

Flames Trap Fifteen in One-Story School

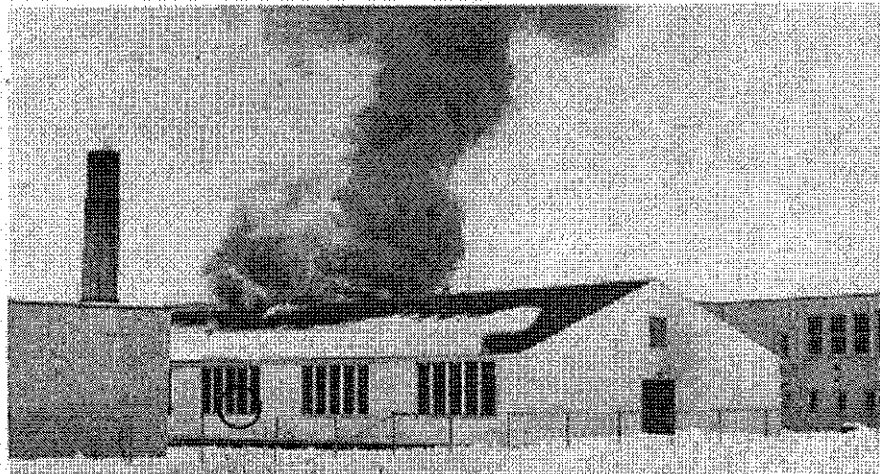
By Richard E. Stevens
NFPA Fire Record Department

Tragedy struck Cheektowaga, a fast-growing suburb of Buffalo, on March 31, 1954 when a flash fire swept through a one-story, eight room annex of the Cleveland Hill School and took the lives of 15 sixth grade children. Ten of this number burned to death at the time of the fire. Nineteen other children were burned or injured escaping through windows. One of the injured died of burns in the hospital on Thursday, April 1, three succumbed on Saturday, April 3, and the fifteenth victim died on Thursday, April 8. Of the total deaths to date, 9 were girls and 6 were boys, all aged 10 to 12 years.

The fire apparently originated in the teachers' workroom where stage properties were stored. Flames burned undetected until fire broke through the closed door of this room, flashed into the

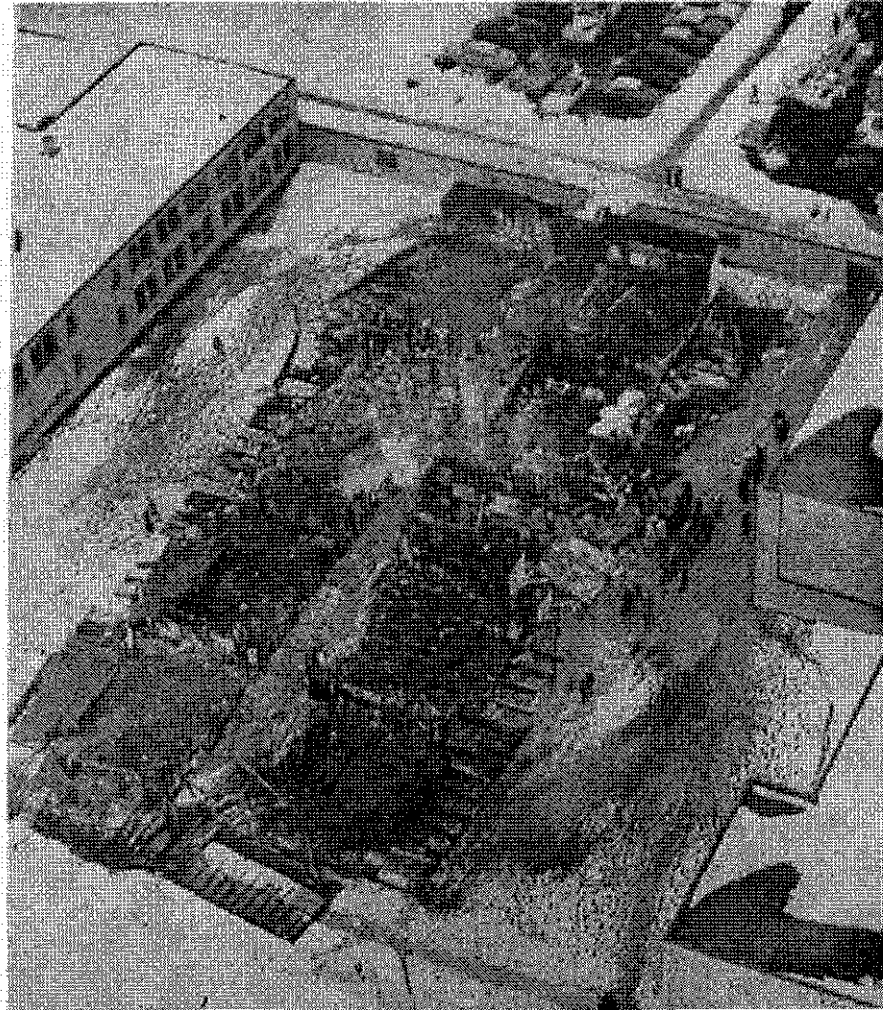
corridor and entered, through an open door, the music room (diagonally across the corridor) where 31 pupils, two teachers and a cap and gown salesman first saw the flames. It was impossible to escape through the corridor so the teachers broke windows in the room and pushed the children out into the snow until fire singed their clothes and burned their arms and necks. The teachers thought they had helped all the pupils out the windows before they themselves leaped into the snow. When firemen had extinguished the fire, 10 bodies were found near the windows in the music room, the only occupied section of the one-story school annex.

The cause of the fire is unknown at the present time. The rapid spread of flames is attributed to heat and gases that



Buffalo Courier-Express

Taken very early in the fire, this photo shows the extent of fire in the area of the music room. Note open window (circled) in the room of origin. Smoked area at the end of the building over the door probably is a result of the initial flash of fire through the corridor.



Wide World Photo

Fifteen children were fatally burned in this one-story school annex in Cheektowaga, N. Y., on March 31, 1954. Fire originated in the closed teachers' workroom (see smoke rising from room at left of chimney) and after burning through the wood panel door, flashed through the corridor and into the music room (diagonally across corridor) where 31 pupils, 2 teachers and a cap and gown salesman were located, the only occupants of the structure. Unable to enter the corridor, the terrified children, aided by the teachers, broke the glass in the windows of the room with their hands and plunged into the snow. White cloths (right of chimney) cover the bodies of ten children that were burned to death at the time of the fire. Five other children died of burns later in the hospital.

accumulated from the undetected fire before the flames broke through the workroom door. The rush of air through the windows, broken by the escaping occupants, and the combustible fibreboard ceiling increased the spread of fire into the music room. Fire also flashed both ways in the corridor providing further evidence of the presence of a large accumulation of hot gases.

Whatever the cause, the delay in detection, the absence of automatic protection, the combustible ceiling and the presence of highly combustible contents in the room of origin have resulted in the first fatal school fire, according to the NFPA Fire Record Department, since 1947 when four boys were killed in Monroe City, Mo. high school.*

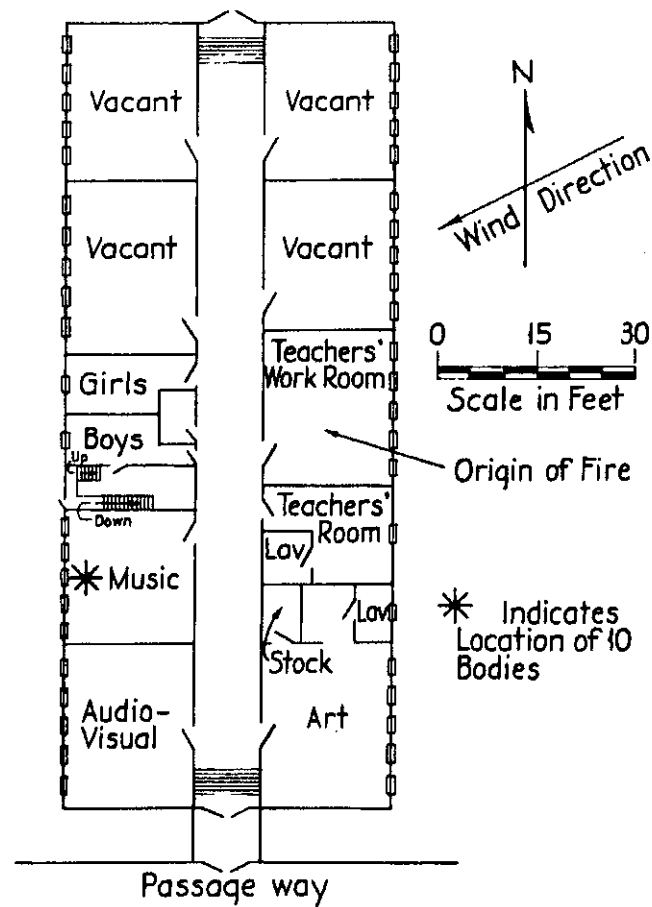
Construction

The one-story, 50 ft. by 120 ft. wooden building was constructed by the Federal Government in 1941 to relieve the crowded conditions brought about by the influx of defense workers into Cheektowaga.

The roof construction consisted of matched boards over wood trusses. The roof covering was asphalt shingles over asphalt building paper. Sidewalls were wood framing covered with matched sheathing and clapboards. The foundation wall was concrete block. Only the furnace

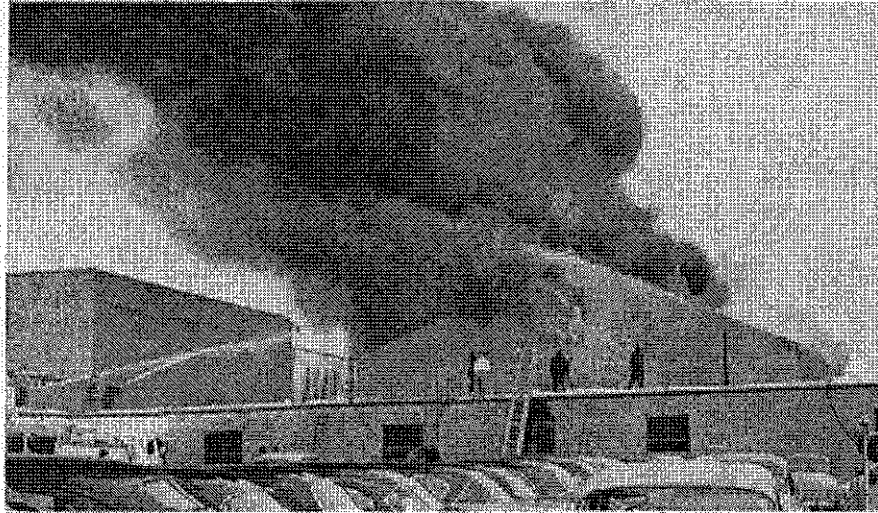
room (15 ft. by 20 ft.) was excavated to full height. The remainder of the basement was excavated to a depth of 5 concrete blocks (about 40 inches).

As indicated in the floor plan below, the building contained 7 classrooms, a teachers' workroom, a teachers' room, 4 toilets and miscellaneous closets and storerooms. A 10 ft. wide corridor ran full length of the structure with two 3 ft. wide doors at each end. The door on the north end led outside; the door on



*Pan of gasoline ignited from welding sparks cut off escape from the only exit in the 1-room wooden building used for vocational training.

Floor plan of one-story annex of Cleveland Hill School. Since no architects plans were available, this plan is based on a sketch that appeared in the April 2 issue of the Buffalo Courier-Express and from an inspection of the ruins.



Buffalo Courier-Express

This photograph indicates the fire fighting handicaps due to the arrangement of buildings. Fire-resistant passageway connecting the school buildings is shown in the foreground.

the south end opened into a vestibule where double metalclad doors led to a fire-resistant passageway leading to other buildings. The metalclad doors were equipped with panic latches.

All ceilings were combustible fibreboard panels 4 ft. square. Walls were covered with plaster board and 1 in. by 6 in. wood wainscoting up to about 4 ft. from the floor. Walls in the boys' toilet were the only exception to this construction. These walls were plaster over gypsum lath. All floors were matched hardwood. The interior of the building was painted during the summer of 1953.

The attic was undivided. There was a ventilating louver on each end of the attic. Loose rock wool insulation was spread in the joist channels directly on the fibreboard ceiling.

Interior doors were of the wood panel type. Each classroom contained five double hung windows $3\frac{1}{2}$ ft. by 8 ft., each with eighteen 12 in. by 18 in. panes

of glass. The distance from the floor to the window sills was 40 inches.

Heat for the building was supplied by a coal fired, forced hot air heating system. The system contained automatic draft controls but the fan was turned on manually and shut off automatically when the thermostat was satisfied. One large metal duct extended from the furnace to the attic and the full length of the attic where branch ducts fed the individual rooms. Manually operated dampers were distributed through the main duct so that any portion of the duct could be closed off. Sheet metal return air ducts led from the floor near the classroom windows directly to the furnace.

Manual fire alarm boxes actuating a school fire alarm system were provided in the passageway running between the buildings. Fire department notification was by telephone to the police department, who in turn sounded the town fire horn.

The Fire

At 11:35 A.M., Wednesday March 31, Mrs. Melba Seibold, a teacher, and Miss June Mahany, a practice teacher, were conducting a music class of 31 pupils in the music room of the wooden annex. A salesman, also in the room, was removing gowns from a box and hanging them in a closet; no other room in the building was occupied. The door leading to the corridor from the music room was open. The salesman remarked that it was very warm in the room and removed his suit coat. Minutes later flames and smoke flashed through the door of the teachers' workroom diagonally across the corridor. Panic immediately developed and some children ran for the open door but were met with flames and smoke that flashed into the music room. Other children in the music room ran to the windows and broke the glass with



Wide World Photo

Firemen pour water through the windows of the music room where ten children were burned to death. Note the extent of fire in this room as compared with the adjacent room. The large heavy windows (sills 40 inches from the floor) were not raised. The window panes were broken by the escaping children, teachers and salesman.

their hands and crawled or were pushed out. With heat burning their faces, arms and legs, the teachers helped all the pupils out that were at the windows and thinking that all children were out, leaped to the ground. Apparently the children who tried to leave by the door, although stopped by the teachers, were the 10 children who did not escape. The salesman assisted in evacuating the children and then plunged out a window. Only two of the occupants escaped injury. A child entering the corridor from the passageway was met with a blast of fire that burned his face and hands. He turned and ran back into the passageway, leaving the metal clad doors open behind him.

When the fire was discovered by teachers in adjacent school buildings, the local alarm was sounded and the alarm telephoned to police headquarters. Some teachers and the principal attempted to enter the burning structure, but were driven out by heat and smoke. Firemen of the Cleveland Hill Volunteer Fire Department were having their weekly practice drill a few blocks from the school and responded quickly to the town fire horn alarm. Long hose lines were laid from the street to surround the burning structure. When flames had destroyed the roof of the building, the exterior wall of the music room collapsed exposing the bodies of ten children on the floor of the room near the windows. Before extinguishment was completed, the entire wooden annex was destroyed but firemen prevented flames from entering the exposed main school building (30 ft. distant) and stopped the spread of fire into the passageway. Some breakage of glass blocks in the main building was the only visible exposure damage.

Discussion

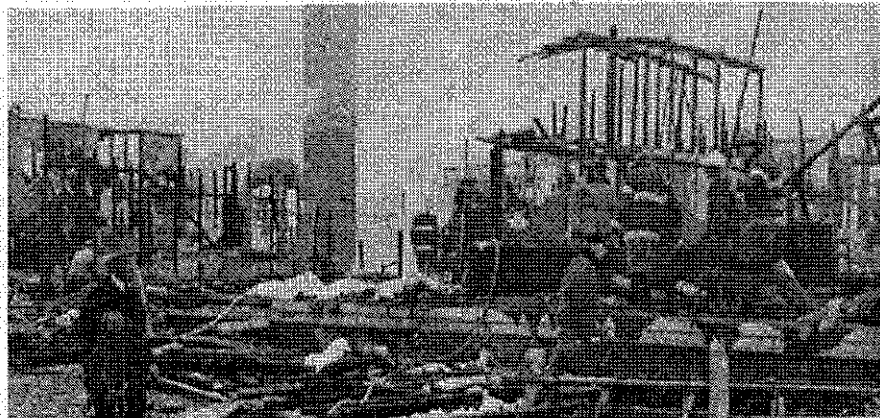
The heroism of Mrs. Siebold and Miss Mahany is certainly to be commended. According to newspaper accounts of eyewitnesses' testimony, particularly the salesman, flames flashed into the room igniting all combustible materials such as papers on the bulletin board, books, music, etc. Children ran screaming to the windows and towards the open door. It took tremendous courage and determination to direct the frenzied children towards escaping through the windows. Teachers in adjacent school buildings soaked their clothes with water and futilely attempted to enter the burning structure. Principal Irvin Restorff repeatedly attempted to gain entrance into the building without success. It seems fitting that courage such as displayed by these individuals be recognized in this report.

Those present indicate that fire was first seen coming through the closed door of the teachers' workroom. The investigation of the ruins indicates that the only place the floor was burned through was in the workroom adjacent to the cor-

ridor wall. This verifies the statement that the fire originated in the teachers' workroom. The room contained stage properties that were being painted with water base paint preparatory to a play that was to be given soon. It is reported that boys had been painting the properties on the morning of the fire. Whether the room contained other than water base paint is unknown at the present time. Several 5 gallon cans were found in the charred remains of the room and are being tested to determine, if possible, their original contents.

There was no evidence of any fire damage to the furnace room. The furnace appeared to be in good condition and there was no visible indication that the duct system had any bearing on the spread of fire.

The actual ignition source is unknown. It is believed that fire burned undetected in the room of origin for some time obtaining oxygen from a partially open window (see photo page 331), and built up a considerable amount of hot gases and unburned products of combustion. When flames finally burned through the wood



Wide World Photo

Firemen inspect the charred remains. The bodies of ten children lay beneath the white cloths. One of the bodies fell out with the exterior wall of the music room.

panel door, the pressure of the hot gases and the draft from the open window (direction and velocity of wind evident from photographs) drove flames and smoke into the corridor and the music room where the children were located. Combustion of the hot unburned gases progressed instantaneously. The flame front where the rapid oxidation occurred may be ascribed to the initial flash of fire and the continued rapid burning attributed to the fibreboard ceiling and the combustible contents such as papers and books. When the occupants broke the windows, an additional draft was created that further influenced the spread of fire into the music room. Newspaper reports of a dull explosion heard by neighbors and occupants of other sections of the school may be attributed to this initial rapid combustion of unburned gases.

Until December, 1953 the entire building was used for classes and housed about 240 children. There is the possibility that this school, if fully occupied for classroom purposes, in accordance with

the original purpose of its design, might well have had a fire without any loss of life or injury to the children. If every room had been in use any fire should have been discovered in time for safe evacuation of the building under regular fire drill procedures, before the fire had developed to dangerous proportions, despite the combustible fibreboard ceiling. Actually, however, one room was used for the storage of combustible materials without any of the standard safeguards, such as fire-resistive walls and ceilings, with fire doors on doorways to other parts of the building, automatic sprinkler protection, or automatic fire detection equipment.

Conclusions

The most significant factor in this fatal fire was the delayed detection. If the fire had been discovered in its incipient stages the children could have left the building and the fire would probably have been extinguished with small damage. An automatic fire detection

Editor's Note

A secret investigation into the cause of the fire is being carried out by the District Board of Education. A similar probe is being conducted under the direction of the District Attorney of Erie County. Since the Board does not include any persons experienced in the fire protection and prevention field, it seems doubtful that any additional useful information would be developed by the Board that would improve on the information in this report. It is also unlikely that the NFPA would be able to obtain any facts from the District Attorney's investigation. This statement is based on past experience with the District Attorney of Erie County in connection with a secret investigation on the fatal explosion at the Lucidol Division of Novadel-Agene Corp. in Town of Tonawanda, N. Y. on Sept. 23, 1953 (see page 240, January 1954 Quarterly). To date the NFPA has received no reply from the District Attorney to our request for information on his investigation into that fatal explosion.

The residents of Cheektowaga are much disturbed about the closed door policy of the Board of Education. The chief of the Cleveland Hill Volunteer Fire Department (the chief who directed fire-fighting activities at this fatal fire) is concerned because he has not been asked to serve with the board during the investigation nor has he been consulted at any time.

The April 1 issue of the Buffalo Evening News sums up the situation in the following quotation: "Sharp criticism is in order, however, for the veil of secrecy drawn by the District School Board as it launched its investigation of the tragedy. Whatever the board's reasons, the effect of such an unjustified closed door policy is to raise suspicions or doubts about the adequacy of the probe. Every citizen, not only in Cheektowaga but everywhere else, has a right to the fullest possible information on the course of the investigation now under way."

system operating both a local alarm bell to warn the occupants of the school and the town fire horn, or an automatic sprinkler system that would supply both the local alarm service and extinguishment, might well have averted the tragedy.

Whether the building construction, with the exception of the fibreboard ceiling, was a major factor in the loss of life is doubtful. A similar occurrence with the same fire conditions could have taken place in a fire-resistive building lacking automatic protection and with a combustible ceiling, wood panel doors and combustible contents.

A great many of the one-story school buildings that have been built recently

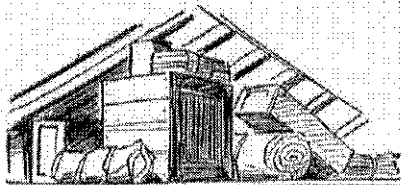
have outside exits in each classroom. Had there been an outside exit in the music room of this building the children might have escaped the fire without injury.

This was a wood-frame building with wooden exterior walls, the type of construction often tagged as "fire trap" by the general public. However, no parents or teachers should be lulled into complacency because their schools have brick or stone outside walls, since the material of construction of the outside walls of a building has little influence on the safety of the people inside, and some of the worst real "fire traps" are camouflaged by substantial looking brick or stone shells enclosing the "built-to-burn" interior.

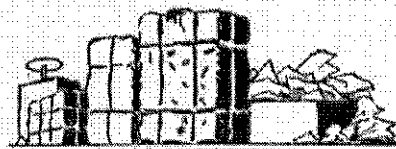
Automatic Sprinklers for Schools

The NFPA has standards for school fire safety in the Building Exits Code, which applies to both new and existing buildings, covering such features as alarm systems and fire exit drills in addition to exits and related features of construction. In existing buildings, where all the safety features of new construction are not practicable, a high degree of safety may be secured through automatic sprinklers, which are found in many schools today. The following illustrations and their captions are extracted from the NFPA leaflet "Automatic Sprinklers for the Fire Trap School."

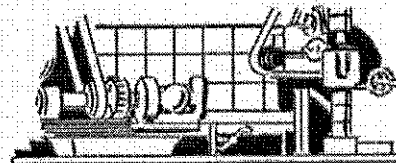
There are lots of things about a school to make quick, hot and smoky fires, and these things will be there no matter how "fire-proof" you think the school.



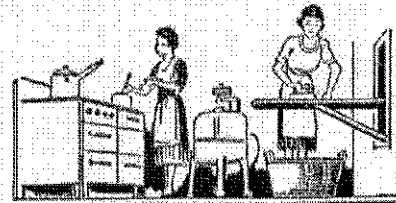
Storage Rooms



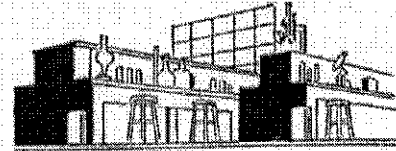
Waste Paper Baling



Shops



Domestic Science Room



Laboratories

Quarterly

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Technical committees of the Association develop means to safeguard life and property through the publication of standards covering all phases of fire prevention and protection. Your membership in the Association affords an opportunity to keep abreast of these developments and, by being a member, you help support this humanitarian activity. Popular educational literature on fire safety is constantly being produced by the NFPA for distribution through its members to the general public.

National Fire Protection Association International

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