

# CENTRAL COMMUNITY HOME FIRE

Worcester, MA

April 19, 1983



# FIRE INVESTIGATIONS

NATIONAL FIRE PROTECTION ASSOCIATION

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NATIONAL  
FIRE PROTECTION  
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INTERNATIONAL

Summary Investigation Report

Central Community Home Fire  
Worcester, Massachusetts  
April 19, 1983

Prepared by

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In Cooperation with

Federal Emergency Management Agency/  
United States Fire Administration

and

National Bureau of Standards/  
Center for Fire Research

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## INTRODUCTION

The National Fire Protection Association (NFPA) investigated the Central Community Home fire in order to document and analyze significant factors that resulted in the loss of life. This study was conducted under a Major Fires Investigation Agreement with the Federal Emergency Management Agency/United States Fire Administration (FEMA/USFA) and the National Bureau of Standards/Center for Fire Research (NBS/CFR).

The agreement, funded by all three organizations, provides for the investigation of technically significant fires by the NFPA Fire Investigations and Applied Research Division to document and analyze incident details and report lessons learned for loss prevention purposes.

The NFPA became aware of the Central Community Home fire on the day of the fire, April 19, 1983. Richard Best, Senior Fire Analysis Specialist, and Thomas J. Klem, Director, Fire Investigations and Applied Research Division, traveled to Worcester that same day to document the facts related to this fire. A two and one-half day on-site study and subsequent analysis were the basis for this report and NFPA's analysis of the event. Entry to the fire scene and data collection activities were made possible through the cooperation of the Worcester Fire Department. This report presents the findings of the NFPA data collection and analysis effort.

This report is another of NFPA's studies of fires having particularly important educational and/or technical interest. The information presented is based on the best data available immediately after the fire incident and that obtained during subsequent follow-up. It is not NFPA's intention that this report pass judgment on, or fix liability for, the loss of life and property at the Home.

The assistance of Chief James Nally, District Chief George P. Beringer, and Captain Joseph P. Hennigan of the Worcester Fire Department, and of Professor Robert W. Fitzgerald and Richard Bielen, Worcester Polytechnic Institute, is acknowledged and appreciated. The assistance of NFPA staff members is also acknowledged: Rita Fahy, Mathematician, and Thomas J. Klem, Director, Fire Investigations and Applied Research Division.

## ABSTRACT

Seven occupants died in a fire involving a facility for former mental health patients on April 19, 1983. The facility, the Central Community Home located in Worcester, Massachusetts, was licensed by the city for lodging and boarding rooms. This was another in a series of fatal boarding home fires in which deinstitutionalized persons were housed.

The three-story wood frame building had open stairs and combustible interior finish. The building was equipped with a manual fire alarm system, a multiple-station smoke detection system powered by the house electrical service, emergency lighting and portable extinguishers. There was no sprinkler protection or standpipe system.

Twenty occupants were located in sleeping rooms on the first, second, and third floors. There was no staff person at the Community Home when the fire occurred.

A second-floor occupant discovered the fire under his bed at about 2:00 a.m. He attempted unsuccessfully to extinguish the fire and then dragged or carried the mattress along the second-floor corridor to the bathroom where it flared into a full-flaming condition. The occupant ran downstairs and out of the building.

The fire alarm or smoke detection system activated and most of the occupants were able to evacuate, unassisted, using the front stairway. The fire rapidly spread throughout the second floor creating untenable conditions on the second and third floors including both stairways.

The Worcester Fire Department received an alarm at 2:21 a.m. and reported very heavy smoke throughout the building upon their arrival. The fire fighters conducted search and rescue operations. They made their way to the second floor with difficulty, encountering fire at the second-floor landing

with the north side of the second floor fully involved with fire. With visibility at zero on the third floor, fire fighters using self-contained breathing apparatus located four victims in two rooms. One of those four victims was located in a closet. Two victims were located in one room on the second floor. The seventh victim died as a result of falling or jumping from a third-floor window. One other occupant and five fire fighters were injured.

The cause of the fire was determined by the Worcester Fire Department investigators to be accidental from the careless use of smoking materials.

The smoke detection and alarm system in the Central Community Home did not provide adequate protection for the occupants, given the combustible interior finish, inadequate means of egress, lack of compartmentation, lack of sprinkler protection, and lack of supervision in the facility. Although the occupants were apparently alerted early to the fire, they did not have time to escape from the building before exit access corridors and the exits themselves became untenable due to the fire.

Based on NFPA's investigative study, the following are considered to be the major contributing factors to the loss of life in the Central Community Home fire:

- Stairs were not enclosed with fire barriers or protected.
- The fire was not extinguished in its incipient stage.
- The presence of combustible interior finish in exits and exit access corridors.
- Fire exit drills were not conducted at the Central Community Home.
- There was neither a direct fire alarm connection to the fire department nor a staff person on duty when the fire occurred to provide immediate notification to the fire department.
- Sleeping room doors did not have a fire protection rating of 20 minutes and were not self-closing.

Since the fire, the building owner, of his own volition, has had a sprinkler system installed in the renovated facility.

## BACKGROUND

The Central Community Home was located at 809 Main Street, Worcester, Massachusetts. Adjoining the three-story Community Home on the south side was a one-story community kitchen, with a dining room and kitchen operating as a separate licensed restaurant. The kitchen was not part of the Community Home, but was owned by the same principals. An entrance was located between the dining room and Community Home at the first floor level of the home. Some occupants purchased meals at the kitchen on a monthly basis.

### The Central Community Home

The facility was licensed for lodging and boarding rooms by the city. The three-story and basement wood frame building, estimated to be 80 to 85 years old, appeared to be a renovated single-family dwelling. Open stairs were located at the front and rear of the building. The front (west) stairway leading from the first floor to the third floor was open from bottom to top with winding stair treads (winders) near the top of each flight. The rear (east) stairway, leading from the basement to the third floor, had a hollow core door at the third floor and a wood panel door at the first floor entrance to the basement stairs. Both doors were manually closing; the stairway was open at the second floor.

The rear stairway was relatively narrow from the second floor landing to the third floor, and decreased in width even more at the top. From 29 inches wide at the bottom, the stairway narrowed to 25 inches at the top (third floor), which provided one unit of exit width<sup>1</sup> according to NFPA's Life Safety Code<sup>2</sup>, but did not meet minimum width requirements.

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<sup>1</sup>The basic unit in egress calculations is the 22-inch width needed for the orderly movement of a single file of people.

<sup>2</sup>NFPA 101-1981, Code for Safety to Life from Fire in Buildings and Structures known as the Life Safety Code and cited herein as the Code.

Interior partitions were constructed of plaster on wood lath on wood studding. The partition separating the second-floor corridor from Room 10 appeared to have been added subsequent to original construction. It was constructed of gypsum board on both sides of wood studding. Wood paneling was used extensively throughout the facility in rooms, corridors, and stairways. Doors to sleeping rooms were manually closing, both hollow core and wood panel doors.

The building was equipped with a manual fire alarm system, a multiple-station smoke detection system powered by the house electrical service, emergency lighting and portable extinguishers. There was no sprinkler protection or standpipe system. The smoke detectors were located in the corridors with alarm stations, emergency light units and detectors within each corridor and at the front and rear stair lobbies.

A small front office, another private office, and T.V. room and bathroom, in addition to three sleeping rooms, were located on the first floor. There were five sleeping rooms and a bathroom on both the second and third floors plus a T.V. room on the second and a washing machine, dryer, and storage area on the third floor. The total of 13 sleeping rooms were arranged for two occupants per room.

Twenty occupants were located in rooms on three floors at the time of the fire. Five were on the first floor, seven on the second floor and eight on the third floor. Three other occupants had been hospitalized prior to the fire as a result of failing to take their medication and were not in the facility on April 19. The building owner and his wife were in attendance at the home during the day and a security person patrolled this building and seven other properties at night. There was no staff or supervisory person on duty at the time of the fire.



Residents ranged in age from 25 years to 60 years; six were female and 14 were male, according to the building owner. The women residents occupied Room 4 on the first floor, Rooms 6 and 10 on the second floor, and Room 11 on the third floor. Men residents occupied the remaining rooms on each floor. The building owner also stated that he attempted to place older residents on lower floors and younger occupants on upper floors.

The building owner stated that he was at the Community Home until 9:30 p.m. on April 18, the night before the fire. He said that he had checked the smoke detection system before he left to determine that it was operational. The owner further stated that the night security person was at the Community Home and had checked through the entire building at 1:30 a.m. on the morning of the fire.

The Community Home occupants were described by the Medical Director of the Worcester Community Mental Health Program as discharged mental health hospital patients with minimum medication needs. He described the occupants as having schizophrenic, manic depressive or character disorder histories. Two of the occupants reportedly had histories of alcohol-related problems. Many occupants arranged independently to stay at the Community Home, although some were referred by mental health personnel.

## THE FIRE

Some time around 2:00 a.m. on April 19, 1983 the occupant of Room 9, the rear corner (northeast) room on the second floor, discovered a fire under his bed. He reportedly attempted to blow it out, then to beat it out without success. He then went to the bathroom for water to use to extinguish the fire. Still unable to control the fire, he dragged or carried the polyurethane foam mattress to the bathroom to try to put the fire out.

Once inside the bathroom the mattress suddenly flared into a full-flaming condition. The room occupant abandoned his efforts to extinguish the fire and ran downstairs and out of the building.

The fire alarm or smoke detection system activated and most of the occupants were able to evacuate, unassisted, using the front stairway. The occupant in Room 12 on the third floor tried to use the rear stairway, but found there was too much smoke. He went to the front stairway and found it was also filled with smoke. He was able to exit from the building using the front stairs, but could not see because of the smoke. The fire rapidly spread throughout the second floor creating untenable conditions on the second and third floors including both stairways.

One occupant ran to notify the security person who was in another building about one block away. The security person telephoned the fire department. Simultaneously, two passersby saw the fire and telephoned the fire department.

The Worcester Fire Department received an alarm at 2:21 a.m. First arriving companies reported very heavy smoke throughout the building on their arrival. Fire fighters were told that there were people in the building and a person at the rear ready to jump. Ground ladders were raised; a 2 1/2-inch line was advanced in the front entrance and entry was attempted at

the rear. Aerial towers and an aerial ladder were utilized at the front of the building, but other areas of the building were not accessible to aerial apparatus.

A second alarm was ordered by the Deputy Chief en route to the fire and a third alarm was requested upon arrival. Fire fighters encountered smoke and fire in the front stair and heavy smoke in the rear stairway. They made their way to the second floor with difficulty, encountering fire at the second-floor landing with the north side of the second floor fully involved with fire.

With visibility at zero on the third floor, fire fighters using self-contained breathing apparatus located four victims in two rooms. One of those four victims was located in a closet. Two victims located in Room 10 on the second floor were the last found. The seventh victim died as a result of falling or jumping from a third-floor window. One other occupant was critically injured and five fire fighters were injured.

Additional hose lines were advanced to second and third floors over ground ladders and from aerial towers. Once the fire on the second floor was knocked down, fire fighters who had entered the front reduced their 2 1/2-inch hose line to a 1 1/2-inch line and advanced to the third floor and continued fighting the fire until it was extinguished.

#### Casualties and Damage

Seven occupants of the Central Community Home died, another was injured, and five fire fighters were injured. Of the seven fatalities, the cause of death was reported to be from smoke inhalation in all cases except for the person who jumped or fell from the third floor. None of the fire fighters were seriously injured.

Damage to the building was severe on the second and third floors. There was no fire damage below the second floor, other than minor extension of fire down the paneling of the north wall of the front stairway.

Fire damage on the third floor was most severe in the corridor in the front (west) two-thirds of the building where the wall paneling burned to within 10 inches of the floor. Doors to the sleeping rooms were burned at the top with many burned more than halfway from the top to the bottom. Smoke and heat marks in all rooms were to within one-and-one-half to two feet from the floor. It appeared that the rear stairway door remained closed for a period of time during the fire and that the main fire exposure to the third floor was by way of the front stairway. A light bulb at the top of the rear stairway was not broken, but part of the plastic smoke detector housing was melted, indicating that temperatures in the rear stairway reached above 475 °F but did not exceed approximately 1,500 °F.

The fire damage on the second floor was heaviest in Rooms 9 and 10, the T.V. room and corridor connecting those rooms. There was charring of wallcovering to the floor in Room 10 that was first believed to be the room of fire origin. However, there was similar damage in Room 9 with severe damage in the T.V. room and connecting corridor. Smoke and heat marks in other sleeping rooms on the second floor were to within two to three feet from the floor.

## ANALYSIS

### Cause and Origin

The cause of the fire was determined by the Worcester Fire Department investigators to be accidental from the careless use of smoking materials by the occupant in Room 9 on the second floor.

### Occupant Actions

Of the 20 residents known to have been in the building at the time of the fire, seven were killed and one was injured. Most of those who escaped were interviewed by the Fire Department. This section of the report describing occupant actions is based on information received from those interviews.

Most of the residents reported that they were awakened by the building fire alarm. All five occupants on the first floor escaped. Interviews were conducted with two occupants of Room 4, the rear (east) room below the room of origin. Both reported hearing unusual dragging or rolling noises on the floor above. One reported seeing fire on the railing of the front stairway as she left by the front door.

Two occupants of the second floor died in their room near a bed on the outside wall of Room 10. All other occupants on that floor were interviewed by the fire department and reported leaving by the front stairway.

The occupant of the room of origin, after dragging his mattress to the bathroom, ran down the front stairs. He was later seen on the first floor by a passerby who had entered the building to arouse the occupants. The other four residents on the second floor were awakened and exited by the front stairway. Only one reported seeing flames. He had looked toward the bathroom as he entered the hallway and saw flames in the doorway.

As previously reported, one occupant of the third floor attempted to use the rear stairs. The stairway was smoke filled and he used the front stairs to leave the building. Another third-floor occupant reported that he heard the alarm and encountered smoke, but was able to exit from the building using the front stairs. The only other surviving occupant of the third floor heard the alarm and saw heavy smoke in the corridor. He could not wake his roommate. He saw flames coming up the stairway and jumped from the window at the rear to the roof of the rear (east) addition.

### Life Safety Code Analysis

Conditions at the Central Community Home at the time of the fire were compared to the NFPA's Life Safety Code requirements for residential occupancies. The facility was considered to be classified as a dormitory which the Code states shall comply with the requirements for existing hotels, Chapter 17, except as modified in Section 17-6, Existing Dormitories.

The protection of vertical openings is required in Chapter 17 in addition to the fundamental requirement cited later in this report. Neither stairway at the Central Community Home was enclosed or protected.

The Code requires that the boiler room be separated from other parts of the building with any opening protected by a self-closing fire door. The heating boiler in the Central Community Home basement was not separated from other parts of the building, although this was not a factor in the fire.

The interior finish requirement (17-3.3) is for Class A or B in vertical exits and exit access. The interior wall paneling at the Central Community Home was not tested, but the flame spread rating of similar wall panel materials indicates the material at the Community Home would probably range somewhere between 150 and 200, a Class C interior finish.

Guest room doors which open into an interior corridor are required by the Code to be self-closing and to have a fire protection rating of at least 20 minutes. The sleeping room doors at the Central Community Home did not have a fire protection rating of 20 minutes and were not self-closing.

The Life Safety Code also requires that fire exit drills are to be conducted regularly in dormitory occupancies. This requirement is in chapter Chapter 31, Operating Features of the Code:

**31-1.5.1** Fire exit drills conforming to the provisions of this chapter of the *Code* shall be regularly conducted in occupancies where specified by the provisions of this chapter, or by appropriate action of the authority having jurisdiction. Drills shall be designed in cooperation with the local authorities.

**31-1.5.2** Fire exit drills, where required by the authority having jurisdiction, shall be held with sufficient frequency to familiarize all occupants with the drill procedure and to have the conduct of the drill a matter of established routine.

**31-1.5.3** Responsibility for the planning and conduct of drills shall be assigned only to competent persons qualified to exercise leadership.

**31-1.5.4** In the conduct of drills emphasis shall be placed upon orderly evacuation under proper discipline rather than upon speed.

**31-1.5.5** Drills shall include suitable procedures to make sure that all persons in the building, or all persons subject to the drill, actually participate.

**31-1.5.6** Drills shall be held at unexpected times and under varying conditions to simulate the unusual conditions obtaining in case of fire.

Fire exit drills were not conducted at the Central Community Home.

Provisions for the immediate notification of the public fire department are required in 17-3.4.4 of the Code. Without supervisory personnel, staff, or a security person available at all times at the Community Home, it is considered that a direct fire alarm connection to the fire department was necessary to comply with this section. There was no direct fire alarm connection provided and no staff person on duty when the fire occurred at the Community Home.

Although the Life Safety Code does not specify the number of employees or staff required for various occupancies, the assumption is made that certain occupancies will have supervisors and employees; nursing staff in nursing homes, teachers in schools, etc. Health care facilities are required to have "adequate staffing" (12-1.1.3), and Chapter 14 calls for "adequate trained staff" for detention and correctional facilities (14-1.1.5).

Some occupancies, for example, such as residential-custodial care facilities, indicate by definition that social and personal care services are provided and therefore that staff assistance is available. It is noted in the health care occupancies chapter of the Code that facilities housing older persons or mental patients, including the mentally retarded, who are judged to be capable of self-preservation with minimal staff assistance in an emergency, are covered by residential chapters of the Code. The residential chapters do not specify that staffing be provided, but again the assumption is made that hotels will have employees who can be instructed and drilled.

Many of the residents of boarding homes or board and care homes, although not requiring daily medical care, nevertheless have disabilities that could prevent them from acting quickly enough to survive a fire. At the present time, the occupants of these facilities are required to be judged capable of self-preservation (residential occupancy) or not capable of self-preservation (health care occupancy). There is a need for a classification between the two extremes to cover boarding or board and care homes. The Committee on Safety to Life is addressing the subject at the present time. The proposed classification will need to address staffing at such homes and whether or not a reasonable degree of safety from fire depends upon staff assistance during a fire.



## Major Contributing Factors

Based on NFPA's investigative study, the following are considered to be the major contributing factors to the loss of life in the Central Community Home fire:

- Stairs were not enclosed with fire barriers or protected.
- The fire was not extinguished in its incipient stage.
- The presence of combustibile interior finish in exits and exit access corridors.
- Fire exit drills were not conducted at the Central Community Home.
- There was neither a direct fire alarm connection to the fire department nor a staff person on duty when the fire occurred to provide immediate notification to the fire department.
- Sleeping room doors did not have a fire protection rating of 20 minutes and were not self-closing.

## Discussion

The smoke detection and alarm system in the Central Community Home did not provide adequate protection for the occupants, given the combustibile interior finish, inadequate means of egress, lack of compartmentation, lack of sprinkler protection, and lack of supervision in the facility. Although the occupants were apparently alerted early to the fire, they did not have time to escape from the building before exit access corridors and the exits themselves became untenable due to the fire.

One of the fundamental requirements of the Life Safety Code addresses vertical exits and other vertical openings between floors of a building:

2-9 Every vertical way of exit and other vertical opening between floors of a building shall be suitably enclosed or protected, as necessary, to afford reasonable safety to occupants while using exits and to prevent spread of fire, smoke, or fumes through vertical openings from floor to floor before occupants have entered exits.

The importance of proper enclosure of vertical openings in buildings has been demonstrated in countless fires over the years, including multiple-death

fires in all of the variety of occupancies that are known as boarding homes — boarding houses, half-way houses, retirement homes, board and care homes, community living facilities, etc.

The occurrence of a dozen multiple-death fires in boarding homes during the past five years has focused attention within the fire protection community on this particular kind of occupancy. An analysis of several boarding home fires that occurred in recent years reveals disturbing trends. The facilities in which fatal fires occur are often older buildings that had been converted to serve as boarding homes. Many of the facilities were either licensed as something other than a boarding home (such as a hotel) or were unlicensed "underground" boarding homes. Combustible interior finishes and unprotected vertical openings were significant factors in many of the fires. None of the facilities provided sprinkler protection. The trend of significant factors identified in previous boarding home fires continues with the Central Community Home fire in Worcester.

As with many fire problems, there is no particular mystery about how to reduce the number of boarding home fire deaths. Enclosing stairs, providing at least two ways out, avoiding use of combustible interior finishes, compartmenting buildings, providing automatic detection and extinguishment systems, and training staff and residents in emergency procedures would greatly reduce the number of fire deaths.

An interesting postscript to the Central Community Home fire is that the building owner, of his own volition, has had a sprinkler system installed in the renovated facility.

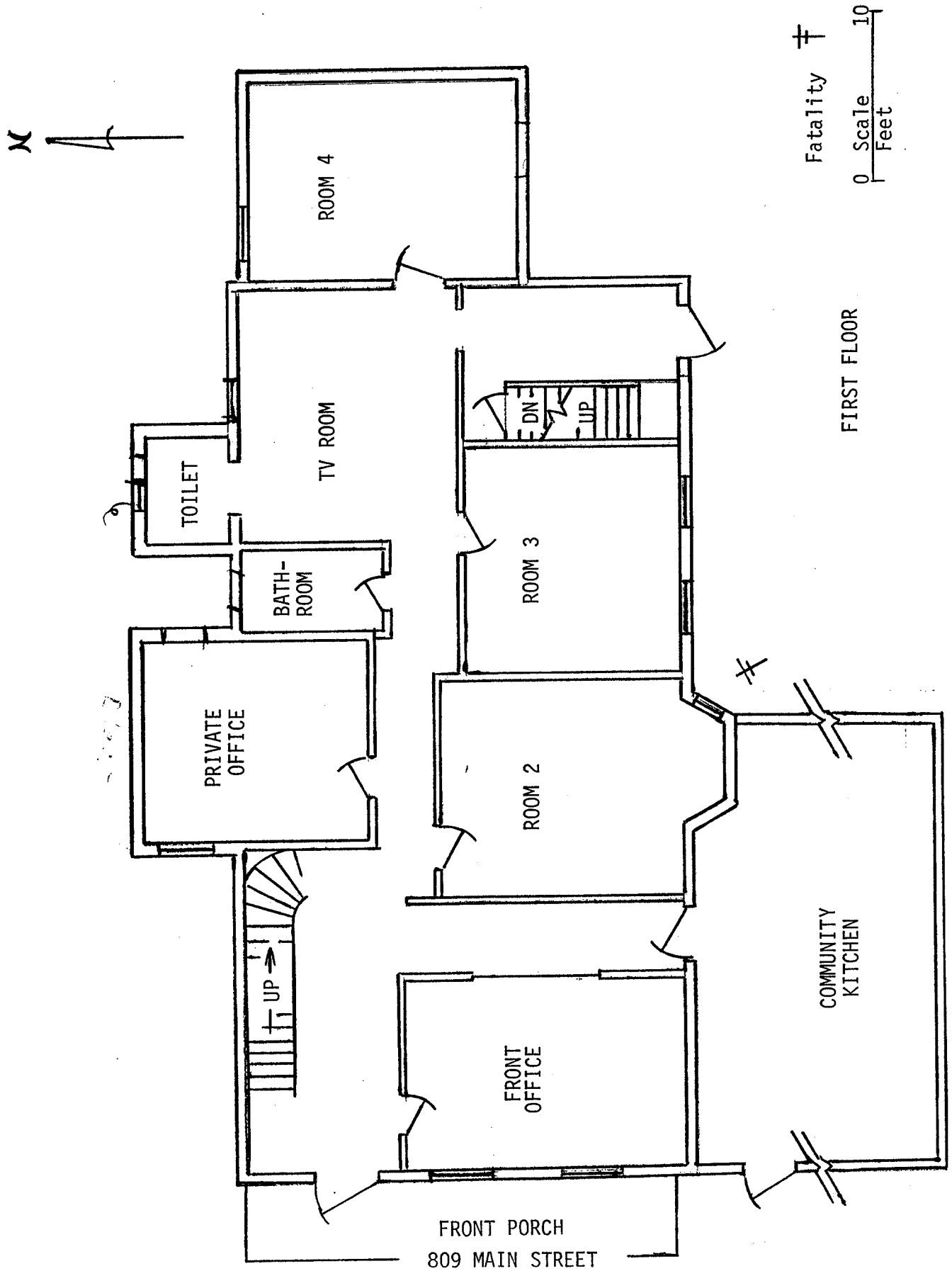
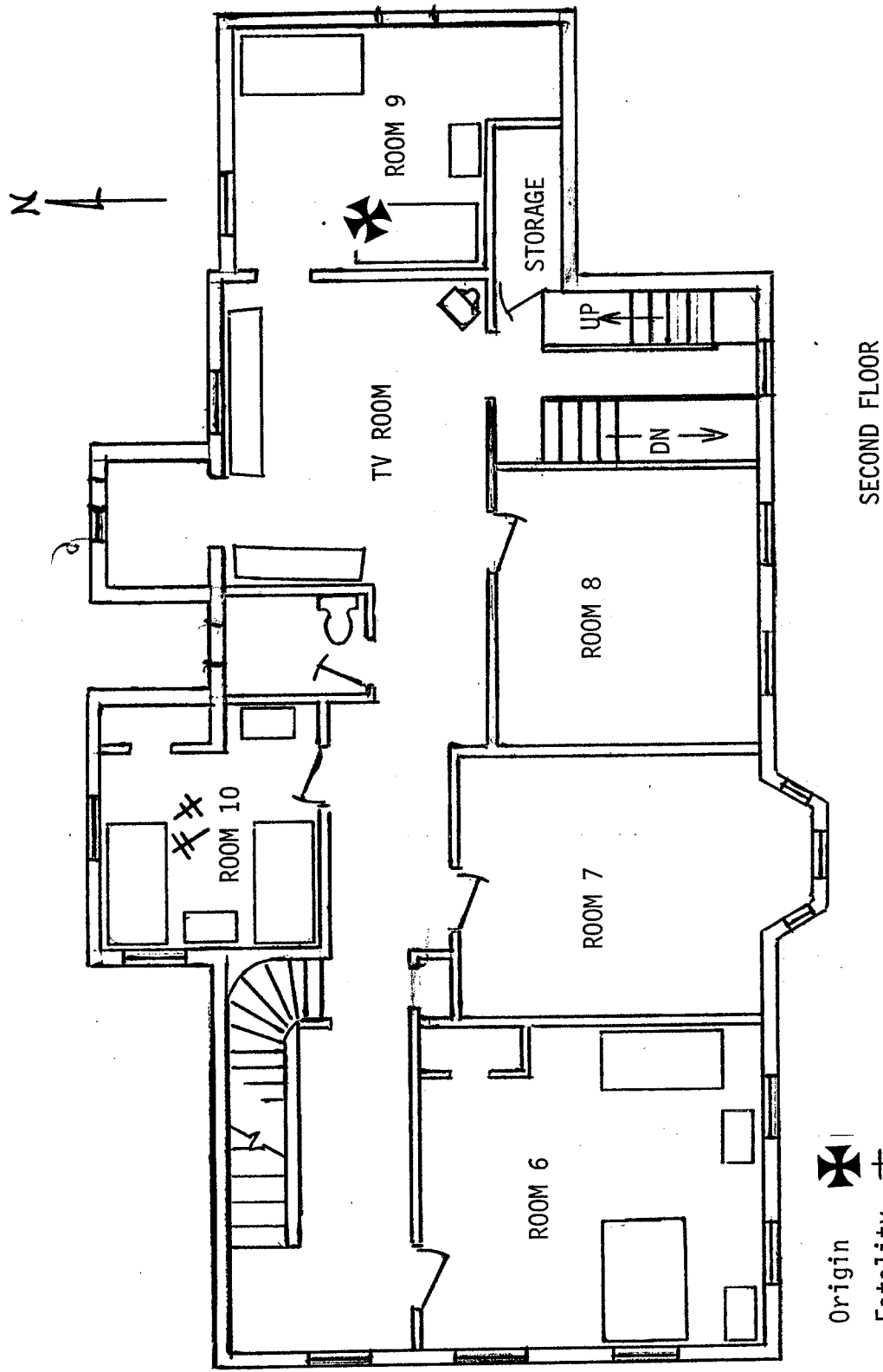
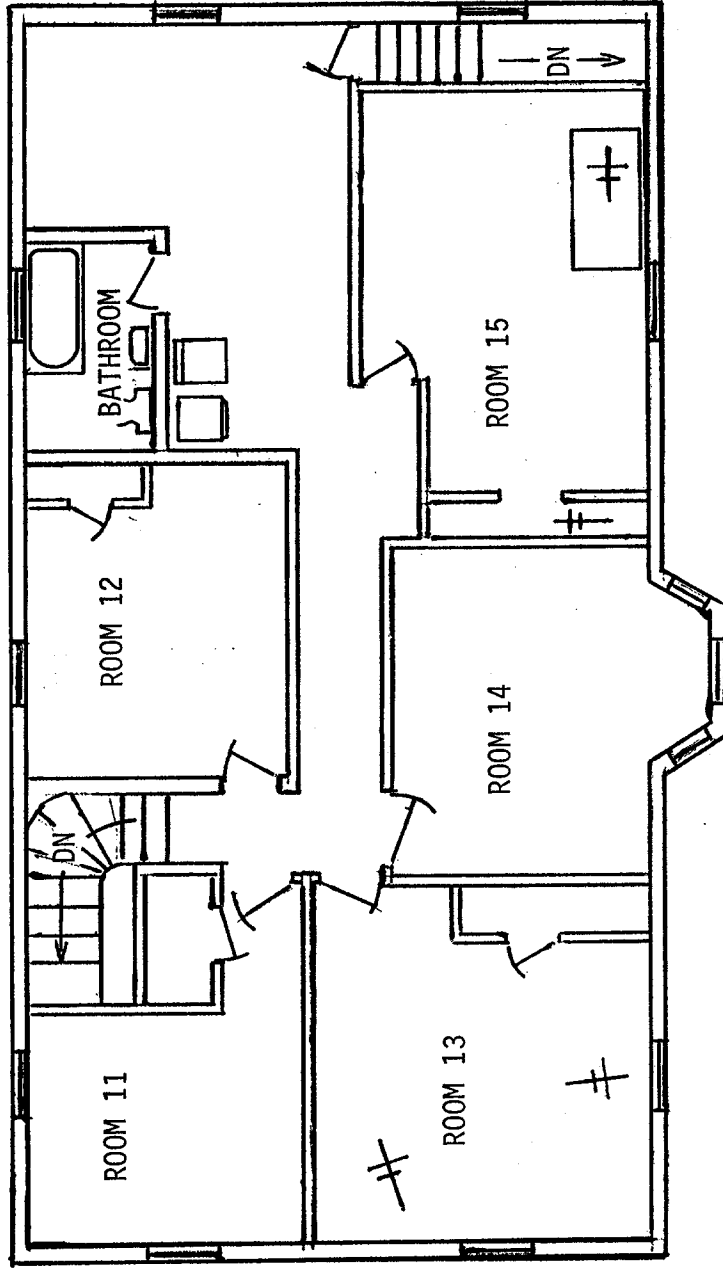
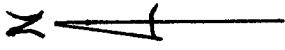


Figure 1.



FRONT  
809 MAIN STREET

Figure 2.



FRONT  
MAIN STREET

THIRD FLOOR

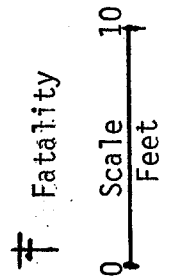


Figure 3.