With the development of new sources of energy during the 1980s and the development of new ways to conserve energy, there is certain to be development of new building materials. This month's cover, by Harold Pattek, illustrates the development of these new materials and the new sources of energy.
Forty-eight people at a New Year's Eve party died January 1, 1980 in a fire of incendiary origin in Chapais, Quebec, Canada.

The primary factors that led to the deaths were highly combustible interior finish and decorations, most notably natural fir-tree boughs, that were present at the Club.
main assembly area had been covered up to the 8-foot level with ¼-inch plywood to provide some protection from damage during sporting events.

Three exits were provided for the evacuation of the building. A 10-foot-wide corridor led from the hall to the main entrance, which had a total width of 66 inches. There were two emergency exits at the rear of the building, one on the east side and one on the west. The emergency exit doors were 44 inches wide and had panic hardware installed. These exit doors discharged to a landing, then down a few steps to grade level. The building was provided with exit signs and emergency lights.

A few feet above the emergency exit on the east side of the building, a ventilation-exhaust fan had been installed that was approximately 24 inches in diameter and was powered by a ½-horsepower motor. The fresh-air inlet was located on the opposite wall across the hall, near the furnace room.

Wind direction at the time of the fire was 2-to-3 miles per hour from the north-northwest, and the temperature was −4°F.

**THE PARTY**

The Chapais Lions Club had reserved the Opemiska Social Club for the night of December 31, 1979 for its annual New Year’s Eve party. This party had been held for at least 10 years, with the profits given to charity.

On December 31, the Club was decorated primarily with noncombustible decorations that had been purchased in Toronto. The Quebec Fire Marshal’s office verified the noncombustibility of those decorations during the postfire investigation. However, a large fir-bough arch that had been made on December 6 and 7 for a Christmas party was still present in the Club on the night of the fire, and had not been treated with a fire-retardant solution. The arch had been installed in the corridor leading to the main entrance and close to the main hall, with some boughs extending to the front walls of the hall.

The fir-bough arch had been made with boughs approximately 12 inches long stapled to a plywood frame. The depth of the arch was about 12 inches, so the width of the exit was reduced by approximately 2 feet. The highest point of the decorated arch was about 7 feet from the floor. Reportedly, there were approximately 75 to 100 pounds of fir boughs in the arch.

All of the building’s interior finish, including the fir-bough decorations, would have been extremely dry. Due to the climatic conditions, the air within the building would have had a relative humidity lower than 5 percent for a considerable length of time.

The Lions Club collected 325 admission tickets at the door on the night of the party, and there were also about 12 members and employees of the Lions Club present in the Social Club. Two watchmen in uniform, one of them a volunteer fire fighter in Chapais, had been appointed to check admissions at the main entrance. The watchmen, who had received no specific instructions regarding their responsibility and duty in case of fire or other emergency, went off duty at 1:00 am on January 1 and were not present when the fire broke out.

**THE FIRE**

Between 1:00 and 1:30 am, one of the people at the party set fire to the upper part of the fir-bough arch with a butane cigarette lighter. Reportedly, he set the fire as a "joke." The bough soon was totally ablaze, and the flames spread rapidly toward the combustible ceiling tiles. Two people tried to extinguish the fire using portable dry chemical fire extinguishers, but they were unsuccessful because of the size and rapid development of the fire. The occupant-use hose was never utilized.

Occupants of the main hall did not leave immediately, possibly because of: 1) the lack of a perceived threat, 2) the cold temperature outdoors, or 3) the amount of alcohol they had consumed. Even though there was a delay in starting the evacuation, it cannot be considered excessive.

The combustible ceiling tiles soon caught fire, and the fire spread rapidly through the hall. It appears that at this time, the ventilation-exhaust fan above the emergency exit on the easterly side of the building was in operation and tended to draw the products of combustion toward it.

Based on attorney interviews of 120 people who were at the Club at the time of the fire, 60 people used the westerly exit, 42 used the easterly exit, and 20 used the front exit. The 20 who used the front exit did so very early in the fire. It is possible that the discharge of the exhaust fan above the easterly exit contributed to creating an untenable condition on the exterior of the building around the exit-discharge area.

Occupants of the main hall reported that the lights went out very early in the fire. What most likely happened was that smoke banked down from the ceiling, obscuring the lights. As the evacuation was continuing, occupants reported extremely rapid development of fire over their heads. Survivors indicated that their clothing and hair began to burn as the evacuation continued. Many people fell, and survivors reported that they had crawled over other victims to get outside the building. Many survivors said that they "fainted" and woke up outside, not knowing how they had escaped. This could have been caused by a heavy exposure to carbon monoxide; after they went outside the building and into fresh air, people regained awareness of their surroundings.
CASUALTIES

More than 40 bodies were found piled up at the easterly exit, and one was found near the bar. Seven injured victims who were found outside the building died later as a result of their burns. One person, who escaped through a window near the bar and was found outside, said that he had observed the flashover of the main hall; he later died.

FIRE-FIGHTING OPERATIONS

The fire department was never officially called, but volunteer fire fighters who were present at the party went to the fire station that was located about 500 feet from the Club. Fire fighters were hampered because of the inadequate water pumping capability of the single fire truck, and their efforts had little or no effect on the progression of fire. Due to the speed of the fire development, it is not realistic to conclude that the fire fighters' actions could have had any impact on the ultimate number of victims. The building was totally consumed, except for some structural members in the front part of the building.

ANALYSIS

In order to compare the life-safety problems exemplified in this incident with current national consensus standards, the 1976 edition of NFPA 101, *The Life Safety Code*, was used for analysis purposes. The Code was not in effect in Chapais at the time of the fire, however, and did not apply to the Ocemiska Social Club. Nevertheless, the principal deviation in construction from requirements in the Code was the presence of combustible interior finish and decorations. The building would have met requirements for means of egress, and actually exceeded the Code in some respects. For example, the occupant-use hose would not have been required by the Code.

The primary factors that led to the fatalities in this fire were the presence of highly combustible interior finish and Christmas decorations, particularly the presence of untreated fir-tree boughs. The rapid fire development did not permit enough time for the evacuation of occupants. Factors contributing to the fatalities include the possible high blood alcohol levels of patrons, the exhaust fan (which made one exit more untenable than the others), and reluctance of the occupants to go into the cold winter temperature without coats. The main exit would have become unusable very early in the fire, due to the rapid burning of the fir-bough arch around the exit access.

This fire again illustrates the serious danger of combustible interior finish and decorations in places of assembly during the holiday season. Combustible decorations have been a primary factor in many multiple-fatality fires, including the Providence College dormitory fire in December 1977, and a San Francisco yacht-club fire in December 1976. In the Chapais, Quebec, Social Club fire, the combustible decoration and interior finish created a fire that developed extremely rapidly, and even though adequate means of egress were available, occupants could not evacuate the building in time.

**CORRECTIONS**

In the July issue of *FIRE JOURNAL*, the date of the County Jail fire in Lancaster, South Carolina, was incorrectly given as December 17, 1979 on pages 23 and 63. The correct date of the fire was December 27, 1979.

Also, in the article “1979 Multiple-Death Fires in the United States,” the first line should have read: “There were 271 multiple-death fires in the United States in 1979, and 1,084 associated deaths, as reported to the NFPA.”