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U.S. Fires in "Board and Care" Homes Matrix Display of Selected Fatal Fires. Special Analysis

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Notice

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SPECIAL ANALYSIS

U.S. FIRES IN "BOARD AND CARE" HOMES

MATRIX DISPLAY OF SELECTED FATAL FIRES

BY

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Abstract

This report presents available information on 57 fatal U.S. fires occurring during 1971 to 1992 and recorded in the National Fire Protection Association's (NFPA's) Fire Incident Data Organization (FIDO) as fires of technical interest in "board and care" homes. It is an update of a report prepared in 1990 and adds nine incidents to that earlier study. It is part of a larger project on fire safety in board and care homes. The information has been organized into three tables. Included is information on: death tolls, construction details, code compliance, occupant behaviors, fire development, and building fire protection systems.

Notes

This report presents available information on 57 U.S. fires occurring during 1971 to 1992 and recorded in the National Fire Protection Association's (NFPA's) Fire Incident Data Organization (FIDO) as fires of technical interest in "board and care" homes. It is an update of a report prepared in 1990 and adds nine incidents to that earlier study.

For purposes of classification, NFPA's FIDO records a property as a "board and care" home if there is a pronounced mismatch between the level of care the property is designed to provide and the level of care required by some or all of its residents. Typically, this means a residential facility primarily or wholly occupied by elderly residents with notable physical, mental, or emotional limitations or residents with mental or emotional limitations, such as deinstitutionalized mental patients. All or nearly all the incidents coded as "board and care homes" in FIDO, therefore, are to some degree inadequate to the needs of their occupants. Facilities meeting the strict definition of board and care home in the NFPA Life Safety Code - a facility providing only personal care to residents who need only that level of care - therefore constitute at best a small minority of the incidents here. Also, the individual properties are listed under the generic names used to describe them in published accounts, which are quite variable.

The 57 incidents consist of all fatal fires in this property class in FIDO. The incidents with the highest death tolls typically were investigated by the NFPA. The incidents with the lowest death tolls sometimes are very poorly documented, with only news accounts available as sources of

information. This has been noted when it applies.

The information has been organized into three tables. Within each table the incidents are listed in order of death toll, from highest to lowest. For incidents with the same death toll, incidents are listed from oldest to most recent.

Table 1 provides basic incident identifiers, which are repeated (except for the time of day and notations on the level of incident documentation available) on Tables 2 and 3. Table 1 also gives the death toll; details on construction, compartmentation, and interior finish; and historical background on the building's usage and code compliance. Table 2 provides all occupant-related information, including characteristics and behavior during fire, and a summary of exit path provisions and protection. Table 3 describes the fire's development and the building's fire protection systems.

Table 1. Fire Severity and Building Construction and History

	Fire	Civilian Deaths	Construction	History of Building
1.	Sheltered Care Boarding Facility New Jersey January 1981 3:45 a.m. 81-0001 (Fire Journal, July 1982, pp. 51-57, 106)	31	This was a 1-story building of unprotected ordinary construction. The facility measured 82' x 92'. The two facilities were linked by one 1-1/2 hour, metal clad fire door; though equipped with a magnetic hold-open device tied to the alarm system, it was held open by a hook-and-eye device and remained open throughout the fire, forcing evacuation of the second facility as smoke and heat spread into it. The extensive use of wood paneling fed the fire throughout and rendered the horizontal and vertical opening protection substandard and ineffective. Also, most rooms had hollow-core or wood-paneled doors.	This property was built as a four-story beach hotel. It was reduced to two stories after fire damaged the upper floors. It was then operated as a lounge before being converted to a boarding facility in 1969. The original building was being operated as a sheltered-care facility, with 74 residents, and a one-story addition, added in the early 1970s, was being operated as an intermediate-care facility, with 37 patients.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
2. Boarding House Missouri April 1979 4:30 a.m. 79-0008 (Fire Journal, November 1979, pp. 26-33, 90)	25	This was a 1-story building of unprotected, wood-frame construction built in a U shape, with a wing addition extending from the bottom of the U, creating an F shape. The original two wings had a wood floor, a 4-inch granite veneer, a gabled wood roof with composition shingle covering, 1/2-inch combustible fiberboard wall covering in the corridors, and 1/2-inch gypsumboard wall and ceiling coverings elsewhere. The wing that completed the U had a granite veneer, a concrete floor, a similar roof to the other wings and 1/2-inch gypsumboard wall and ceiling coverings throughout. An addition below the bottom of the U had a concrete floor, concrete block walls, a flat wood roof with built-up tar-and-gravel covering, and a gypsumboard ceiling. Finally the wing that created the F shape had a 4-inch brick veneer, a concrete floor in the room areas, a wood floor in the corridors, a roof similar to the earlier wings, and gypsumboard wall and ceiling coverings. Total floor area was 11,700 square feet.	It is believed the building was built in 1949 or 1950 in an L shape. In December 1978, the state boarding home licensing bureau inspected the facility and obtained evaluations of eight residents' ability to continue in the facility.

Table 1. Fire Severity and Building Construction and History (Continued)

	Fire	Civilian Deaths	Construction	History of Building
3.	Hotel New Jersey July 1980 11:00 p.m. 80-0011 (Fire Journal, March 1981, pp. 57-63, 98)	24	This was a 55-year-old, 3-story building with basement, built of ordinary construction. Its exterior masonry walls measured 32' x 100' and were covered by stucco. It also had a 32' x 40' open porch and a 22' x 32' kitchen extension. Interior finish was plaster on wood lath.	This building was licensed as hotel but had many residents referred by state or county mental health authorities. A 1976 petition for a license as a sheltered care facility was dropped when the state specified extensive improvements needed to meet those requirements.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
4. Boarding House Ohio November 1979 9:20 a.m. 79-0019 (Fire Journal, July 1980, pp. 28-31, 87)	14	The 2-1/2-story "balloon-frame" building had a basement and brick veneer but no firestopping. It had several additions that completely surrounded the original structure and produced a maze-like interior layout. Windows in the original exterior walls were not filled in, so the interior partitions were a mixture of plywood, frame, brick, and plaster on wood lath. Interior finish consisted of 1/4-inch high density fiberboard panels, 1/4-inch plywood panels, or several layers of wallpaper and paint. Ceiling finish consisted of low-density fiber tiles. Doors were louvered or hollow-core plywood or nonexistent. Some areas had shower curtains on rods in lieu of doors. There was one unenclosed interior stairway that provided the only way out for the second floor. There were three exits from the first floor plus one side exit from one apartment, which proved to be the place of fire origin.	This building was built a century before as a single-family residence. From 1958 to 1973, the building was operated as a nursing home, until the state's adoption of the NFPA Life Safety Code. When the property could not meet the requirements, it was converted to a boarding house, which meant there were no state or local requirements. The local mental health center was told in mid-1978 to stop referring former patients to this facility because of its safety deficiencies and overcrowding.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
5. Rest Home New Jersey January 1973 12:42 a.m. 73-4218 (Fire Journal, July 1973, pp. 25-28, 32)	10	This was a 2-story building. Wood frame construction was used without firestopping. The original building had plaster on wood lath walls and ceilings. The additions had 3/8-inch gypsum wallboard on walls and ceilings. Most walls were covered with 1/8-inch plywood paneling. Most floors were bare wood; the rest had tile or vinyl covering. Many ceilings were suspended wood-fiber tile in metal channels. The paneling in the room of origin and the adjacent stairway was a factor early in the fire.	It was built as a 2-story dwelling and converted in 1943 to use as a boarding home. Additions were made to the building on 4 occasions. The original building was 30' x 40'. The additions were 7-1/2' x 30' and two stories on the front, 9' x 39' and one story on the west side, 12' x 54' and one story on the east side, and 11-1/2' x 20' and one story on the rear.

Fire	Civilian Deaths	Construction	History of Building
6. Foster Home Pennsylvania 8:32 p.m. 79-0252	10	This was a 2-1/2-story, wood frame building. It had "balloon" framing and steel exterior siding. The basement walls, stairway and ceiling had wood wainscot, which helped produce rapid fire spread. Wood paneling was used on the walls of the first and second floors. Some areas had suspended ceilings of combustible tile.	It was constructed 50 years before as a dwelling and had been operated as a foster people who could not afford or were refused by nursing homes.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
7. Halfway House District of Columbia April 1979 1:00 a.m. 79-0009 (Fire Journal, March 1980, pp. 45-47, 50-53)	10	This was a 3-story, brick, ordinary-construction building with basement. A 12-inch brick party wall divided the building in half, reflecting its previous status as a duplex. The adjoining halves connected through doors only on the basement and first floor, with no self-closer on the first-floor door. Each half had an open stairway from first to third floor, with winders at the turns, wood banisters and railing materials, and hardwood panel wainscoting on the first floor adjacent to the stairway.	The building was a 75-year-old structure built as a duplex. The property was used to house female outpatients from a mental health facility. At the time of the fire, the facility had a lapsed business license, did not meet local building code requirements, and was classified as a residential property, requiring that residents be limited to those not in need of professional nursing care.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
8. Board and Care Facility Colorado March 1991 91-0004	10	The west wing and kitchen/dining area of the one-story building with two separate partial basements was the original 1959 structure, with an east wing added in 1960 and a north wing added in 1962. Construction was similar throughout - concrete block exterior bearing walls, brick exterior veneer, wood and wood frame interior wall and floor assemblies. Most of the structure was covered by a wood truss pitched roof with plywood sheathing and composition shingles. According to NFPA 220 (1985 edition), the building most resembled Type III (200) construction, except for the dining room area, which most resembled Type IV (2HH) construction because of the roof assembly. The attic space was divided by several draft stops into areas of less than 3,000 square feet each. However, the draft stop nearest the fire's point of origin had a 4' x 4' opening that served as an avenue of fire spread.	First opened in 1959 as a nursing home, the property changed hands in 1988, and the new owner approved to the state for licensing as a personal care boarding home. The November 1989 state inspection used the NFPA 101M Fire Safety Evacuation System (FSES) procedure for assessing equivalency to the Life Safety Code, 1985 edition, for a large residential facility and found equivalency was satisfied. When the fire occurred 14 months later, the license application was still pending.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
9. Adult Foster Care Facility Michigan June 1992 92-0002	10	The 50' x 38' building was of ordinary construction - masonry exterior bearing walls with wood wall and floor assemblies. Built as a duplex, it was divided, east and west, by a masonry party wall. The two-story building had open interior stairways in each of the original duplex units and a third open stairway from second floor, near both lower stairways, to attic. Based on NFPA 220, 1992 edition, the building most closely resembled Type III (200) construction. Wall finish throughout was plaster-on-wood-lath covered by hardboard panels, wood paneling, or particleboard. The first floor and the second floor corridor had suspended ceilings.	Built roughly 60 years before the fire as a two-family dwelling, the property was renovated in the early 1970s for use as a board and care facility. The conversion includes breaches of the masonry party wall in four places, two on the first floor and two in the attic. Three of the four breaches had gypsum-core, wood-veneer doors in metal frames; the fourth, on the first floor, had the frame but no door. The facility was licensed by the state as an adult foster care facility in 1976. Shortly thereafter, the license was suspended for multiple unresolved fire safety related deficiencies. A permanent injunction was issued in 1978, a court judgment in 1979 supported state action, and the licence was revoked at that time. The facility continued to operate as a boarding home, which did not require a license. The local fire department inspected the property on that basis, most recently in May 1991.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
10. Boarding House Georgia August 1983 2:00 a.m. 83-0009 (Fire Journal, May 1984, pp. 91-97, 134)	8	The 2-story building was of unprotected wood-frame construction. The lower level, where the fire began, had 3/16-inch wood paneling on bedroom and corridor walls. This was considered a significant factor in the fire severity.	Built in 1973-1974, the building was later modified by the addition of a staff apartment and renovation of the basement as sleeping quarters. The basement was the lower level or first story of the building, and the original main level, which included the main entrance, was the upper level or second story.

Fire	Civilian Deaths	Construction	History of Building
11. Community Home Massachusetts April 1983 2:00 a.m. 83-0005 (Fire Journal, March 1984, pp. 19-23, 79-80)	7	This was a 3-story wood-frame building with basement. It had two interior stairways, one open from first to third floor and the other running from basement to third floor with a hollow-core door at the third floor and a wood-panel door at the first-floor access to the basement. The latter stairway would not have been wide enough to satisfy the NFPA Life Safety Code. Interior partitions were plaster on wood lath except for one second-floor partition of gypsum-board. Wood paneling was used extensively in rooms, corridors, and stairways. Doors to bedrooms had hollow-core or wood panel doors.	The building was constructed 80-85 years ago as a single-family dwelling.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
12. Group Home for Mentally Retarded Ohio December 1983 7:00 a.m. 83-0014	6	The 3-story building was of ordinary brick and wood construction and measured 40' x 40'. Paper wall coverings in the first-floor hallway and adjacent stairway may have been a factor in fire severity. The interior stairway had a drywall partition at the top of the stairs leading to the second floor. The solid-core wood door with wired glass panel in the partition had no door closing mechanism. A fire door with operational self-closing mechanism was provided at the base of the stairs leading from the second floor to the third floor.	Built at the beginning of the century as a single-family dwelling, this property was occupied as a group home in January 1983 and prior to that as a halfway house. It was subject to the local housing code and state licensing requirements of the department on mental retardation.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
13. Adult Foster Care Home Michigan November 1980 1:00 a.m. 80-0017 (Fire Journal, September 1981, pp. 52-55, 100)	5	This was a 2-story, wood frame dwelling with basement and attic. There were 4 bedrooms, one on the first floor and three on the second floor. The one interior stairway was unenclosed, which the licensing requirements allowed if upper level bedroom doors were at least 1-3/4-inch solid-core wooden doors, and they were better than that - 1-1/2 hour, B-labeled doors but in existing wood frames. Door closers were not required or provided, and doors were typically left open because of uneven heat distribution in the building. Interior finish was plaster on wood lath. Both the first-floor room of fire origin and the interior stairway had wood wainscot paneling.	It had been converted from a single-family building. It was licensed by the state department of social services and had been since 1975.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
14. Adult Foster Care Home Michigan March 1983 10:00 p.m. 83-0706	5	This was a 2-story wood-frame dwelling. Lightweight wood paneling and cellulose ceiling tiles were primary contributing factors to the growth and spread of the fire. The only stairway was not enclosed.	This building, built as a dwelling, had been added on to several times and was licensed by the state department of social services.

Fire	Civilian Deaths	Construction	History of Building
15. Board and Care Facility Kentucky November 1984 3:24 a.m. 84-0630	5	This was a 2-story wood-frame house with cut stone veneer and a shingle roof. It measured 80' x 40'. Doors throughout were of solid-core wood construction with self-closure devices. Most walls and ceilings were covered with 5/8-inch gypsum panels.	Built in the mid-1960s as a dwelling, this property housed former veterans and outpatients from a state mental hospital. Periodic fire inspections and an analysis after the fire by an investigator from the state fire marshal's office, using the 1976 edition of the NFPA Life Safety Code, found no major deficiencies, as they judged them, and none deemed critical to the fire severity.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
16. Family Care Home New York March 1977 77-2200 12:02 a.m. (Only news accounts available)	4	The 2-story building was constructed as an ordinary house of wood frame construction.	The home had formal ties to a developmental center facility.

Fire	Civilian Deaths	Construction	History of Building
17. Rooming House Tennessee February 1978 9:37 p.m. 78-1895 (Fire Journal, September 1978, pp. 12-15)	4	This was a 2-story building with wood-frame construction and brick-veneered walls at the first floor level. The basement had been finished as an additional bedroom and there was a one-story addition at the rear. The second story was actually a finished attic. There was a single interior stairway in the center of the house, which was unenclosed, having only a wood panel door at the access to the basement. Exterior metal stairs were accessible from the second-floor stairway landing, o there was not a remote second means of egress. The basement had a side-door exit from the bedroom. Lightweight wood paneling was in use on basement walls and ceilings and the walls of the rear addition.	It was built as a house and was being used as a rooming house with elderly tenants and former mental-health patients, unbeknownst to fire officials.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
18. Halfway House for State Hospital Texas May 1978 2:05 a.m. 78-1712	4	It was an ordinary 1-story wood frame house, measuring 24' x 50'.	Unreported

Fire	Civilian Deaths	Construction	History of Building
19. Rooming House New Jersey July 1978 11:54 p.m. 78-2076	4	The 3-story building was 30' x 60' and all wood construction with an asphalt shingle roof. Wood paneling in the room of origin and the adjacent hallway was a factor in the speed of fire growth and spread.	The property did not have a license.

Fire	Civilian Deaths	Construction	History of Building
20. Boarding Home for Elderly New Jersey February 1981 9:40 p.m. 81-0004	4	The 3-1/2-story building was of wood construction.	A law passed in August 1980 required licensing, including a sprinkler system and an alarm system hooked up to the fire department, but at the time of the fire, the grace period to comply was still in effect, according to news accounts.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
21. Boarding Home for Outpatients New York December 1981 4:00 a.m. 81-4865	4	This was a 2-1/2-story wood-frame dwelling with aluminum siding and an asphalt shingle roof. It had a single interior stairway and a rear fire escape.	Unreported

Fire	Civilian Deaths	Construction	History of Building
22. Residential Facility for Mentally Impaired Illinois May 1986 1:00 a.m. 86-0006	4	This 50' x 40' building had masonry bearing walls, wood floor and roof assemblies, and interior partitions of both plaster on lath and gypsumboard on wood stud. It had 3 floors plus an occupied basement. Acoustical ceiling tile in the lounge where fire began may have been a factor in fire growth.	Unreported

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
23. Boarding House Michigan June 1986 1:45 a.m. 86-1708	4	This was a 3-story brick house.	The owners' license as an adult care facility had been lifted by state authorities after a fatal fire two months earlier, but many residents were mentally and/or physically handicapped. Four months earlier, the owner was cited for six fire hazards, including a missing fire-wall fire door and locked exits (although the latter was not a problem when the fire occurred).

Fire	Civilian Deaths	Construction	History of Building
24. Halfway House Michigan June 1986 12:52 a.m. 86-0907	4	This was a 3-story brick building.	Unreported

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
25. Mental Patient Halfway House Texas August 1990 90-0537	4	The two-story, 65' x 40' building was of wood-frame construction with brick walls and asphalt shingle roof covering.	No details reported.
26. Board and Care Facility Alabama September 1990 90-0008 (Fire Command, December 1990, pp. 13-15)	4	This was a one-story, wood-frame building.	Built in the mid-1960s as a single-family residence, the building was expanded in the 1960s and converted to a nursing home. More recently, it was changed to a board and care facility and licensed by the state.
27. Youth Home New York October 1990 90-0558 (Only news accounts available)	4	This was a two-story wooden structure.	No details reported.
28. Group Home Texas March 1991 91-0512	4	This was a one-story wooden structure with asphalt-shingle roof covering.	No details reported.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
29. Convalescent Halfway House California April 1978 5:09 a.m. 78-0771	3	The 2-story building measured 25' x 100', was of wood construction, and had a tar-and-gravel roof.	This was a residential care home for the care and rehabilitation of alcoholics. No other details were provided.
30. Community Living Facility Illinois October 1980 1:40 a.m. 80-0014 (Fire Journal, July 1982, pp. 44-50)	3	The 3-story building was of fire-resistive construction, having floors, roof, columns and beams of poured concrete. It had brick exterior walls and one-hour rated interior partitions. It had two interior stairways at opposite ends of the T-shaped building. Its corridor ceilings used low-density, combustible, cellulosic-fiber ceiling tile, painted in 1975 with a fire-retardant coating of undetermined characteristics. Room doors were solid-core wood doors without door closers. The third floor ceilings were cathedral-type sloping ceilings. Interior finish was wallpaper on plaster.	This was a residential training program for developmentally disabled adults. It was run by a not-for-profit organization. The building was constructed in 1954 as a college dormitory and converted in 1975 to its use at the time of the fire.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
31. Boarding Home for Mentally Retarded New Jersey January 1981 9:45 p.m. 81-0681	3	This 2-story building was a wood-framed house with brick walls and an asphalt, built-up roof. It measured 15' x 40'.	News reports said the facility was licensed by the city and the county but had not obtained a state permit.

Fire	Civilian Deaths	Construction	History of Building
32. Rooming House for Mentally Retarded New York November 1982 3:00 p.m. 82-2495	3	This was a 2-story wood frame house with an asphalt shingle roof and aluminum siding.	Unreported

Fire	Civilian Deaths	Construction	History of Building
33. Halfway House Pennsylvania April 1986 4:10 a.m. 86-0824	3	This was a 3-story brick and wood joist house with plaster walls and a tin and shingle roof.	Built as a single-family dwelling, the property served as a halfway house for persons released from the state hospital but was not licensed by the state. News account say a health department inspection the previous December had found 50 housing-code violations, some fire safety-related.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
34. Group Home for the Mentally Retarded Ohio January 1987 10:57 p.m. 87-0734	3	This was a 2-story house of protected wood-frame construction.	Unreported

Fire	Civilian Deaths	Construction	History of Building
35. Group Home Wisconsin December 1990 90-0703 (Only news accounts available)	3	No details reported.	No details reported.

Fire	Civilian Deaths	Construction	History of Building
36. Elderly Group Home Ohio December 1990 90-1058	3	This was a 3-story, 39' x 29' structure of wood frame construction with brick veneer exterior walls and asphalt shingle roof. There were no fire stops inside walls. One victim died in a locked bedroom, and there was evidence of locks on other bedroom doors.	This was a converted single-family dwelling.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
37. Foster Care Home District of Columbia December 1971 3:35 a.m. 71-3402 (Only news accounts available)	2	The building had 2 stories plus a basement.	It opened in March 1970 in association with a hospital in the city. One of 175 such affiliated foster-care homes, it did not have the required certificate of occupancy. The codes in use were not identified.

Fire	Civilian Deaths	Construction	History of Building
38. Shelter Home Idaho March 1975 5:00 a.m. 75-0534	2	This unit of the complex was 16' x 40' of wood construction with an asphalt roof and no firestopping. It was 1 story high.	This former motel was being used by the state as a shelter home and had been for seven years. Residents included former state hospital patients, other persons receiving state-funded care, and private patients.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
39. Group Home Missouri December 1979 3:16 a.m. 79-2994	2	This was a 2-story wood frame building with aluminum siding. Several layers of wood paneling were found on several walls. They fed the fire in the early stye of growth.	The property had passed a reinspection by the state fire marshal the previous month. This inspection was done for the state department of mental health as part of their licensing requirements.

Fire	Civilian Deaths	Construction	History of Building
40. Foster Home Pennsylvania June 1981 12:39 p.m. 81-0499	2	The 2-story building measured 34' x 61' and was of wood construction with an asphalt shingle roof.	No details reported.

Fire	Civilian Deaths	Construction	History of Building
41. Rest Home Wisconsin February 1984 3:30 p.m. 84-1775 (Only news accounts available)	2	This was a 2-story wood-frame dwelling.	Built as a dwelling, the property had operated as a rest home for elderly and handicapped for several years. It was licensed by the state department of health and social services.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
42. Retirement Home Florida January 1985 9:00 a.m. 85-0767 (Only news accounts available)	2	Unreported. The building appears from a photo to be 1 story tall.	It had been repeatedly cited for health code and fire code violations in previous decade under multiple ownerships and was shut down briefly in 1981.

Fire	Civilian Deaths	Construction	History of Building
43. Rest Home for Elderly California November 1986 early morning 86-3526 (Only news accounts available)	2	This was a 1-story wood frame house.	The home had been purchased two months earlier, and the state had informed them in writing at that time that they were operating without a license. At the time of the fire, the state officials were following an unofficial policy of trying to work with non-complying facilities to avoid stress of relocation to residents.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
44. Board and Care Home for Handicapped California November 1986 2:00 a.m. 86-3525	2	This was a 1-story wood frame house with an asphalt shingle roof, measuring 1500 square feet. Gypsum wall board was in use in places.	This was built as a single-family dwelling. It had been in use as a home for handicapped people for about a year.

Fire	Civilian Deaths	Construction	History of Building
45. Adult Foster Care Home Oregon July 1988 9:52 p.m. 88-2042	2	This was a 1-story wood frame house with a composition shingle roof.	It was built as a dwelling; it was licensed by the county and operated as a foster care home for about five years.

Fire	Civilian Deaths	Construction	History of Building
46. Center for Homeless and Mentally Disabled Pennsylvania August 1989 2:27 p.m. 89-1846 (Minimal news account is all that's available)	2	This was a 3-story building. Other details were not reported.	Unreported

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
47. Board and Care Home California December 1990 90-1946 (only news accounts available)	2	This was a two-story building.	No details reported.

Fire	Civilian Deaths	Construction	History of Building
48. Residential Care Facility for Retarded Missouri October 1978 2:09 a.m. 78-4244	1	This 2-story building had wood construction with brick walls and an asphalt shingle roof.	The building was built as a duplex, then converted to a single-unit residence and purchased by a private firm, which operated the facility.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
49. Halfway House Massachusetts March 1980 11:50 a.m. 80-1046 (Only news account available)	1	This was a 4-story brick structure.	The property was opened as a halfway house for emotionally disturbed people in 1973 and received funding from the state, the city, and private sources.

Fire	Civilian Deaths	Construction	History of Building
50. Halfway House New York May 1980 5:45 a.m. 80-1491 (Only news accounts available)	1	This was a 2-story brick structure.	This was a halfway house for emotionally disturbed patients. No other details were available.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
51. Halfway House Massachusetts January 1981 8:15 a.m. 81-1713 (Only news accounts available)	1	This was a 5-story red brick building.	No details available.

Fire	Civilian Deaths	Construction	History of Building
52. Halfway House Hawaii May 1981 5:48 p.m. 81-3402	1	This was a 2-story wood-frame structure with multiple occupancy of rooms. The floor was wood and concrete, and the roof was asbestos shingle.	Unreported

Fire	Civilian Deaths	Construction	History of Building
53. Residential Facility for Mentally Retarded Adults Florida October 1981 1:00 a.m. 81-4533	1	This 2-story building was of ordinary construction with concrete block walls, concrete flooring on the first floor, wood joist flooring on the second floor, and a wood truss roof with asphalt shingles. The fire department said construction fully complied to the code for this occupancy.	It was built as an apartment building.

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
54. Adult Foster Care Home Michigan March 1983 12:57 a.m. 83-1272	1	This was a 1-story wood frame house with an asphalt shingle roof.	Unreported

Fire	Civilian Deaths	Construction	History of Building
55. Halfway House Tennessee November 1986 3:23 a.m. 86-2921	1	This was a 3-story wood frame house with brick walls. It used its former attic as an occupied third floor.	Unreported

Fire	Civilian Deaths	Construction	History of Building
56. Halfway House Illinois June 1987 10:40 p.m. 87-1976	1	This was a 3-story brick building.	The building had unoccupied store fronts on the first floor and apartments with kitchens on the upper floors, seven per floor. It was being used as a halfway house for recovering alcholics

Table 1. Fire Severity and Building Construction and History (Continued)

Fire	Civilian Deaths	Construction	History of Building
57. Adult Foster Care Home Oregon September 1989 3:18 p.m. 89-2336	1	This was a 2-story wood house with a wood shake roof and a ground floor area of 2,000 square feet.	An inspection by county officials for licensing found no problems earlier the same month as the fire.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
1. Sheltered Care Boarding Facility New Jersey January 1981 81-0001	Residents/patients of the two facilities both were, for the most part, elderly and/or mentally impaired. Many had previously been in mental institutions or homes for the retarded. Ages ranged from early 30s to the 90s.	Most occupants used only normal means of egress. Most second-floor occupants used the main stairway, which discharged them near the fire at the front of the first floor, rather than the wooden fire escape at the rear, which only a few residents used. Six first-floor rooms had doors that discharged into a corridor that was blocked by fire early; none of those occupants used their windows, the only other means of escape, and 11 bodies were found in those rooms. Those fleeing the other first-floor bedrooms found the nearest exterior door locked, recessitating a long trip, with two turns, down a corridor to the next door.	Many bedrooms had no standard second means of egress. Horizontal and vertical barriers to flame spread were often substandard, including extensive use of wood paneling on partitions, and they failed to prevent fire spread. The one fire door, which separated the facilities and could have protected part of one exit path, was held open by a hook-and-eye device. The exterior door near it was locked and had to be opened by crowbar during the fire, as officers heard screams and pounding on the door.	Fire drills were conducted twice a month and at various times of day and night. However, residents often reinforced bad habits in these drills, using normal routes out instead of nearest exits, refusing to evacuate at all, or delaying evacuation to take belongings with them. During the fire, the one attendant sounded the internal alarm, was unable to phone in the fire because the phone failed, knocked on doors to alert those on the second floor, and finally exited through the second facility while pushing those occupants out the door.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
2. Boarding House Missouri April 1979 79-0008	Of the 37 residents, roughly one-third had been residents at the state mental hospital. All residents were ambulatory. Only one of the six attendants was on the premises at night when fire occurred.	The attendant awoke, realized there was smoke, arose, and saw fire at the ceiling level near a rear linen closet. The attendant alerted the occupant of one bedroom adjacent to the linen closet and told her to alert the occupants of the other adjacent bedroom. Two of the three occupants returned to the attendant and were shown by the attendant to a sliding-glass-door exit. The attendant continued alerting occupants, room-by-room. She finally reached an exit door blocked by some-thing she thought was bodies and escaped through a window. Only then did she wake the owner next door, who had his daughter call the fire department. Most occupants' move-ments were not reported. One victim apparently reentered the building after leaving, and another	There were five exit doors plus four rooms with their own exits. All exits had lighted exit signs. There were no dead-end corridors. returned to his room after accompanying the attendant part of the way down the hall. Many occupants apparently delayed exiting to get dressed.	There appear to have been no staff training or fire evacuation drills. The occupants did not know what any of the alarms sounded like.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
3. Hotel New Jersey July 1980 80-0011	There were 36 residents and 2 employees. Of the residents, most were elderly and 11 were mentally retarded. Several were referred by state or county mental health authorities.	Most of those who survived apparently used the main stairway before conditions became untenable. Two used the second-floor exit door onto the roof of the kitchen but did not attempt the ladder; they were rescued from the roof.	The main stairway was open, unenclosed, and had a door from the basement that was not self-closing. Other exiting provisions - the ladder and the fire escape - were unsafe for use by the residents, given their conditions.	A consulting firm conducted fire drills twice a month but did not use either the fire escape or the the exterior ladder, because it was clear the residents could not be expected to negotiate them safely.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
4. Boarding House Ohio November 1979 79-0019	There were 26 people in the building, including the couple who owned it. Two apartment units held five occupants. The rest of the space had 11 elderly residents and 8 mentally retarded residents who had been referred after release from a state mental health care facility. It was not clear how many people were in the building at the time of the fire.	Upon awaking and discovering fire, the baby-sitter in the apartment of origin picked up the baby, woke the mother, and led the children to the outside via a side door. The mother alerted the owner, who phoned the police chief, her son-in-law. He broadcast the fire alarm. The owner began helping evacuate residents. The ten people who lived on the second floor all died, seven on the second floor and three on the first floor. Three first-floor residents also died, two in or near their beds and one after some movement toward the front door. The last victim was the owner, who continued to reenter the building to attempt rescues after it was clearly unsafe and died holding on to the last person she tried to rescue. Six residents and the owner husband, who was invalid, were led to safety by	The interior stairway was not enclosed. The second floor had no second means of escape. There was no compartmentation in a large area. fire officers. They and the five occupants of the apartment of origin were the only survivors.	The owner reported the fire and participated extensively in evacuation, ultimately dying in the effort. Fire evacuation drills were not conducted in the house prior to the fire, and many residents failed to react quickly and effectively to the fire.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
5. Rest Home New Jersey January 1973 73-4218	There were 16 residents and two employees at the time of the fire. Under state requirements, no resident could be bedridden or too infirm to care for himself or herself to some degree. The fatal victims, all residents, ranged in age from 47 to 107 years old. The six surviving residents included two in their early 20s and four in their 70s.	Four female residents in one of the first-floor sleeping rooms were alerted by various means (smell of smoke, sound of police siren); one or two were awake at the time. They fled out a door remote from the fire, through the dining room, and into the kitchen. They then waited at the exterior door in the kitchen because they were not dressed for the cool, rainy weather outside. A police officer eventually assisted them out. The other two surviving residents were the arsonist and his roommates. After setting the fire, the arsonist returned to his second-floor bedroom, then went downstairs again, then went back to his room, and after further delay, woke his roommate. They escaped through their window to the first-floor the rehearsed escape roof to the east, then	There was only one interior stairway, which had four-foot-high paneling. The first-floor landing for the stairway opened onto the day room and the linen storage room, where the fire began. Both doors out of the linen storage room had been removed, and it was used informally as a corridor. jumped onto the roof of a police car. Eight of the ten victims were found in bedrooms, the other two in corridors on the second floor. At least four victims had moved out of their own bedrooms.	Both employees were asleep on the first floor when fire began, which was allowed under the state license. One was awakened by the alarm and immediately fled to report the fire. The other was awakened by the alarm, yelled to the four women who escaped to alert them, and then fled. Every three months, fire drills were held, but they were not conducted according to recommended procedures. They used the dinner bell, not the actual alerted the residents in advance; and they always ran drills when most residents were already in or near the first floor day room. Two survivors specifically cited confusion in their escape when plan proved untenable.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
6. Foster Home Pennsylvania April 1979 79-0252	There were 11 residents, ages 30 to 84, many on medication, one using a walker, one mentally retarded, and two with impaired vision. The owner and her son were also on premises, as was a visitor, at the time of the fire.	No details were provided.	From the basement, where five people were located and died, one could use a door from one of the bedrooms or the stairway to the first floor. From the first floor, where four people apparently were located and one died, one could exit via doors in the kitchen and the owner's bedroom. From the second floor, where five people were located and four died, one could exit via the interior stairway to the first floor or via a metal fire escape that was accessed through a window with a bed under it. No one was found in the attic, which had one bedroom.	The owner and her son, starting from the upper levels of the building, tried unsuccessfully to rescue residents from or fight the fire in the basement, but the heat and smoke prevented them.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
7. Halfway House District of Columbia April 1979 79-0009	There were 47 residents at the time of the fire, 21 on the side where fire began and 26 on the other side. All were psychiatric out-patients and female, and their ages ranged from 40 to 80 years. Staff was limited to one attendant and a maintenance man.	After failing to extinguish the fire at the outset, the smoker who started it called for help, attracting the manager. The manager alerted the maintenance men, the fire department, and finally the residents of the half of the building with the fire. Further efforts to extinguish the fire did not succeed. The 26 residents in the other side evacuated without injury. Five victims died in second-floor bedrooms, one succumbing several days after the fire, and three died in third-floor bed-rooms. One died on the second-floor stairway landing, and the last died of injuries suffered while jumping from the second floor. One survivor also jumped and was severely injured. Seven survivors were rescued by fire fighters, five over	Posted evacuation diagrams did not cover the upper floors and included the use of a rear door in a bedroom where a bed blocked the inward swing of the door. The two stairways were unenclosed and featured extensive use of wood and carpeting. Illuminated exit signs and battery-operated emergency lighting were provided. ladders - three from roof sections and two from a second-floor bedroom window. The other survivors' movements were not reported.	Fire drills were not conducted at this facility.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
8. Board and Care Facility Colorado March 1991 91-0004	There were 25 residents ranging in age from 72 to 97 years of age. Some used walkers or wheel chairs, and three needed assistance getting out of bed. Residents received limited medical assistance. When fire occurred at midnight, all but two residents were asleep in their rooms. One was awake in her room, and one was off-premises.	On discovering the fire, the care giver activated the manual pull station, then alerted the backup care giver. Both care givers knocked on doors to awaken residents. Then one called the fire department while the other began removing residents. The backup caregiver was only able to help three residents out before smoke forced both caregivers to stop giving assistance. All but one of the fatal victims apparently died while trying to escape, but only one had left his or her room.	Each resident room had corridor access to two remotely located exits and a window operable as a means of escape.	At night, two staffers were on duty. One, occupationally designated care giver, was primary, while the other was a backup and allowed to sleep. Staffers were trained in use of manual pull stations for fire alarm system. There reportedly was a staff-only fire drill the month before the fire, but it was undocumented and there was no evidence of other drills or drills involving residents.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
9. Adult Foster Care Facility Michigan June 1992 92-0002	The property had 18 residents, 16 on premises at the time of the fire. Most were elderly and former mental patients. Some had restricted mobility, including one who used a walker. Six bedrooms were on the second floor, three were on the first floor, and four were in the attic.	The night supervisor and a resident knocked on resident doors on the second floor. Four residents escaped on their own via normal routes of travel, a fifth was assisted out by a passerby, and a sixth was carried out by fire fighters and the passerby. The other 10 residents all died. No residents were reported on the first floor when fire began. From the second floor, one east-side and two west-side residents escaped while four east-side and four west-side residents died, one after moving from west to east. From the attic, one east-side resident escaped and two west-side residents died. Two other residents from undetermined locations were assisted or carried out. All fatal victims were in positions indicating they were trying to escape. None of the survivors left the building immediately upon learning of the fire.	First-floor residents had access to two exits, but there were no first-floor residents at the time of the fire. Second-floor residents had only one one exit. Attic residents had two exits, but they were compromised by the many avenues for smoke spread between east and west. Stairways were not enclosed. Some got dressed, one tried to call the fire department, and several tried to alert other residents. It appears at least some of the fatal victims delayed evacuation for similar reasons.	One night supervisor, age 37, was on premises in addition to the residents. There apparently was no history of exit drills or other fire safety training. The supervisor, who discovered the fire, reportedly tried first to extinguish the fire with his hands and a towel. He then ran up to the second floor and knocked on doors to alert sleeping residents. A smoke detector operated then, and fire forced the supervisor to leave the building.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
10. Boarding House Georgia August 1983 83-0009	There were 15 mentally handicapped adults and 4 staff on site. Staff described the residents as capable of self-care and trainable to some productive attainments. Many held full-time jobs. NFPA fire investigators concluded this property would have been classified as a Supervisory Care Facility under the NFPA Life Safety Code.	One staff member, asleep in an upper-level bedroom, was awakened by a smoke detector; evacuated through the main entrance; alerted the two staff members in the upper-level staff apartment, who then escaped through the apartment door; tried to return through the main entrance to help; and stayed outside because of fire severity. The fourth staff member, sleeping in a lower-level staff apartment, was awakened by the activities of the first staff member and exited through sliding glass doors from the apartment. Three residents in two lower-level bedrooms escaped through a door from one of the bedrooms. A fourth surviving resident began in the lower-level boiler room, went up the interior stairway and left by the main entrance. Two more surviving residents left their upper-level bedroom via a sliding glass door. The last surviving resident was near the main entrance way when fire began, went into the living room, then returned to the entrance and left. Of the eight victims, one died in her upper-floor bed without moving. One died in a different bedroom than her own, where she may have gone either from disorientation or an intent to escape via sliding doors. Two others were overcome in corridors or on stairs on the way out. The actions of the other four were concealed by the effects of the structural collapse in areas of the building.	Both floors had doors to the outside, located in the middle of the building. Several rooms had glass sliding doors to the outside, which the NFPA Life Safety Code does not recognize as exits. One apartment had its own door to the outside. One lower-level bedroom also had its own door to the outside. The single interior stairway was not enclosed. The lack of adequate access to two exits from each level was considered a significant factor in fire severity.	Staff were not trained or knowledgeable in use of the extinguishers. No other information was provided.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
11. Community Home Massachusetts April 1983 83-0005	There were 20 residents and no staff at the time of fire. The residents were deinstitutionalized mental patients with minimal medication needs, ranging from 25 to 60 years of age.	The detection/alarm system sounded shortly after the door to the room of fire origin was opened. The five occupants of the first floor escaped uninjured via the front stairway; fire did not spread below the second floor. On the second floor, two residents died in their bedroom, while five others exited via the front stairway, one in spite of heavy smoke. A third survived by jumping from a window to the roof of the addition. One jumped to his death while a ladder was being raised to him. Four other third-floor occupants died in bedrooms.	Neither interior stairway was enclosed or protected. Interior finish in exit paths included wood paneling that probably had an unacceptably high flame spread rating. Guest-room doors were not self-closing and did not have a sufficient fire protection rating to protect the corridors.	No staff was on the premises. No fire exit drills had been conducted.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
12. Group Home for Mentally Retarded Ohio December 1983 83-0014	There were 10 mentally retarded residents and one counselor on site at the time of the fire. The counselor was asleep in his office, and his shift replacement had not yet arrived.	The counselor and one resident, both starting from the second floor, escaped through a window onto the roof of the front porch, after the counselor made an unsuccessful attempt to close the door on the second floor to shut off fire spread from the first floor. Passersby helped them jump to the ground. Another resident apparently escaped via the stairway from the third floor early in the fire. Two other survivors were rescued, unconscious, from their second-floor bedroom. Three victims died in the second-floor bedroom they shared, one in the closet. A fourth victim died on a bed in a second-floor bedroom that was not his own. The other two victims died, respectively, on the stairway between the first and second floors and in the second floor corridor near the fire door leading to the third floor.	The principal interior stairway had a wooden door at the second floor access to the first floor and a fire door at the second floor access to the third floor. A second stairway connected only the first and second floors, was no longer in use as a stairway, and had its upper door locked and its lower door partially blocked. A metal fire escape served the top two floors on one side and was accessible from one window on each floor.	The home reportedly conducted periodic fire drills, but specifics on them were not reported.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
13. Adult Foster Care Home Michigan November 1980 80-0017	There were 11 residents and one attendant at the time of the fire. The specific limitation of the residents were not reported.	The five victims were all on the second floor. Two were overcome in their bedroom, in part because they delayed escape to get dressed. A third victim also waited to get dressed, then retreated into a bedroom more remote from the fire but with no second way out and was overcome. A fourth victim got dressed, thought the fire was in the second floor bathroom, discharged an extinguisher into the bathroom, returned to bed and died there. The movements of the fifth victim, if any, were not reported. Two survivors fled through windows from the second floor, one being injured in a fall. The two occupants of the room of origin fled with the attendant after unsuccessful efforts to extinguish the fire. The	The one interior stairway was not enclosed and had wood wainscot paneling. A sitting room on the second floor had a door that discharged onto a wooden porch with wooden fire-escape stairs. This was in the same corner of the floor as the access to the interior stairway. These provisions would not have met the requirements of the NFPA Life Safety Code. attendant and a resident of the second floor fled through smoke down the interior stairway. The last survivor was not in the building when fire began.	The attendant, in the second-floor sitting room, smelled smoke, ran down stairs to visually confirm fire, yelled a warning to the occupants, exited through the front door, counted occupants as they left, tried to reenter when some did not emerge but was stopped by an occupant, then ran next door to call the fire department. A neighbor had already reported the fire.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
14. Adult Foster Care Home Michigan March 1983 83-0706	Six elderly residents, some retarded and/or handicapped, received room and board care from the couple who owned the property.	Three victims were overcome while still in their bedrooms. A fourth reached the second-floor hallway outside the bedrooms before being overcome. The fifth victim passed through the hallway but was overcome at the base of the stairway. The owners, awakened in their bedroom by a detector, crawled low under smoke to safety. The third survivor, also awakened in her bedroom by a detector, also left the building successfully, probably by the front door.	No special provisions	The owners were not reported to have done anything beyond saving themselves.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
15. Board and Care Facility Kentucky November 1984 84-0630	There were 38 residents, grouped in 8 apartment units. The victims were aged 60 to 69 years old and represented all the occupants of the apartment unit of origin. Their specific capabilities were not reported.	Unreported. One victim was on the living-room couch, where fire began when one victim fell asleep smoking. A second victim was found in the living room near the door to the corridor. A third was in the kitchen, and two others were on the floor beside their beds.	All floors had two separate, remote exits, one a metal fire escape, one a wooden fire escape. However, it appears that both were accessed from the corridor outside the apartment unit, which would have meant passing through the fire room from any point in the apartment.	Unreported

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
16. Family Care Home New York March 1977 77-2200	The four victims were all mentally retarded adults who had been deemed capable of living in society with some (unspecified) supervision and care. The house was run by a couple with three sons.	All victims were in second floor bedrooms when fire began. One fled from his bedroom away from the stairs to another bedroom with no way out. The other three victims were overcome by smoke on the first floor after fleeing their bedrooms, one near the back door, one in the kitchen, and one in a bathroom. The wife of the couple was not home when fire began. The husband was awakened by one son and fled from a first floor bedroom. One son fled from a second floor bedroom, alerting his father and trying to alert other residents before he fled. A second son fled via the fire escape. The third son escaped in an unspecified manner.	Exiting provisions were normal to a two-story house. A wooden fire escape had been nailed to the front of the house.	Fire drills were frequent. One had been conducted less than two weeks before the fire.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
17. Rooming House Tennessee February 1978 78-1895	On site when fire began were 8 elderly or former-mental-patient residents, the building's owner and two resident family members, and a visitor.	One resident, who was apparently hard of hearing, died in his or her bedroom on the second floor, which was the bedroom farthest from the stairway. One of the two residents in the basement died, apparently the one whose bed was the object first ignited. A third resident died near the front door, apparently while trying to escape from an unreported point of origin. A fourth resident died after reentering the building, possibly to retrieve a dog that was found with her. One basement resident survived by escaping via the side door after unsuccessfully trying to extinguish the fire. The four people who were not residents escaped from the dining alcove of the first floor. Three other residents escaped, at least	The primary means of escape was not protected and no recognized secondary means of escape was provided.	The child who discovered the fire also yelled warnings to occupants on both floors. No other staff actions were reported.
			two from the second-floor bedrooms, by unreported routes.	

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
18. Halfway House for State Hospital Texas May 1978 78-1712	Residents were characterized as recently discharged from a state hospital for the mentally disturbed. The number of occupants was 13; the mix of residents and staff was not reported.	Unknown. Residents had to run to nearly farm house to report fire, so fire department arrived too late to save building from burning to the ground. The nine survivors apparently provided no useful information.	Only those typical of a one-story house.	Unknown

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
19. Rooming House New Jersey July 1978 78-2076	The fire department report says the rooming house catered to discharged mental patients, including some or all of the victims. News accounts say the state hospital retracted its earlier statement that the victims were former patients, saying the earlier statements were based on erroneous victim name information. The inclusion of this fire here is based on the fire department classification.	Two victims were found in their third-floor rooms and a third in the third-floor hallway. The last victim died a week after the fire. He was the occupant whose careless smoking started the fire, and he died of burns suffered while trying to extinguish it in the second-floor room of origin. The other three victims apparently were trapped by the fire on the third floor. Movements of most of the other 17 guests or the employees were not reported, but several escaped out upper-floor windows, where they climbed down trees or jumped to the roof of an adjacent house.	Paneling in hallway outside room of origin was a factor in fire spread.	Unknown

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
20. Boarding Home for Elderly New Jersey February 1981 81-0004	The 21 residents were elderly. The victims were aged 65 to 81 and used walkers or wheel-chairs.	Unreported, except that many residents had to be helped out.	Unreported	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
21. Boarding Home for Out-patients New York December 1981 81-4865	The victims were all psychiatric out-patients from a veterans hospital. There apparently were no survivors.	It appears none of the victims left the rooms they were in when fire began. One was in a first-floor bedroom where fire began. One had fallen asleep watching television in the adjacent first-floor living room. Two were in one of the second-floor bedrooms.	Unreported	No staff on premises. The owner lived in another building on the property and was not a factor.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
22. Residential Facility for Mentally Impaired May 1986 86-0006	There were 24 mentally impaired residents.	Three of the five people on the first floor died in the fire, one two days after the fire. The other victim was a second-floor resident, who had exited the building but reentered and went down the interior stairway to the floor of origin. Early fire department reports place two of the victims on upper floors; this incon sistency has not been resolved in reports. One survivor from the floor of origin was in a bedroom two doors down from the lounge where fire began. He was awakened by the heat, investigated, saw the couch on fire, and left by the first floor rear exit, which was opposite the front exit that ran between the lounge and an office. The other survivor from the floor of origin awoke to fire alarms and also left by the rear exit after seeing the fire and yelling to those in the basement to leave. Seven survivors exited the basement. One discovered the fire while going upstairs for other reasons; two were wakened by fire alarms, one by a roommate, one by fire alarms and the yells of the first-floor survivor, one by the first-floor survivor alone, one by unreported means. Four left by the rear exit via the stairs, two through an exit from the basement laundry room, one via an unreported route. Eleven people left the second floor in addition to the one who reentered and died. Most or all exited by exterior front stairs serving a fire escape, several with help from fire or police officers. Many were slow to respond to alarms.	The exterior fire escape and stairs proved crucial to escape.	Unreported

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
23. Boarding House Michigan June 1986 86-1708	Most were mentally and/or physically handicapped. There were 24 residents. Several reportedly were regular abusers of alcohol and drugs while on site.	Unreported. Two roommates died in their first-floor room. One died in a second-floor room. The fourth's location was not reported. One person jumped from a front window, and another fell from a window onto a car.	Unreported	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
24. Halfway House Michigan June 1986 86-0907	Unreported. Not elderly.	One first-floor survivor climbed out her window. One third-floor survivor climbed out his window and down sheets tied together. No other details were reported.	Unreported	Unreported

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
25. Mental Patient Halfway House Texas August 1990 90-0537	Residents were all former mental patients, of all ages.	Four residents died and three escaped. All had left their beds and were probably trying to escape. Two fatal victims had apparently taken refuge in the upstairs bathroom.	The only exit path from the second floor, where all but one of the bedrooms were located, was a single unenclosed stairway.	There was no reference to staff in the documentation.

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
26. Board and Care Facility Alabama September 1990	There were 15 residents who were mostly elderly and had varying physical and mental impairments.	The youth who discovered the fire carried out the older man who had started the fire, then carried or directed out 10 more residents and one staffer in several trips. The other four residents were removed by the fire department over exterior ground ladders.	Building exits were arranged with a front (main) entrance leading to an exit corridor that provided access to a day room, residents' rooms, dining and kitchen facilities, and then a second day room and other sleeping areas.	No details on training reported. The owner's son's performance was a major factor in the rescue of most residents.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
27. Youth Home New York October 1990 90-0558	Unreported.	Some or all of the four victims - three residents and a housemother - were apparently trying to escape or perform rescue. The housemother's husband escaped via a back stairway. Two residents escaped by breaking and jumping from a second-floor bedroom window.	Unreported.	Unreported.

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
28. Group Home Texas March 1991 91-0512	Six mentally retarded children were the residents.	The two children who started the fire retreated to the upper bunk where the caretakers could not reach them; they died. A caretaker told to rescue the other four children rescued only two and told no one that the job was undone. The other two children died. Fire department efforts were hampered by drunk, unruly bystanders. Victims were aged 5-7.	Unreported.	Unreported.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
29. Convalescent Halfway House California April 1978 78-0771	Unknown	One survivor escaped into a hall, then was trapped by smoke, and was carried to safety by fire fighters. One jumped from a second-floor bedroom to a rear porch and was rescued from there by fire fighters. Two fled on their own by an unspecified route from a rear second-floor bedroom. The total number of occupants was not reported.	An unenclosed stairway provided the path for spread to the second floor, where the bedrooms were.	The property was unsupervised by staff.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
30. Community Living Facility Illinois October 1980 80-0014	There were 34 developmentally disabled residents and 2 supervisors in the building when fire occurred, split evenly between the second and third floors. Previous fire drill records indicated on more than one occasion that some residents did not leave, left slowly, or did not cooperate in the drills. Staff believed residents would not be capable of choosing an alternative exit if a primary one were blocked.	Two victims died in their bedrooms and apparently did not respond to the fire. The third victim was killed near the room of fire origin after walking past it to reach his usual route out of the building. All deaths were on the floor of fire origin.	There were two remote exits on each floor. The two interior stairways serving those exits were both enclosed with 2-hour rated construction. Lighted exit signs and emergency lighting were also provided. Exit plans were posted for each group of rooms.	The supervisor on the floor of fire origin was awakened by a fire alarm, put on slacks and shoes, saw smoke and many residents already exiting, and ran downstairs to alert the second-floor supervisor. She returned to the third floor to check evacuation again, then left the building. She estimated it took 5-7 minutes to evacuate the third floor. She reported to fire fighters that at least one resident was missing.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
31. Boarding Home for Mentally Retarded New Jersey January 1981 81-0681	There were 10 occupants at the time of the fire. The number who were mentally retarded was not reported.	Unreported	Unreported	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
32. Rooming House for Mentally Retarded New York November 1982 82-2495	There were 4 mentally retarded adults, placed in the home under state auspices, and they included all three victims. Also present when the fire occurred were the owner and her two grandchildren.	When fire began in the attic, two residents were upstairs in bedrooms, while everyone else was downstairs watching television in the living room. One resident tried to run upstairs to reach the two residents there but was killed on the stairway. The two upstairs residents died in their rooms. Everyone else escaped safely.	Unreported	The owner reportedly made two unsuccessful attempts to reach the victims.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
33. Halfway House Pennsylvania April 1986 86-0824	The victims were one renter in her 40s and two former mental hospital patients, both in their 20s. No one else was in the house at the time of the fire. The older woman was described in fire department reports as the property's caretaker, but news accounts quoted her daughter as saying she was just a tenant.	The young male victim fell asleep while smoking on a first-floor couch. He awoke with the couch and his clothing on fire and was felled before he could leave the building. The other two victims, both female, were found in a third-floor bedroom.	Unreported	Unreported. There may have been no staff present.

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
34. Group Home for the Mentally Retarded Ohio January 1987 87-0734	There were 14 mentally retarded residents. Some, including the three victims, were also elderly.	Unreported	Unreported	Unreported

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
35. Group Home Wisconsin December 1990 90-0703	Three fatal victims were all older adults, at least 60 years old.	Unreported.	Unreported.	Unreported.

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
36. Elderly Group Home Ohio December 1990 90-1058	There were seven elderly residents. Their capabilities, and the proper classification of the property, were points of dispute between fire authorities and the facility's owner and manager.	All victims were found on floors of bedrooms of upper floors. Two survivors exited by the front door and a third by a side or rear door. The actions of the seventh resident were not reported.	Unreported.	Unreported. There may have been no staff on premises when fire occurred, as there is no reference to their behavior during fire.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
37. Foster Care Home District of Columbia December 1971 71-3402	Four patients from a mental hospital were the residents.	The two victims apparently did not leave their second-floor bedrooms, where they were when fire began. The son of the home's owner escaped from his basement room. The two victims died at hospitals after being rescued. Details on escape behavior of other occupants were not given.	Unknown	Unknown

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
38. Shelter Home Idaho March 1975 75-0534	There were 20 residents, whose conditions were not described.	Unknown	Unknown	Unknown

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
39. Group Home Missouri December 1979 79-2994	There were seven residents, all mildly retarded and employed in a local factory. Also present were the owner, her three sons, and two aides. Two residents were visiting relatives at the time of the fire.	The woman whose careless smoking ignited a box of trash, escaped when she saw fire after unsuccessful efforts to extinguish it. Her daughter, who shared the room, was awakened by a detector and escaped uninjured. The two victims were found in their second-floor bedroom and were judged to have been trapped or overcome by smoke. The owner and three children lived in an addition at the rear and escaped after detectors woke them. No other details were reported.	Unknown	Unknown

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
40. Foster Home Pennsylvania June 1981 81-0499	There were 11 residents and the couple who owned the property on site at the time. All the residents were elderly.	Unreported	Unreported	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
41. Rest Home Wisconsin February 1984 84-1775	One victim was elderly. The second victim, age 64, was the aunt of the home's operator. Survivors included a second resident, condition not described; the property's operator; and his mother. Two other residents both handicapped, were off-premises at the time of the fire.	One victim died in the living room, 25 feet from a hallway exit. The other died in a kitchen or storage room near the back porch. It is believed the fire began in a laundry room. No other details were reported.	Unreported	Unreported

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
42. Retirement Home Florida January 1985 85-0767	There were 116 beds for 104 indigent elderly and mentally ill residents. At the time of the fire, 5 staff were on duty. News accounts said state regulations require 11 staff for a facility of this size.	Most residents were in the dining room when fire was discovered. They were evacuated to the wing of the building remote from the fire. The victims died in bedrooms adjacent to a room with heavy fire involvement, possibly the room of origin.	The panic hardware on the exit door near the victims was non-operational, locking them in. The locked or malfunctioning door may have trapped them. The home had been cited 14 months earlier for locking exit doors. The condition was subsequently corrected, but the facility was two months overdue for a reinspection to check these conditions.	Noticing that a resident was missing from the dining room, a nurse went to his or her wing. Approaching the wing, the nurse heard a smoke alarm and smelled smoke. Heat knocked her down when she opened a door to one of the rooms. Staff evacuated residents to the far wing of the building.
43. Rest Home for Elderly California November 1986 86-3526	There were 11 elderly residents, many frail or with mobility limitations, and three staffers.	The two victims were killed in their bedroom, the room of origin. The survivors all escaped by unspecified routes. One staffer helped several residents to escape. Some residents had to use walkers while escaping.	Unreported	One staffer helped several residents to escape and tried, using a garden hose, to gain access to and rescue the victims.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
44. Board and Care Home for Handicapped California November 1986 86-3525	There were 4 handicapped residents. No attendant was present when the fire began.	Unreported	No special provisions or protection reported.	Accounts vary. The fire department reports delayed discovery because no attendant was on the scene, but a news account says one resident was rescued by one of the operators of the home.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
45. Adult Foster Care Home Oregon July 1988 88-2042	There were 4 elderly residents in a foster care home also occupied by the couple that owned it. At the time of the fire, the couple were not there. Three other people were there. One was a small child visiting a resident. One was the mother of the resident manager; the mother reportedly was in charge of supervision although she spoke no English. The last occupant was not identified. The two victims were described by fire officials as non-ambulatory.	The two victims were overcome in their bedrooms. The five survivors were all rescued by fire fighters or a neighbor.	No special provisions cited.	The staff played no part in response to the fire.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
46. Center for Homeless and Disabled Pennsylvania August 1989 89-1846	There were 14 patients. The number of staff was unreported.	Unreported. The victims were on the third floor.	Unreported	Supervisors reportedly evacuated all survivors.

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
47. Board and Care Home California December 1990 90-1946	There were 15 mentally handicapped adult residents.	At least two residents jumped from second-floor windows. The two fatal victims were reportedly trapped in their rooms.	Unreported.	Unreported.

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
48. Residential Care Facility for Retarded Missouri October 1978 78-4244	No further information reported.	No detailed information available.	Unknown	Unknown

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
49. Halfway House Massachusetts March 1980 80-1046	Residents were people with unspecified emotional problems.	Unreported	Unreported	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
50. Halfway House New York May 1980 80-1491	There were 10 emotionally disturbed patients and one attendant present at the time of the fire.	Unknown. The victim was in the basement and died while trying to reach a double door.	Unknown	Unknown

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
51. Halfway House Massachusetts January 1981 81-1713	There were 38 residents, who were recently released prison inmates.	Mostly unreported. The victim fell to his death from a fifth-floor window while fleeing flames.	Unreported	Unreported

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
52. Halfway House Hawaii May 1981 81-3402	The property was in use as a halfway house for the mentally handicapped.	No details provided. The victim was killed by burns. He began in the room next to the room of origin.	Unreported	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
53. Residential Facility for Mentally Retarded Adults Florida October 1981 81-4533	There were 33 residents, with equivalent mental ages approximately in their early teens.	The victim, who apparently started the accidental couch fire in his own room by careless use of matches, became frightened and retreated into his closet, where he died. Other residents tried to talk him out before he went into the closet as they tried to fight the fire, but to no avail. There were few other details, but 7-12 occupants were rescued from thick smoke by fire fighters.	Unreported	There had been a fire drill 10 days before the fire, but when the fire occurred, the automatic and manual alarm systems were non-operational. Residents are timed in evacuation and are allowed to use fire extinguishers, which some tried to do to fight fire, but two of four extinguishers did not work.

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
54. Adult Foster Care Home Michigan March 1983 83-1272	There were 5 residents and the owner on site at the time of the fire. The residents were elderly and/or retarded.	The victim never moved from the bed his careless smoking ignited. His roommate ran out and yelled an alert. No other details were reported.	Unreported	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
55. Halfway House Tennessee November 1986 86-2921	Unreported	Unreported	There was no fire escape or other second way out from the third floor where fire began and the victim was killed.	Unreported

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
56. Halfway House Illinois June 1987 87-1976	Unreported	Unreported	Unreported	Unreported

Table 2. Resident and Staff Characteristics and Behavior, and Exit Protection (Continued)

Fire	Conditions of Residents	Escape Behavior	Exit Path Provisions and Protection	Staff Training and Performance
57. Adult Foster Care Home Oregon September 1989 89-2336	There were 4 residents, all apparently elderly. Others on site were the manager and her two children.	Responding to the smoke alarm, the manager's two children alerted a next door neighbor who helped one resident evacuate and then extinguished the fire with an extinguisher.	Unreported	Direct actions of manager were not reported.

Table 3. Fire Development and Fire Protection Systems

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
1. Sheltered Care Boarding Facility New Jersey January 1981 81-0001	The one interior stairway was enclosed on the first floor but not the second. The enclosure was effected by a solid-core wood door with self-closing device. Fire began in the first-floor living/dining room. It apparently burned through a wood-paneling-on-wood-studs partition to reach one of the two first-floor wings of bedrooms and vented to the outside via two large windows. Spread up the outside was aided by a large roof overhang. Fire spread into the lobby and breached the stair enclosure through an office under the stairway where the enclosure consisted of wood paneling on wood studs.	Heat detectors were installed throughout. Smoke detectors were present on either side of the fire door separating the two facilities and at the top of the main stairway. Manual-pull stations were present at each exit door. Because the alarm system was not connected to the fire department and the phone proved unuseable, notification was delayed 8 minutes until a police officer on patrol spotted it. This delay was considered the primary factor in the large loss of life. There were no sprinklers, and this was considered a significant factor in fire severity.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
2. Boarding House Missouri April 1979 79-0008	Fire began in the attic over the kitchen, probably from an electrical source. Fire spread through the undivided attic and vented through the roof.	There were nine single-station, battery-operated smoke detectors distributed uniformly throughout the corridors, most mounted on the walls. There was an alarm system with manual pull stations. There were no sprinklers. It appears that detectors operated only after the fire and smoke were severe enough to drop into the living area from the attic.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
3. Hotel New Jersey July 1980 80-0011	Fire apparently began in a concealed space above the basement ceiling as a result of a ground fault in cable. Fire spread through the concealed space (an open, unobstructed joist channel) and eventually broke through into a large recreation room next to the television room above which the fire began. The rec room was also the access point for one of the stairways to the first floor. At the top of this stairway was a 3/8-inch plywood panel door with no self-closing device, which was opened by the manager as she tried to investigate the cause of light smoke and was left open when heavy smoke poured out of the basement. Fire continued up the open, unenclosed stairway to the top. Beyond the basement, stairways, and first-floor lobby near the stairway, there was little flame extension but heavy smoke. Most victims died near this stairway. Flashover or backdraft explosion in the basement accelerated the spread, helping to fill the corridors with smoke and block access to the ladder and fire escape at the other end of the building. Trapped in their rooms, many residents were exposed to smoke through door louvers.	Single-station battery-powered smoke detectors were provided in half the bedrooms on the second and third floors. They activated earlier than the heat detectors, which were the only detectors on the basement level and first floor and the only ones connected to the alarm system. A fire alarm system control panel and an annunciator panel were located in the lobby at the desk area. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
4. Boarding House Ohio November 1979 79-0019	Fire began when a child playing with a lighter ignited a sofa in a first-floor apartment occupied by a mother, three young children, and a teenage babysitter. The babysitter awoke and discovered the fire, which had already spread to the curtains. She awoke the mother, who left the apartment to alert the owner. As she left, smoke went out the door into the rest of the building, and the mother's efforts to attack the fire with an extinguisher (after alerting the owner) proved futile. Fire spread rapidly due to a lack of compartmentation and a profusion of combustible furnishings and finishes. It is estimated that flashover conditions developed within 5 to 7 minutes after fire was discovered.	There were four single-station heat detectors, no smoke detectors, and no manual alarm system. The heat detectors were located in the basement and kitchen in two other unspecified locations on the first and second floors. No detector alarm was heard until after the fire department was on the scene. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
5. Rest Home New Jersey January 1973 73-4218	The fire was set by a resident in the linen storage room, which opened onto a first-floor corridor and onto the landing to the only stairway. Both doors from the room of origin had been removed. There was a wooden fire escape from the second floor, but apparently no one used it.	Fixed-temperature heat detectors were located throughout the building. Smoke detection consisted of two combination smoke and heat detectors at the tops of the two stairways (from basement to first floor and from first floor to second floor). Control equipment for the units and the system was in the basement. Dry-cell batteries were used as backup to house current for system power. The system did operate locally, but its signal was not received at the fire department, because the fuse at the fire station had blown and the backup battery at the fire station was dead. Maintenance at both ends had been the responsibility of the alarm company. The fire department had been given no instruction or responsibility for testing or maintenance, their part of the system had no warning signal for inoperative status, and the power supply and battery backup were in positions that were hard to access. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
6. Foster Home Pennsylvania April 1979 79-0252	Fire began in an electrical disconnect panel (fuse box) in one of the basement bedrooms near the door to the outside. Fire spread rapidly via the wood wainscot, trapping everyone in the basement. Fire spread to the upper levels was blocked by the closed door at the top of the stairway, but smoke penetrated all floors and caused all the deaths.	There were no sprinklers and no smoke detectors could be found, although the owner claimed to have five installed.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
7. Halfway House District of Columbia April 1979 79-0009	Fire began from a cigarette discarded on a first-floor couch near one of the interior stairways. The fire was discovered immediately by the smoker, but efforts to extinguish it proved ineffective. Fire spread to other furnishings in the lounge and to the hallway and stairway, where the extensive combustible furnishings and finishes fed the fire. Fire spread to the second- and third-floor landings was rapid.	There was a manual alarm system with pull stations on all floors in each half of the building. Each half also had a first-floor annunciator panel.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
8. Board and Care Facility Colorado March 1991 91-0004	Fire was caused by a malfunctioning, overheated ceiling fan motor that ignited structural members in the ceiling assembly of the attic over the lounge. Fire spread to other areas of the attic, collapsed the ceiling over the lounge, and entered the occupied space. Fire and smoke were spreading into the corridor when the care giver, responding to a detector alarm, discovered the fire. Flame spread properties of interior finish apparently were not a special factor, except for the dining room ceiling, where the exposed timbers and planks with applied finish probably did not comply with code requirements.	The facility had sprinklers in the kitchen and basement area, with a dry chemical system protecting the cooking equipment. The entire building was covered by a two-wire fire alarm system with heat detectors in all resident rooms, closets, and corridors and the attic. Smoke detectors were positioned near two corridor fire doors with magnetic hold-open devices, and a separate system of interconnected, hard-wired smoke detectors covered the corridors and dining room but not the lounge. The attic heat detectors did not operate when they should have, but the reason could not be determined. The corridor smoke detectors provided first alert but reportedly did not provide alarming at all positions, again for reasons that could not be determined.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
9. Adult Foster Care Facility Michigan June 1992 92-0002	Fire began as a non-incendiary ignition by smoking materials discarded into a kitchen waste basket. Fire spread to particleboard on an adjacent wall, then to a particleboard cabinet. Heat broke the glass in the window, and that sound led to discovery by the night supervisor. (Fire was severe enough to prevent his reaching the kitchen fire extinguisher but not severe enough to keep him from trying. One resident, after hearing the detector, reportedly tried twice to call the fire department but found the lines busy.) Fire then spread along several paths - out the open kitchen door to the hallway onto the hardboard wall covering, through the open serving window into the dining room, and into the combustibles in the concealed space above the suspended ceiling. It appears that flashover occurred in the kitchen at about the same time that most residents became aware of the fire. Since the kitchen was on the west side, smoke spread up the west side open stairways to the second floor and then to the attic. Smoke spread to the east side via a party wall door, normally kept open, on the first floor and through the penetrations in the floor assemblies. Flame spread early to a wood porch outside the kitchen and then up the exterior, where it burned through the roof into the attic.	The building had a system of interconnected, hard-wired smoke detectors in the sleeping area corridors and the basement. There were no sprinklers. Extinguishers were provided in several locations. It is believed that the detectors operated early in the fire and provided first notice to most residents.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
10. Boarding House Georgia August 1983 83-0009	The unenclosed interior stairway provided a part of the path for heat and smoke to spread and was considered a significant factor in fire severity.	There were five single-station smoke detectors, two below and three above, and one of them provided first notice of fire to the staff person who reported it. The use of unlinked single-station detectors was considered a significant factor in fire severity. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
11. Community Home Massachusetts April 1983 83-0005	Fire began as a result of careless smoking igniting a bed in a second-floor bedroom. The occupant tried without success to extinguish the fire, including dragging the mattress to the bathroom, where the fire flared up. The occupant fled, leaving the door open, and fire spread out the door.	There was a manual fire alarm system and a smoke detector system hardwired to the house power with detectors in corridors and stair lobbies. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
12. Group Home for Mentally Retarded Ohio December 1983 83-0014	Fire began in a first-floor television lounge, probably as a result of a cigarette discarded into a plastic trash can beside a couch. Heat and smoke spread up the stairway past the open wooden door and filled the second floor. The third floor occupants were successfully protected by the fire door, but all but one of them defeated this protection by not using the fire escape in favor of descending the stairway to the second floor, where they died.	Each hallway had a single-station smoke detector and a manual pull station. A fire alarm control panel and a standby battery system were located in the basement. The counselor said the alarm woke him, but no other details on system performance could be determined. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
13. Adult Foster Care Home Michigan November 1980 80-0017	Fire began when a resident who smoked tossed a discarded match on the floor, as was his custom. It ignited bedding. He tried to beat out the fire with a broom, then joined his roommate in attempting to extinguish the fire with a bucket of water. The attendant convinced them to stop and evacuate, and as they exited, they left the door to this room open. Smoke and heat spread into the first-floor hallway and up the stairway, eventually spreading to the entire house.	None

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
14. Adult Foster Care Home Michigan March 1983 83-0706	The fire began in the first-floor living room and spread up the stairway to the second floor, where all the occupants were located.	Smoke and heat detectors were present but not combined in a system. They awakened all the people who survived. A neighbor reported the fire at 1:00 a.m., roughly three hours after it was believed to have started. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
15. Board and Care Facility Kentucky November 1984 84-0630	Fire was confined to the unit of origin. Fire vented through a window, but a fire-rated ceiling finish was credited by fire officials with helping to prevent vertical extension.	Single-station, battery-powered, ionization-type smoke detectors were mounted on the ceilings of the corridors and of each apartment near the bedrooms. They were judged to have worked satisfactorily. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
16. Family Care Home New York March 1977 77-2200	Fire began in a living room wall space due to an electrical malfunction. Fire then spread up the stairs to the level with most bedrooms.	Not mentioned. Probably none.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
17. Rooming House Tennessee February 1978 78-1895	Fire began due to a discarded cigarette on a bed in the basement bedroom. The owner's daughter, on the first floor, smelled smoke and investigated, and heat and smoke rushed up from the basement when the door was opened.	At least one smoke detector was in the house, but all detectors had missing batteries. There were no sprinklers and no other alarm/detection systems.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
18. Halfway House for State Hospital Texas May 1978 78-1712	Unreported	There were hallway smoke detectors. No other information on type or performance was available. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
19. Rooming House New Jersey July 1978 78-2076	Fire began when a cigarette ignited bedding in one of the second-floor guest rooms. Fire spread rapidly up the open stairway to the third floor. Reporting of fire was delayed as occupants tried unsuccessfully to extinguish fire with a 2-1/2-gallon extinguisher.	None

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
20. Boarding Home for Elderly New Jersey February 1981 81-0004	Fire began in the dining area on the first floor. It spread into hallways and up stairwells. Other details were not released.	Smoke detectors were installed in hallways and stairwells. They operated. New licensing requirements mandated connection to the fire department, which the facility did not have, but the grace period had not expired. There were no sprinklers. New licensing requirements mandated them, but the grace period had not expired.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
21. Boarding Home for Outpatients New York December 1981 81-4868	Fire began in a first-floor bedroom, probably from smoking in bed. Fire spread to the second floor.	There were single-station, battery-operated smoke detectors on both floors and the basement, but the batteries had been removed from all of them. There were no sprinklers. A recent change in the local codes governing boarding homes required sprinkler systems but had been delayed in implementation.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
22. Residential Facility for the Mentally Impaired Illinois May 1986 86-0006	Fire began in a first-floor lounge and was contained to that floor. The one interior stairway was enclosed with a self-closing fire door. Smoke penetrated all levels, but no one was killed outside the first floor.	The building had smoke detectors in the corridors that provided local alarming and heat detectors in the kitchen, basement, and second floor that provided alarming locally and at the fire department. This system provided notice of the fire to the fire department at the same time as an occupant's phone call. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
23. Boarding Home Michigan June 1986 86-1708	A discarded cigarette ignited a couch in a second-floor lounge. Fire spread up the walls and across the hallway, filling the front of the house on that floor. Smoke filled the stairways and upper levels.	None

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
24. Halfway House Michigan June 1986 86-0907	The fire was an arson fire motivated by revenge. Other details were unreported.	Unreported

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
25. Mental Patient Halfway House Texas August 1990 90-0537	This incendiary fire was set by a resident, who used a cigarette to ignite fabric in the living room between 3 and 4 a.m. Fire rapidly spread to wall coverings and furnishings.	The property had no sprinklers and only one smoke detector on the first floor. Fire was discovered and reported to the fire department by a neighbor.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
26. Board and Care Facility Alabama September 1990 90-0008	The early-morning fire began in the central day room when a couch was ignited by an elderly resident while trying to light his pipe. Flames spread onto the wall and toward the ceiling and activated the room smoke detector, waking the owner's son. After several rescue trips, he ran to a nearby manufactured home and alerted his mother, who called the fire department. Fire spread early to other upholstered furniture in the room and grew sufficiently to block the exits from the room of origin and create untenable conditions throughout the facility.	An inadequate water supply for an installed residential sprinkler system was a primary factor in the loss of life. Water supply for the retrofitted system was provided from the domestic water system. Other systems included a fire alarm system with manual pull stations and AC-powered smoke detectors. There also were individual, battery-operated smoke detectors in resident sleeping areas. The detector in the room of origin apparently led to prompt alerting and rescue of the majority of occupants.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
27. Youth Home New York October 1990 90-0558	Fire reportedly began in a first-floor room, cause unknown.	There were reportedly three working smoke detectors.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
28. Group Home Texas March 1991 91-0512	Two resident children obtained matches or lighters (some of adult supervisors smoked) and, while playing with same, ignited lower level of a bunk bed.	There was one smoke detector, located in the hallway outside the bedroom. Activation was delayed because the door to the room of origin was closed.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
29. Convalescent Halfway House California April 1978 78-0771	An occupant fell asleep while smoking on a first-floor couch. After a long smoldering period, fire ignited and spread up interior stairway. A neighbor detected the fire. Fire officials say alarm was delayed because of alcoholic beverages on premise but do not indicate why this produced delay (e.g., impairment of residents, fear of discovery because alcohol was not allowed on premises).	None

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
30. Community Living Facility Illinois October 1980 80-0014	A resident set fire to a magazine and kicked it under a sofa in the third-floor recreational lounge. Fire built rapidly as the sofa became involved. Smoke may have been contained in the high, sloping ceiling sufficiently to delay activation of the corridor smoke detectors, which were 10 feet from the room's opening into the corridor.	The detection/alarm system had manual pull stations near stairways, combination heat and smoke detectors in corridors, and heat detectors in the kitchen, laundry room, and storage areas. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
31. Boarding Home for Mentally Retarded New Jersey January 1981 81-0681	Fire was started by a child playing with matches in a bedroom on the first floor. Fire was contained to that room. Smoke killed the three victims in their second-floor bedrooms.	The property had two addresses, corresponding to two halves of the property, each of which had its own detection equipment of unspecified type. The equipment in the area of origin was disconnected, while the detection equipment in the other side operated. Fire was reported by a neighbor, who saw glass break. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
32. Rooming House for Mentally Retarded New York November 1982 82-2495	The fire was started by a bedroom ceiling light fixture with no box to hold it up. Fire spread in the concealed spaces above the fixture and spread to the attic and roof because there was no firestopping. The fire is believed to have burned undetected for an hour, by which time it had surrounded the second-floor living area.	The building had five smoke detectors, with one or two on each floor, but none in the attic, so the fire developed undetected until an occupant downstairs saw its effects. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
33. Halfway House Pennsylvania April 1986 86-0824	Unreported	Smoke detectors were present on the second and third floors, but batteries were missing from both. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
34. Group Home for the Mentally Retarded Ohio January 1987 87-0734	Fire began on the first floor. At least two of the victims were killed upstairs. Fire and smoke spread to the second floor via the stairway.	Smoke detectors were present and operated. There were no sprinklers present.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
35. Group Home Wisconsin December 1990 90-0703	Not determined.	Unreported.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
36. Elderly Group Home Ohio December 1990 90-1058	Fire apparently began in early morning as a rekindle of an earlier cigarette/bedding fire in a first floor bedroom, which was handled by an occupant and not reported to the fire department. Fire spread via wall spaces to upper floors and roof area.	There were three battery-operated smoke detectors, one on stairwell wall between first and second floor, one on second hallway ceiling, one in an undetermined location. At least one survivor heard a detector operate.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
37. Foster Care Home District of Columbia December 1971 71-3402	Fire began, according to news accounts of fire inspectors' comments, with short circuit in wiring, and fire spread through first floor first.	Unreported

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
38. Shelter Home Idaho March 1975 75-0534	A gas-fueled water heater exploded, then ignited combustibles in the northeast corner of an apartment room, starting with wood paneling.	None

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
39. Group Home Missouri December 1979 79-2994	Fire began in a first-floor bedroom when a cigarette fell into a box of trash under a window. Fire spread up the wall, fueled by several layers of wood paneling, and spread via the wall to the second floor, attic, and roof. The victim's bedroom was at the opposite corner of the second floor; it is not clear why they were unable to escape, since the detectors apparently operated.	There were six battery-operated, single-station smoke detectors, and all apparently functioned. All had been approved in a reinspection the previous month. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
40. Foster Home Pennsylvania June 1981 81-0499	Fire began from smoking in bed, and the two victims were roommates in the room of origin on the first floor.	There were three detectors, two in the hallway and one in the basement. Their performance was undetermined. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
41. Rest Home Wisconsin February 1984 84-1775	Unreported	Unreported

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
42. Retirement Home Florida January 1985 85-0767	Unreported	At least one smoke alarm was present and sounded, but it appears to have operated only locally. The property was cited 14 months before for not having proper smoke detector protection. Sprinklers were not mentioned.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
43. Rest Home for Elderly California November 1986 86-3526	Unreported	There were several smoke detectors in the home. Their performance was not reported. There were no sprinklers. The fire marshal was quoted as saying residential care facilities of this size are required to have sprinkler systems.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
44. Board and Care Home for Handicapped California November 1986 86-3525	Fire began as a result of one victim's smoking in bed. Fire then spread out of the room of origin, down the hallways and into other rooms.	Smoke detectors were located at both ends of the hallway, but their batteries were dead or missing. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
45. Adult Foster Care Home Oregon July 1988 88-2042	Fire began on the back patio outside when an electrical fault in an enclosed chase ignited wood.	Detectors were located in all sleeping areas and all corridors. Their performance was not reported. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
46. Center for Homeless and Mentally Disabled Pennsylvania August 1989 89-1846	Unreported	Unreported

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
47. Board and Care Home California December 1990 90-1946	Fire began on the second floor. No other details were reported	Unreported.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
48. Residential Care Facility for Retarded Missouri October 1978 78-4244	Fire began in a second-floor living room. Details of spread were not reported.	The system was a supervised alarm system with four manual pull stations and four battery-operated, ionization-type smoke detectors. The automatic alarm to the fire department provided the first report of the fire but was delayed because the detector nearest the fire had no battery, apparently because of battery removal due to frustration with nuisance alarms from kitchen cooking fumes. The fire department believes the occupants would have had earlier warning if that detector had been operational. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
49. Halfway House Massachusetts March 1980 80-1046	Fire began in the victim's bed as a result of careless smoking. Flames were confined to the bed, with only minor damage to the rest of the room.	Unreported

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
50. Halfway House New York May 1980 80-1491	Fire swept the home, but the path of spread and the point of origin were not reported.	Unreported

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
51. Halfway House Massachusetts January 1981 81-1713	Unreported	Unreported

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
52. Halfway House Hawaii May 1981 81-3402	Fire began as an arson fire using accelerants between two beds in the middle first-floor bedroom. Fire burned through an interior door into an adjoining room.	None

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
53. Residential Facility for Mentally Retarded Florida October 1981 81-4533	Fire spread out of the first bedroom into the corridor at least 50' to 60' in each direction. All fire doors and walls were rated and worked well.	The system consisted of heat detectors and smoke detectors in all corridors, with manual pull stations, too. No alarm was sounded. Power had been shut off at the panel, the trouble buzzer had been silenced with a switch, and the backup battery had been drained. With most occupants asleep, the fire was estimated to have burned for about 10 minutes before detection. Notification of the fire department was delayed another 15-20 minutes while occupants tried unsuccessfully to fight the fire. There were no sprinklers.

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
54. Adult Foster Care Home Michigan March 1983 83-1272	Fire began due to smoking and falling asleep in bed. Fire was confined to the bedroom.	One single-station battery-powered smoke detector was in the hall. It operated when the bedroom door was opened but was not a factor in the fire. There were no sprinklers.

Table 3. Fire Development and Fire Protection Systems (Continued)

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
55. Halfway House Tennessee November 1986 86-2921	Fire began as a result of one of numerous overloaded circuits and extension cords in the attic. Fire was extinguished before spreading beyond part of the attic, and smoke damage was minor beyond the attic.	None

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
56. Halfway House Illinois June 1987 87-1976	Fire was confined to the apartment unit of origin, where it was started by a malfunctioning television set.	None

Fire	Fire Development and Vertical Spread Path Protection	Fire Protection Systems
57. Adult Foster Care Home Oregon September 1989 89-2336	The victim accidentally ignited her robe while sitting in a bedroom chair. The fire was extinguished before it spread beyond the victim and the chair.	A single-station smoke detector in the room of origin provided first notice of the fire. There were no sprinklers.

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This report presents available information on 57 fatal U.S. fires occurring during 1971 to 1992 and recorded in the National Fire Protection Association's (NFPA's) Fire Incident Data Organization (FIDO) as fires of technical interest in "board and care" homes. It is an update of a report prepared in 1990 and adds nine incidents to that earlier study. It is part of a larger project on fire safety in board and care homes. The information has been organized into three tables. Included is information on: death tolls, construction details, code compliance, occupant behaviors, fire development, and building fire protection systems.

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