daughter, each of whom had limited mobility and health issues, died of smoke inhalation when they were unable to escape from a fire in their single-family home.

The one-story, wood-frame house, which was 48 feet (15 meters) long and 34 feet (10 meters) wide, had an asphalt roof. Hardwired smoke detectors with battery backup were located in and outside the bedrooms, but only one was functioning before the fire. There were no sprinklers.

Neighbors reported smelling something burning around 8 or 8:30 p.m. the evening of the fire, a few hours after the younger woman's daughter left for the evening. However, they could not locate the source and did not call the fire department.

When the daughter returned home around 4 a.m., she found the garage and the home's interior filled with smoke. She entered the house and tried unsuccessfully to wake up her mother and grandmother before going outside to call 911.

Firefighters arrived to find the interior filled with heavy soot from a smoldering fire. They also found the bodies of the victims in their bedrooms.

Investigators determined that the fire started when one of the women unintentionally dropped lit smoking material on the floor near oxygen tubing. The plastic tubing ignited and acted as a fuse over which the fire, fed by the oxygen, traveled through the house to an oxygen concentrator in the kitchen. There, the concentrator and a motorized wheel chair became involved in flames.

Heat from the fire also caused a water heater pipe nearby to fail, and water from the broken pipe acted as a sprinkler, knocking down most of the fire. However, the fire continued to smolder, producing the smoke and gases that filled the house.

The house, valued at \$97,600, sustained damage estimated at \$10,000, and its contents, valued at \$15,000, were ruined.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, January/February 14-15.

### **Smoking fire kills one, Iowa**

A 62-year-old man on home oxygen died of smoke inhalation in a fire in his second-floor studio apartment that started when a cigarette he was smoking ignited his bed and a chair.

The fire occurred in a group of four connected three-story apartment buildings 500 feet (152 meters) long and 30 feet (nine meters) wide. The buildings were constructed of heavy timber floor framing, with brick walls and an asphalt-shingled wood roof.

A monitored smoke detection system had been installed in the building's common areas, and the apartments were equipped with local alarms. Many of the apartments had smoke alarms that were not functional. The building was not equipped with sprinklers.

A passerby called 911 to report the fire at 7:34 p.m., and the fire department received the fire alarm from the monitoring station a minute later. Responding firefighters found the victim in a doorway. When they extinguished the fire, which was confined to the room, they found five oxygen cylinders and an oxygen accumulator in the room.

Damages were not reported.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, September/October, 16.

### **Medical oxygen a factor in fatal smoking fire, Ohio**

A 66-year-old woman who used medical oxygen died of injuries she sustained during an early morning fire that began when a cigarette ignited the mattress cover and sheet on the bed on which she slept.

The three-story, six-unit, wood-frame apartment building, which measured 43 feet (13 meters) by 72 feet (22 meters), had a brick veneer and an asphalt-shingled roof. A hardwired smoke alarm with battery backup had been installed in the apartment of origin, but it did not operate. The building had no sprinklers.

The fire was reported around 6 a.m., and arriving firefighters discovered that the fire had already burned itself out after filling the apartment with smoke. They found the victim dead of smoke inhalation, with some burns about her mouth and nose in the outline of an oxygen mask.

On the mattress, they noted a cigarette lighter, an empty pack of cigarettes, and two ashtrays with cigarette butts in them. Only two-thirds of the mattress and box spring was burned, but that portion was burned down to the springs.

Investigators determined that a cigarette ignited the woman's bedding and that the medical oxygen contributed to the fire. The smoke detector in the apartment was connected to the electrical system, but it did not appear to have functioned.

The building, valued at \$245,000, and the apartment's contents, valued \$10,000, sustained \$5,000 in damage.

Kenneth J. Tremblay, 2011, "Firewatch", *NFPA Journal*, July/August, 16-17.

### **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, "Firewatch," *NFPA Journal*, March/April, 25.

### **Medical oxygen contributes to fatal apartment fire, Washington**

An 80-year-old blind woman who was using home oxygen died in a fire that began when a heated towel she had in her lap ignited combustibles on or near the couch on which she was sitting.

The fire occurred in a fourth-floor unit of a six-story apartment building in which roughly 150 low-income older adults lived. The structure was of fire-resistive construction, with block walls and cement floors and ceilings. The building had a new wing and an old wing, which resulted in variations in fire detection and suppression systems. The old wing, in which the fire occurred, did not have sprinklers. The alarm system was being upgraded, but only single-station smoke alarms and pull stations were present at the time of the fire.

The smoke alarm alerted nearby residents, and the fire department was notified by pull stations and a 911 call shortly after 6 p.m. When a caregiver arrived at the apartment of origin, she heard the woman cry. She opened the door, crawled into the burning apartment, pulled the woman out, and took her to a neighbor's unit.

By the time firefighters arrived, smoke and flames were venting out a window. Crews raised an aerial ladder and used a ladder pipe to knock down the blaze before advancing hose lines to the fourth floor and completing extinguishment. The fire was confined to the unit of origin, but smoke affected portions of the fourth, fifth, and sixth floors. The fourth-floor hallway suffered heavy smoke and heat damage, but smoke damage to the fourth-floor units whose doors were closed was minor.

The woman, who suffered from burns and smoke inhalation, died of her injuries, but she lived long enough to tell investigators how the fire started. She had put a towel in her new microwave oven to warm it, removed the towel, and unfolded it. As it was being unfolded, she said, the overheated towel began burning. Investigators determined that oxygen flowing from an oxygen generator that was filling a nasal cannula on the living room floor was a contributing factor.

During the fire, six other residents of the building suffered smoke inhalation or stress-related injuries. An 88-year-old woman who had left the hospital without being treated died of a heart condition the following day.

The building, valued at \$8 million, sustained damage estimated at \$323,000. Its contents, valued at \$1 million, sustained a \$15,000 loss.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, March/April, 24-25.

### **Man on home oxygen fatally burned while smoking, Colorado**

An 86-year-old man with a physical disability was fatally injured in a fire that started when a cigarette ignited the tubing of his home oxygen unit and the flames, intensified by the oxygen, spread to the oxygen tanks. The victim's one-story, single-family, wood-frame dwelling had no smoke alarms or sprinklers.

The fire burned until the man's brother arrived home and found smoke coming from the house. Upon entering, he found his brother engulfed in flames. He managed to pull him to the front door, then went to a neighbor's house, where he called 911 at 12:38 p.m.

Firefighters arriving 3 minutes later struck a second alarm and called for an additional medical unit. As the fire grew, flames spread to oxygen tanks, causing them to fail and escalate the fire, which spread to the home's exterior. Once outside, the flames caused the natural gas meter to fail, filling the house with flammable gas that further intensified the blaze.

The house, which was valued at \$350,000, and its contents, valued at \$80,000, were destroyed.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, January/February, 24.

### **Smoking, home oxygen contribute to fatal fire, Minnesota**

A 54-year-old man suffering from lung disease and paraplegia was fatally injured in a town-house fire started by his cigarette. The property had hardwired smoke alarms in the hallway and bedrooms, but there were no sprinklers.

The victim was smoking in a recliner in the living room of the wood-frame town house when the cigarette fell from his mouth and ignited a medical oxygen tube. When the burning tubing fell to the floor, the flames spread to throw rugs, the chair, and the victim.

The victim used his cell phone to call 911, but, due to his lung condition, he could not make the dispatcher understand his address. The smoke alarms operated, but they were not a factor in this fire, as the victim was aware of the blaze as soon as it started.

The town house, valued at \$850,000, sustained less than \$2,000 in damage. The victim died of burns.

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

### **Medical oxygen intensifies fire started by smoking materials, Georgia**

Firefighters arriving at a 40-unit board-and-care facility seven minutes after receiving a 3:51 a.m. water flow alarm found that a sprinkler had already extinguished the fire, which began when the woman living in the unit dropped a cigarette on her upholstered lift chair. They removed the woman, who had been unable to open her door, without incident.

The sprinkler was part of a monitored wet-pipe sprinkler system that protected the three-story, wood-frame facility. The building, which covered almost 30,000 square feet (2,700 square meters), was also equipped with a fire detection system.

Investigators, who found evidence of improperly discarded cigarettes throughout the apartment, believe that the chair in which the woman dropped the cigarette was saturated with the home oxygen she was using. She had left the operating nasal cannula over the chair's arm when she got up to use the bathroom and returned to find the oxygen tubing and chair ablaze. She tried unsuccessfully to extinguish the flames with a pail of water before trying to leave the unit.

Damage was limited to the room of origin. The woman was not injured.

Ken Tremblay, 2010, "Firewatch", *NFPA Journal*, September/October, 31-32.

### **Smoking on oxygen ignites fatal fire, Ohio**

A 71-year-old terminally ill woman who was using oxygen died in her wood-frame home of burns after her cigarette ignited her clothing.

The two-story, single-family house was 40 feet (12 meters) long and 21 feet (6 meters) wide. A battery-operated smoke alarm was operating when firefighters entered the home. There were no sprinklers.

A passerby noticed the fire and called 911 at 5:30 p.m. Firefighters arriving seven minutes later found smoke coming from the front and side of the house on the first floor and saw the fire through a side window. Entering the house, they encountered heavy smoke and flames in a front room. After firefighters extinguished the fire, they found the victim's body.

Investigators concluded that the woman was smoking in the living room and that a hot ash or ember ignited her clothing. The fire then spread to a table and chair before it was extinguished.

The house, valued at \$112,000, sustained damages estimated at \$10,000. Its contents, valued at \$60,000, sustained \$20,000 in damage.

Ken Tremblay, 2010, "Firewatch," *NFPA Journal*, July/August, 25.

### **Woman killed by oxygen cylinder damaged by fire, Florida**

A 71-year-old woman died of blunt force trauma after she was struck in the head by an oxygen cylinder that became airborne when it was damaged by a fire in a home oxygen generator.

A neighbor heard the smoke alarm operating in the woman's single-family, wood-frame house and opened the front door to investigate. When he smelled smoke, he called 911 at 9:24 a.m. and waited for the fire department to arrive. Responding firefighters found the unconscious victim just outside her bedroom and extinguished the fire, confining flame damage to the bedroom.

Investigators determined that an arc in a home oxygen generator in the bedroom ignited the unit's plastic housing and that the fire spread to other combustibles in the room. During the fire, one of several small oxygen cylinders stored in the room was damaged and became airborne. The cylinder struck the ceiling, then hit the woman in the head.

The house, valued at \$128,000, sustained \$15,000 in damage; its contents, valued at \$15,000, sustained \$1,200 in damage.

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

### **Cigarette ignites home oxygen unit, Illinois**

Two sprinklers extinguished an apartment fire that started when a 78-year-old man removed the tubing of his home oxygen system, placed it near a cigarette burning in an ashtray, and left the room.

The eight-story, steel-frame, Type I fire-resistive apartment building had concrete floors, walls and roof. Brick covered the exterior, and the roof was of build-up construction. Each unit had battery-operated smoke alarms. A wet-pipe sprinkler system protected the entire building, and hardwired smoke detectors were located in the common areas. The sprinkler and detection systems were monitored by a central station alarm company.

Firefighters responding to the 6:30 a.m. water flow alarm found that the two sprinklers had already extinguished the blaze, which investigators determined began when the cigarette ignited the oxygen flowing from the oxygen unit's plastic tubing.

The building, valued at \$2 million, sustained no structural damage. Damage to its contents, valued at \$750,000, was estimated at \$15,000. The occupant of the apartment was treated for smoke inhalation.

Kenneth J. Tremblay, 2010, "Firewatch," *NFPA Journal*, January/February, 25-26.

### **Smoking, medical oxygen result in fire death, Kansas**

A 64-year-old man died in a fire that began when he dropped a cigarette on the sofa in the living room of his apartment. The man was using oxygen at the time, and the fire intensified as it spread along the tubing.

The one-bedroom apartment was located in a single-story, unsprinklered, wood-frame duplex with a wooden truss roof covered by asphalt shingles. It had smoke alarm but its operation was not reported.

The victim's next door neighbors called 911 at 8:24 p.m. when they returned home to find his windows blackened by smoke. By the time firefighters arrived, the fire was coming from the roof.

Crews entered the apartment and discovered the victim, who had a history of smoking and drinking heavily, in the living room. As they pulled him from the dwelling and began CPR, another team entered the building and extinguished the fire.

Investigators believe careless smoking cause the fire, which damaged the living room, hallway, and the bedroom where the oxygen concentrator was located. Three cylinders of oxygen were found in the room, but they were not involved in ignition.

The home sustained \$15,000 in damage. The victim, who used a walker, died of severe burns and smoke inhalation.

Ken Tremblay, 2009, "Firewatch," *NFPA Journal*, November/December, 21-22.

### **Smoking on oxygen injures one, Pennsylvania**

A resident of a board-and-care facility was burned and his bedding damaged by a fire started by a cigarette. The occupant, whose age was not reported, was smoking while using oxygen.

The four-story facility was 119 feet (36 meters) long and 46 feet (14 meters) wide. The building did not have sprinklers, although a fire detection system monitored by a central station alarm company provided full coverage. Each unit and all common areas had smoke detectors that worked as designed.

The fire department received the alarm from the alarm company at 3:40 p.m. Arriving firefighters found that a staff member had successfully extinguished the fire on the resident's bed using a 10-pound (5-kilogram) dry chemical fire extinguisher. The staff had been alerted to the fire by the fire detection system.

The structure, valued at \$300,000, sustained approximately \$2,000 in damage. Its contents, valued at

Ken Tremblay, 2009, "Firewatch", *NFPA Journal*, September/October, 25.

### **Home oxygen contributes to fatal fire, Nevada**

Two women, one aged 62 and the other 63, died in an early morning fire that began in the living room of their double-wide manufactured home. A third woman, also aged 62, managed to escape.

The 1,425-square-foot (132-square-meter) home, which was set on a stem-wall foundation and had a wood-frame roof covered with asphalt, had no sprinklers. It did have two battery-operated smoke alarms, but only one had a battery.

The working alarm activated, but the three women may have been awake already. One of them called 911 at 12:32 a.m. As the woman told the 911 operator that the living room and a bed were on fire, the operator heard the operating smoke alarm in the background.

Firefighters arrived to find the home well-involved in fire at one end and heavy, black smoke pouring from the windows. The woman who had escaped told firefighters that her two friends were still inside. Before crews could begin advancing a 1 3/4-inch hose line to the door, a small explosion blew out a living room window. Fighting through smoke, firefighters conducting a primary rescue search found the two victims and removed them from the dwelling. Firefighters also removed two dogs that died in the blaze.

Investigators could not decide between two possible causes. One involved the electrical cord powering the 63-year-old woman's home oxygen concentrator, which had been pinched by the frame of a bed in the living room. The other possibility was smoking in bed, as all three women smoked, and the investigators found evidence of smoking materials throughout the home, including the living room. The investigators recorded some evidence consistent with a more intense fire fed by oxygen before the oxygen cylinders exploded in the blast that responding firefighters heard outside the house.

The home, valued at \$263,625, sustained losses estimated at \$129,500. There was no estimate of contents value or loss.

Kenneth J. Tremblay, 2009, "Firewatch," *NFPA Journal*, May/June, 34.

### **Smoking, home oxygen fire, Colorado**

A 56-year-old man who used oxygen unintentionally ignited the oxygen tubing while smoking a cigarette in his bedroom.

The single-story, wood-frame apartment building contained eight units in a side-by-side configuration. The unit of origin, which had about 750 square feet (70 square meters) of living space, had neither smoke alarms nor sprinklers.

One of the apartment's three occupants was asleep on a couch in the living room when she was awakened by a pop that sounded to her like a firecracker. She sat up and saw flames coming from the end of the oxygen tubing, which was flying about in the man's bedroom. She called for a neighbor to help her get the man out of the burning room. They then evacuated without injury.

Investigators determined that the man fell asleep while smoking and that the burning cigarette ignited the oxygen tubing and the bedding. Statements by the occupants and a neighbor suggested that alcohol contributed to the fire. Ironically, the man who started the fire had suffered facial burns while smoking on oxygen two years earlier.

The building, valued at \$537,000, sustained losses of \$10,000. The resident of the next unit was displaced due to water damage.

Kenneth J. Tremblay, 2008, "Firewatch," *NFPA Journal*, September/October, 28-29.

### **Smoke detectors alert residents, fire department, Colorado**

The fire detection system of a high-rise apartment building housing older adults operated when a fire began in a 16th-floor-unit, notifying the occupants and the fire department. Firefighters managed to extinguish the blaze and limit loss to the apartment of origin. The 66-year-old woman who lived in the apartment was admitted to the hospital with life-threatening injuries.

The smoke detectors in the hallways and individual units of the 18-story independent living center were monitored by a central station alarm company. Although the building had no sprinklers, it did have a standpipe system that included an exterior fire department connection. During the fire, however, an obstruction in the pipe just beyond the connection prevented firefighters from boosting pressure in the standpipe system. The firefighters also had difficulty connecting hoses to some of the standpipe connections.

Firefighters at the scene of another fire nearby were notified of the alarm at the apartment building at 2:57 a.m. The first chief officer on scene saw smoke coming from a window and requested a full response. Noting that the fire alarm panel reported several activations on the 16th floor, he ordered firefighters to advance to that location. When they did, they found the victim in the stairwell on that floor, with second- and third-degree burns on her arms and legs, and first- and second-degree burns on her face. She also suffered from smoke inhalation.

While the woman was taken to the ground floor for treatment and transport, firefighters forced their way into the affected apartment, where they found the bedroom fully involved. They extinguished the fire before it spread to other units.

Investigators determined the cause of the fire based on physical evidence and the victim's statement that she had fallen asleep while smoking. Heat from the burning cigarette ignited her bed linen and heavily damaged the bedroom and the rest of the apartment.

Investigators also found an oxygen concentrator in the living room in the "on" position. The attached tubing was melted and severed at the bedroom door.

Investigators were unable to determine if the patient was wearing an oxygen cannula when the blaze began.

In addition to the burned woman, five other building residents were taken to the hospital, and two were kept overnight for observation.

Kenneth J. Tremblay, 2008, "Firewatch," *NFPA Journal*, September/October, 27-28.

### **Smoking with oxygen kills one, North Carolina**

An occupant of an elder-care facility died and several others suffered injuries from smoke inhalation during a fire that started when smoking materials ignited the victim's clothing while he was using medical oxygen equipment. Accounts differ as to whether the facility was a nursing home or a residential care facility.

The single-story, wood-frame building, which was 150 feet (46 meters) long and 60 feet (18 meters) wide, had brick exterior walls and an asphalt-shingled roof. The full-coverage fire detection system sent an alarm to the fire department. The building had no fire sprinklers.

The victim died as a result of a heart attack brought on by the fire. Damage to the building, valued at \$1 million, was estimated at \$250,000. Its contents sustained damages estimated at \$75,000.

Kenneth J. Tremblay, 2008, "Firewatch," *NFPA Journal*, May/June, 32.

### **Woman dies after cigarette ignites couch, Colorado**

A 64-year-old man was burned trying to rescue his 63-year-old wife from their manufactured home when a fire started by a cigarette engulfed the structure.

The home, which was manufactured in 1968, was 60 feet by 12 feet (18 meters by 4 meters). It had wooden walls and a flat roof, both covered in metal. Smoke alarms had been installed in the kitchen and bedroom hallways.

The man had just returned home from getting coffee when he found the house on fire. He tried several times to get in through a front door, but smoke and heat forced him back.

Firefighters arrived seven minutes after a passerby called 911 at 8:03 a.m. and found police officers caring for the injured man. They advanced a 1 3/4-inch hose line into the home through the front door and extinguished the fire, while other crews searching the structure found the fatally injured woman in a bedroom closet at the rear of the home. She was pronounced dead at the scene.

Her husband told investigators that when he left the house, his wife was smoking on the living room couch, and he advised her to go to sleep as she was dozing off. Supplemental oxygen was being used in the house, but the husband removed the oxygen concentrator from the front porch before firefighters arrived.

The house, valued at \$7,000, and its contents, valued at \$5,000, were destroyed. A dog also died in the fire.

Kenneth J. Tremblay, 2008, "Firewatch," *NFPA Journal*, May/June, 30.

### **Smoking on oxygen causes deadly fire, Colorado**

A 72-year-old woman who often smoked, even though she was on a home-assisted oxygen breathing apparatus, died in her home in an early-morning fire caused by her smoking materials.

The ranch-style, wood-frame house, which was 30 feet (9 meters) long and 28 feet (8 meters) wide, had exterior brick walls and an asphalt roof. It had neither smoke alarms nor sprinklers. The single-family home was occupied by the victim and two other adults.

One of the occupants awoke to the fire and called 911 at 4:12 a.m. Arriving police officers tried to enter through the front door, but they were driven back by high concentrations of heat and smoke.

However, one officer was able to remove a number of oxygen cylinders stored near the doorway, while others helped two occupants get out of the house through a front bedroom window. The fire quickly filled the living room window and the front door.

Fire crews arrived within five minutes of alarm and found heavy flames coming from the front and rear of the building. Just as an engine company was preparing to enter the front door with a hose line, they saw a white flash, heard a “whoosh” sound, and were driven back. A firefighter who fell on the ice while stepping away from the house injured his knee.

Meanwhile, knocking down the blaze as they went through the house, the interior fire crew found the body of the 72-year-old woman, who had obvious burn injuries.

Investigators discovered that the fire started in the living room where the victim often slept and where they found an oxygen concentrator, a lift chair, a wheel chair, and other items the victim used. They determined that a cigarette ignited her upholstered chair and that the fire spread from the living room to the kitchen and bedrooms.

The woman, who was terminally ill, often smoked in the living room and had occasional episodes of unconsciousness during which she dropped her cigarette on the furniture, resulting in burn marks. She normally lit her first cigarette of the day around 4:00 a.m., which is consistent with the fire’s time frame.

As the victim often watched television with the volume turned up, the other two occupants slept with their doors closed, a barrier that provided enough time for their rescue.

The home, valued at \$140,000, and its contents, valued at \$20,000, sustained damages estimated at \$70,000 and \$16,000, respectively.

Kenneth J. Tremblay, 2008, “Firewatch,” *NFPA Journal*, March/April, 27-28.

### **Careless smoking ignites deadly fire, North Dakota**

Careless smoking started a fire that killed an occupant of a manufactured home. The victim’s use of oxygen accelerated the fire.

The single-family home measured 75 feet (22 meters) in length and was 16 feet (4 meters) wide. The home did not have smoke alarms or sprinklers.

At 8:03 p.m., the fire department received a 911 call from a neighbor reporting the fire and a person trapped in the home. When the fire department arrived with three engine companies, fire was venting from windows. Crews entered the fully involved living room where the 54-year old victim was found on a couch.

Firefighters used two nearby hydrants and stretched four hose lines to control the fire. Investigators determined the victim had fallen asleep on the couch while watching television and smoking a cigarette. The cigarette ignited bedding covering the victim. Fire spread to other combustibles and oxygen tubing causing the fire to accelerate. The home, valued at \$24,500, was a total loss.

Kenneth J. Tremblay, 2007, "Firewatch," *NFPA Journal*, November/December, 19.

### **Man smoking in bed starts fire in hospice wing of nursing home, Florida**

A 62-year-old hospice patient who had already been caught smoking in bed earlier in the day started a fire that fatally injured him and threatened the nursing home's other occupants. At the time of the fire, nursing home patients occupied 177 beds. Seven other beds, including the victim's, were being used by hospice patients.

The single-story, 185-bed nursing home had four wings spread out like a compass around a central hub and. It was protected by a fire detection and suppression system and was fully staffed at the time of the alarm.

On the morning of the fire, a staff member discovered the victim, who was receiving oxygen through a nasal cannula, smoking in his bed. His cigarettes and lighter were taken from him and locked in a drawer. At 8:14 that evening, two nurses heard the fire alarm go off and saw smoke coming from the victim's room. Responding with a fire extinguisher, they saw flames around his legs. Heat drove them from the room before they could extinguish the fire. The nurses closed the victim's door to prevent the fire from spreading and began to evacuate patients from the wing.

The fire department received a central station alarm at 8:14 p.m. and dispatch called the facility, which confirmed the fire. Firefighters arrived a few minutes later to find smoke filling the wing and the staff removing patients. Advancing a hose line to the victim's room, they found that a single sprinkler had extinguished the blaze. They removed the victim to the hallway where he was pronounced dead. After finding another lighter and pack of cigarettes in the victim's pocket, investigators determined that the man had fallen asleep while smoking and his cigarette ignited the bedding. The victim woke and tried to escape, but he was overcome by smoke. The flames were further fueled by the medical oxygen.

Fire damage was limited to the bedding, the bed, and part of the room. The building's fire protection system had automatically activated the fire doors, confining the smoke damage to the hospice unit. The value of the building and its contents was not reported, but damage to the building was estimated at \$6,000. There were no other injuries.

Kenneth J. Tremblay, 2006, "Firewatch," *NFPA Journal*, May/June, 32.

### **Indiana, 2006**

A 75-year-old man was killed and a 35-year-old firefighter was injured in a cigarette fire in the older man's manufactured home. The fire began when a cigarette ignited a living room chair. The fatal victim, who required the use of a wheelchair and medical oxygen, was unable to

escape. The building and its contents, valued at \$30,000, suffered an estimated combined loss of \$15,000.

Source: NFPA's Fire Incident Data Organization (FIDO)

### **Nebraska, 2004**

A disabled woman, using medical oxygen, and two firefighters died in a cigarette fire in a single family dwelling. The cigarette ignited a sofa in the living room on the main floor. The oxygen distribution system caused the fire to spread quickly to the rest of the house. This caused the roof to collapse while the firefighters were on it. The building and its contents, valued at \$75,000, were a total loss.

Source: NFPA's Fire Incident Data Organization (FIDO)

### **Cigarettes, oxygen involved in fatal fire, Indiana**

A 66-year-old woman died of smoke inhalation and burns in her single-family home when her cigarette ignited her clothing and the chair in which she was sitting. The woman was using medical oxygen at the time of the fire.

The one-story, wood-frame house covered an area of 1,000 square feet (93 square meters). It had a working smoke alarm, but the location and type weren't reported. There were no sprinklers.

The victim called out to her housemate, who found her on fire and tried unsuccessfully to extinguish the flames. He then ran to a neighbor's house to call 911 at 5:18 a.m. Firefighters, who arrived within three minutes, quickly extinguished the fire, but the woman had succumbed to her injuries.

The house, valued at \$30,000, and its contents, valued at \$10,000, were destroyed.

Kenneth J. Tremblay, 2005, "Firewatch," *NFPA Journal*, May/June, 24.

### **Fire kills elderly smoker, California**

An 85-year-old woman died of heat and smoke inhalation injuries after she fell asleep while smoking and dropped her cigarette on the couch, which ignited. Oxygen from an oxygen cylinder that failed during the blaze made the situation worse. The woman lived in a three-story, 6,000-square-foot (557-square-meter), apartment building with wood floors and roof framing, stucco walls, and a shingled roof. The building had no smoke alarms or fire sprinklers.

Investigators believe the woman, who used a walker and medical oxygen, was awakened by the fire and tried to extinguish the blaze herself before calling 911, thus delaying the alarm. Property loss to the building, valued at \$3 million, was estimated at \$600,000. The contents, valued at \$35,000, were destroyed.

Kenneth J. Tremblay, Firewatch, *NFPA Journal*, January/February, 2004, Special On-Line Edition.

### **Man dies trying to smoke while using oxygen, Florida**

A 49-year-old man died of smoke inhalation and an entire wing of an assisted-living facility had to be evacuated after he tried to light a cigarette while using medical oxygen through a nasal canula. In the oxygen-enriched atmosphere, he inadvertently ignited his facial hair and the oxygen tubing.

The two-story, wood-frame facility had 168 beds and measured 257 by 257 feet (78 meters). A smoke and fire detection system had been installed, as had a wet-pipe sprinkler system that provided full coverage. There were also portable fire extinguishers in the hallway. Trying to extinguish the fire, the victim went into the bathroom still hooked up to the oxygen tubing, which began to melt and drop to the carpet. The facility's smoke detection system sounded. Staff members found the victim on the floor, just inside his room. One staff member pulled the victim into the hallway while another used an extinguisher.

The fire department received the fire-alarm activation from a central station alarm company at 6:45 p.m. After a follow-up call from the facility reported smoke in the first-floor hallways, dispatch upgraded the response and sent additional resources to the scene. Firefighters arrived within four minutes to find the occupants evacuating the building. Fire crews noted minimal smoke in a first-floor hallway where they found an occupant lying unresponsive. As fire crews removed him and put out the remaining fire with a portable fire extinguisher, the incident commander ordered a second alarm. The fire did not get big enough to activate the sprinklers. There was no fire damage to the structure, valued at \$3.1 million, and damage to the contents came to just \$500. No other residents or firefighters were injured during the incident.

Kenneth J. Tremblay, "Firewatch," *NFPA Journal*, January/February, 2004, Special On-Line Edition.

### **Sprinklers extinguish fire in home oxygen unit, Arizona**

Careless disposal of smoking materials contributed to the smoke-inhalation death of a woman in her single-family home, despite the activation of two sprinklers that extinguished the flames.

The single-story, wood-frame house, which measured 50 feet (15 meters) by 40 feet (12 meters), had a stucco exterior and a tile roof. The home had a wet-pipe residential sprinkler system and a local smoke alarm, but neither system was monitored, and the smoke alarm may not have activated during the fire.

Investigators believe that smoking materials carelessly disposed of in a wastebasket ignited paper. When the occupant discovered the fire, she moved the wastebasket to the sink to extinguish it, but not before the fire burned through plastic oxygen tubing running under the basket. Flames spread along the oxygen-enriched tubing, igniting an upholstered stool and the oxygen generator in the first-floor living room. The fire was finally extinguished by two sprinklers, which operated above each burning item.

Water flowing from under the garage alerted a neighbor, who called the fire department at 9:30 a.m. Responding firefighters discovered the woman in the bathroom, where she had succumbed to smoke inhalation.

The house and its contents, valued at \$200,000, suffered an estimated loss of \$40,000.

Kenneth J. Tremblay, 2004, *NFPA Journal*, November/December, 17.

### **Fire sprinkler extinguishes fire in nursing home, Florida**

A single fire sprinkler extinguished a fire in a nursing home patient's room, as staff and firefighters evacuated the occupants and treated the injured.

The single-story nursing home was 200 feet (61 meters) long and 100 feet (30 meters) wide. Detection and wet-pipe automatic fire sprinkler systems had been installed.

Firefighters responding to the 12:33 p.m. report of a fire arrived within four minutes to find heavy smoke in one wing. The facility's staff told fire crews that that section of the building had already been evacuated and that staff members had used a fire extinguisher to control the flames in the room. While firefighters went to locate the fire, which the single fire sprinkler had already extinguished, the incident commander ordered additional resources to help vent the building, perform triage, and control the fire sprinkler water flow.

Investigators determined that smoking materials in the room of a 70-year-old man ignited a pillow and that the fire burned the mattress, and scorched a wall, and melted one side of an oxygen mask. Oxygen was flowing at the time of the fire. The man was treated and transported to the hospital with unspecified injuries. Two others who were injured refused transport. Some 82 occupants were evacuated.

The multi-million-dollar property and its contents sustained a \$2,000 loss.

Kenneth J. Tremblay, 2003, *NFPA Journal*, September/October, 20

### **Smoking while using oxygen leads to fire fatality, California**

The 74-year-old occupant of a studio apartment died in a fire he started while smoking. The blaze was intensified by the failure of the home oxygen system he used for medical purposes.

The property was a converted hotel without kitchen facilities in the single-room apartments for long-term residents. The unsprinklered, seven-story, apartment building contained apartments consisting of a bedroom/living area, a private bath, and closet. The building consisted of protected noncombustible construction.

A smoke alarm in an unidentified area alerted the front desk clerk. At 2:23 a.m., he sent someone to investigate. When they found smoke on the seventh floor, they traced the fire to the room of origin but found the door locked. Arriving firefighters forced the door open and used hose lines to attack the fire as they removed the victim. He was taken to the hospital, where he was pronounced dead at 3:48 a.m. The fire was confined to the room of origin, and smoke damage was confined to the seventh floor.

When firefighters entered the studio apartment, they found that the smoke detector in the unit had been disabled. Investigators also found moderate burn damage to the unit's contents, including clothing, bedding, carpeting, and furniture. In addition, they found an oxygen tank and nearly 20 feet (6 meters) of plastic tubing that showed signs of burn damage at several distinct points. Investigators believe that the victim was smoking and ignited combustibles, and the resulting blaze was enhanced by the oxygen enriched environment.

Damage to the building was estimated at \$10,000 and contents losses at \$2,000. There were no injuries or other deaths.

Kenneth J. Tremblay, 2001, *NFPA Journal*, May/June, 33-34.

### **Home oxygen intensifies fatal cigarette fire, Tennessee**

Two elderly neighbors died in their apartment building when one of the women discarded a cigarette on a recliner in her apartment. The fire was intensified by the ignition of oxygen the woman used. The 65-year-old died in her apartment, and her 89-year-old neighbor, who used a walker, died as she tried to leave the fire floor.

The 10-story apartment building was of fire-resistive construction. It had no sprinklers. The smoke alarm in the unit of origin operated, but coverage elsewhere wasn't reported.

The fire department received a 911 call at 10:14 p.m., and firefighters arrived six minutes later to find light smoke in the main lobby and heavy smoke on the fifth floor. Fire spread out of the unit of origin and burned the door to the apartment across the hall, as the hallway filled with heavy, smoke.

While putting out the blaze, fire crews found one victim on a bedroom floor and the other in the hallway near the fifth-floor elevator lobby. The second victim's apartment was near the unit of origin, and she had been forced to walk past the burning unit. Both women had succumbed to smoke inhalation.

A tube supplying oxygen from an oxygen machine was threaded along the seat and footrest of the recliner where the fire began, and investigators determined that the oxygen intensified the fire and contributed to its spread. The relief valve of a liquid oxygen cylinder in the room also activated, releasing the cylinder's contents.

Witnesses said the 65-year-old victim woke up to the fire and had left the apartment to get help but had returned to try to extinguish it. They also reported that the smoke alarm was working. Witnesses reported that the second victim hadn't responded to their efforts to get her to leave her apartment. Her use of a walker, said investigators, forced her to walk slowly and with her head up, rather than under the hallway smoke layer. Fire damage was confined to the floor of origin, although smoke damage spread beyond the floor of origin. The estimated building damage was \$100,000; damage to its contents was estimated at \$50,000.

Kenneth J. Tremblay, 2000, *NFPA Journal*, May/June, 36.

### **Smoking while receiving oxygen burns a patient, Ohio**

A patient in an ambulance tried to light a cigarette while oxygen was being administered to him during transport. This caused a flash fire. The emergency medical technician quickly put the fire out, but not before the patient received second-degree burns to the face, neck, and chest.

The technician treating the patient en route to the hospital repeatedly warned him not to smoke. The oxygen-enriched environment lowered the ignition temperature of combustible materials in

the area. As the technician reached for some medical equipment, however, the man lit a cigarette. This action sparked a flash fire, ignited the patient's hair, and caused second-degree burns to his face and neck.

The technician quickly extinguished the fire using a portable extinguisher, then removed the patient from the vehicle. Another vehicle was called, and the patient was finally taken to the hospital. The technician in the first ambulance, which was slightly damaged, received minor injuries.

Kenneth J. Tremblay, 1999, *NFPA Journal*, November/December, 20.

### **Man dies in apartment blaze, Massachusetts**

A fire started by burning incense caused an explosion that seriously damaged a 12-unit apartment building and killed an occupant.

The three-story apartment building, which measured 70 by 44 feet (21.3 by 13.4 meters), was of wood-frame construction and had a prefabricated wood truss roof. The property contained several fire detection devices, including local smoke alarms in each apartment. Hallway smoke detectors, interconnected apartment heat detectors, and pull stations were all linked to a municipal fire alarm system. There were no sprinklers.

The fire department received a municipal fire alarm at 6:22 p.m. and responded with two engine companies. While en route, police notified firefighters that they were receiving calls reporting an explosion at that address, so they upgraded the response to a full assignment. Firefighters arrived two minutes after the alarm to find flames consuming the building from the second floor to the roof and threatening exposures on both sides. They immediately sounded a second alarm, and, shortly afterward, a third. They also heard that an occupant was still inside.

Firefighters quickly abandoned an interior attack and instead used hose lines and master streams connected to several hydrants to spray 3,000 gallons (11,356.2 liters) of water per minute at peak operations. Roughly 40 minutes after the alarm was first received, they had brought the fire under control and had entered the building to search for the missing occupant. They found his body in a second-floor bedroom near his bed during a secondary search.

Due to severe fire and structural damage, investigators had to wait until the next day to survey the structure's interior. They determined that the fire began in a second-floor apartment when heat from burning incense ignited bedding in a 16-year-old mentally handicapped boy's bedroom. A window fan drawing air from the room helped spread flames.

The 59-year-old victim, who was dependent on oxygen, was in the apartment's other bedroom, which contained two 7.9-gallon (30-liter) liquid oxygen vessels and several other compressed oxygen cylinders. Because it was hot and humid that day, he'd released oxygen to cool himself, creating an oxygen enriched environment, which intensified the flames as they spread from the bedroom of origin. One of the liquid oxygen vessels failed, causing the explosion that structurally damaged the building and allowed the fire to spread to the third floor and concealed roof spaces.

The building, valued at \$480,000, was seriously damaged. Two adjacent buildings and a vehicle were also damaged. Four firefighters sustained minor injuries ranging from sprains to dehydration. None of the building's other residents was injured.

Kenneth J. Tremblay, 1998, *NFPA Journal*, July/August, 20.

**Location, Oregon;**

**Date, January 1995**

**Time of Alarm, 11:34 p.m.**

**Number of Deaths 4 Deaths**

Number of Stories, Occupancy Type, Construction Type, Operating Status

Adult board-and-care facility; unprotected, wood-frame construction; 1 story, operating.

Detection Systems and Suppression Systems

Eight single-station smoke detectors were located in each of the five sleeping rooms, the living area of the resident care provider, the hallway, and the dining area. All but one of the smoke detectors appeared to work, the exception being found without a battery in a sleeping room where a casualty was found. No suppression system.

Fire Origin and Path

Smoking materials ignited a recliner, and the fire spread to curtains and adjoining combustible materials in a designated smoking room. It then spread to an adjacent bedroom through an adjoining window and was intensified by stored oxygen used by the room's occupant. The fire spread into the living room and four other bedrooms

Contributing Factors and Victim Locations

Four of the five residents, ages 82 to 91, had varying mobility impairments--one needed a wheelchair and another a walker. The sixth occupant was a resident care provider.

The ceiling in the smoking room and the adjoining bedroom was covered with thin plywood, which contributed to fire spread.

Single-station smoke detectors didn't appear to give adequate warning, as almost all the victims were found in their beds.

The resident care provider had consumed alcohol and fallen asleep before the fire. She was awakened by a loud explosion and wasn't able to help the residents escape.

Kenneth J. Tremblay, 1996, *Catastrophic Fires of 1995*, *NFPA Journal*, September/October, 96.

### **Patient receiving oxygen burned after igniting flash fire, Massachusetts**

A nursing-home patient who was receiving oxygen therapy sustained facial burns after she attempted to light a cigarette and instead ignited the oxygen mask and tubing. An attendant who saw the flash fire quickly activated a manual alarm before automatic detection and protection systems had operated.

The 17,000-square-foot facility in which the incident occurred was a three-story, 144-bed nursing home of unprotected noncombustible construction. The building was equipped with a complete automatic wet sprinkler system, a smoke detection system that covered patient room door closers and hallways, and manually operated pull stations, all of which were connected to the municipal fire alarm system.

The 61-year-old female patient was in bed receiving oxygen through a face mask when the incident occurred. The oxygen tank had a humidifying unit attached to the supply tube. When the woman tried to light a cigarette, the oxygen produced a fast, intense fire that spread back through the supply tube to the humidifying unit, where it extinguished itself after burning up the unit.

A nursing attendant saw the flash fire and activated a manual pull station at 4:08 a.m. to notify the fire department. The attendant then evacuated the patient from the room.

When fire fighters reached the third-floor room, oxygen was still flowing out of the tank, but the fire had extinguished itself without activating an overhead sprinkler. The attendant had pulled the alarm before smoke could activate a smoke detector installed near the door to the room.

There was no sign in the area of origin warning against smoking while oxygen was in use, and attendants apparently had not removed the patient's smoking materials before administering the oxygen.

The minor damage that resulted from the fire was limited to some bedding, a wall, and the moisturizing unit. The patient sustained facial burns and was taken to a hospital.

Kenneth J. Tremblay, 1992, *NFPA Journal*, March/April, 26-27.

### **Man on oxygen keeps smoking, dies in apartment fire, Maryland**

A 63-year-old man died when an accidental fire erupted in the living room of his first-floor-apartment. Two other tenants were injured.

The two-story apartment building, which was 172 feet long and 40 feet wide, was of ordinary construction and contained 16 units.

Investigators determined that the fire began around 4:14 p.m. when the man inadvertently dropped or dislodged a lighted cigarette onto his living-room couch when he stood to receive a visitor. The man, who suffered from chronic obstructive pulmonary disease and took oxygen constantly through a nasal canular, was nonetheless a heavy smoker. He had ignored repeated warnings about the severe dangers of this practice. Officials believe that the victim noticed

smoke coming from the couch after his visitor left and began trying to extinguish the fire. Apparently, he went to the sliding glass door nearby, opened it to clear the room of smoke, then went to the kitchen to get a pan of water. He would have been moving slowly because of his illness.

At this point, the small fire grew so quickly that the victim was overcome by the dense smoke and collapsed. Firefighters responding to the two-alarm fire discovered his body in the kitchen.

Investigators attribute the rapid acceleration of the fire in part to the victim's supply of oxygen. Its use over time would have saturated the couch, accelerating the burning process.

One of the building's tenants, a 28-year-old man, was treated for smoke inhalation and minor burns after he tried unsuccessfully to rescue the victim from his first-floor unit. A 47-year-old woman was also injured, suffering smoke inhalation and lacerations to her leg. Firefighters managed to pull her out of her apartment on the second floor, where she had been trapped by smoke, and took her to a medical facility.

The building suffered an estimated \$250,000 in damage.

Neil Courtney, 1991, *NFPA Journal*, March/April, 29.