Summary Report on the Holiday Inn Fire
Kearney, Nebraska

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On the evening of Friday, January 16, 1981, a fire occurred at the Holiday Inn in Kearney, Nebraska, in which 22 people were injured. Six of the injured were admitted to the hospital; one of them was placed on the critical list. Except for the lack of fatalities, the fire was nearly a duplication of conditions at the Holiday Inn fire that killed 10 people and injured 82 others in Cambridge, Ohio, on July 31, 1979, and the 10-fatality Holiday Inn fire in Greece, New York, on November 26, 1978. In each of these cases, combustible interior finishes and unprotected vertical openings contributed to the deaths and injuries. A major reason for the lack of fatalities in the Kearney incident was the early discovery of the fire.

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Located approximately 1½ miles from the center of Kearney, adjacent to Interstate 80, the Holiday Inn was one of several motels and restaurants in the area. Kearney is near the center of the state (approximately 200 miles west of Omaha), is considered a convention center, and is also a popular overnight stopping point.

The original section of the hotel was constructed in 1965; an additional guest-room wing, extra meeting rooms, and some alterations were completed between 1968 and 1975. The alterations included redecorating, an additional layer of vinyl wallcovering applied to the original section of the hotel. In 1978, another guest-room wing was added and the interior courtyard was enclosed with a roof assembly called the "Holidome."

The two-story guest-room wings surround the central "Holidome" area and are adjacent to the registration area, meeting rooms, and restaurant/lounges, separated by nonfire-rated glass doors.

Each floor of the guest-room wings had an approximate gross area of 11,000 square feet. The building contained 210 guest rooms around an interior corridor system. Stairways were located at the end and approximately in the middle of each guest-room section, and were approximately 100 feet apart. The "U"-shape formed by the original building and East Wing represented about 520 feet of undivided corridor length, connected by open stairways. At the time of the fire, fire doors in the 175-foot South Wing were blocked open. There were no smoke barriers in the original and East Wings, and no self-closing devices on guest-room doors.

Except for the "Holidome," which had a height of 30 feet, the average height of the flat roofs of the structures was about 16 feet above grade. All roof coverings were of built-up tar and gravel composition.

Room 105, where the fire started, was located in the West Wing, shown in right center of photograph.
BUILDING DETAILS

The building was basically constructed of masonry and poured concrete, with some frame construction between guest rooms and corridors. Since the different sections of the guest-room wings were built a few years apart, the construction features of each wing varied and will be discussed separately.

The original wings were of nearly equal lengths and formed an "L" configuration. Bearing walls were of masonry units, with 6-inch poured concrete slabs for floors, ceilings, and roof. Exterior curtain walls were factory-assembled units of aluminum and glass. Partitions between corridors and guest rooms were of wood stud with ¼-inch plywood paneling on the room side and ½-inch fire-rated gypsum panels, precouered with vinyl finish on the corridor side. There was fiberglass sound insulation in the stud channels. All ceilings were spray-on plaster on concrete slab, except for the first-floor corridors, where suspended tile ceilings provided a concealed space for utilities.

The ground-floor guest rooms were provided with access to both the interior corridor and to the exterior at grade level. Second-floor rooms on the inside of the "L" had doors leading to the interior corridor and to balconies on the exterior that overlooked the "Holidome" area. On the outer side of the "L," second-floor rooms opened to the corridor only. These rooms had single, 42-inch wide by 72-inch high thermopane-type, unopenable windows in exterior walls.

The open stairways at the end and middle of each wing had mixed interior finishes of ¼-inch plywood on ¾-inch furring strips and masonry units. In the corner of the original "L" was an enclosed stairway. The 1½-hour-rated doors to this stairway were blocked open with kickdown-type doorstops.

In the East Wing, similar construction techniques were used, except for the outside nonbearing walls, which were of masonry units and windows. The first- and second-floor rooms on the outside of this wing had access to the interior corridor only, while rooms bordering the courtyard opened to both the corridor and to the courtyard at grade level, and to balconies on the second level. Three double-glazed, insulated windows were installed in exterior room walls. The central window was 42 inches wide by 39 inches high, with an openable window 42 inches wide by 15 inches high in the lower portion. This window was for ventilation and would require some agility for use as an exit. The adjacent fixed windows were 45 inches wide by 55 inches high. In this wing, both cor-

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ridors had suspended ceiling construction to conceal utilities.

In the original sections and East Wing, doors between guest rooms and the interior corridor were 36-inch-wide, solid-core composition-wood doors. All other guest-room doors were 32 inches wide, constructed of solid-core composition wood in interior corridors and metal in exterior corridors.

The South Wing, the latest wing added, used precast concrete planks for the second floor and roof. Exterior walls were of masonry units faced with brick with fixed windows 44 inches wide by 47 inches high, over an openable window 14 inches high. Doors in this wing opened to the interior corridor only. Alternating separating walls between guest rooms were constructed of masonry units, or of gypsum wallboard on metal studs. Interior finish of all these guest rooms was vinyl wallcovering with plaster sprayed on the concrete ceilings. In this wing, the first-floor corridor had suspended ceiling tile to conceal utilities.

At the west end of this wing was an enclosed stairway equipped with 1½-hour-rated fire doors. This stairway and the one at the corner of the original "L"-shaped section were the only enclosed stairways in the Inn.

In all other rooms, the interior finish consisted of vinyl wallcovering on gypsum wallboard and ½-inch plywood paneling on wooden furring strips.

The "Holidome" area, which enclosed the courtyard area formed by the original and East Wings, was basically a roof structure of unprotected metal truss construction and steel work supported by ten unprotected steel columns. Although it was referred to as a dome, the roof surface was flat. Metal panels connected the roof structure to the existing courtyard walls of the enclosing guest-room wings.

Heat, ventilation, and air conditioning (HVAC) were provided to the guest rooms through individual exterior-wall units. Rooftop HVAC units were provided for all other areas, including the "Holidome."

All floor coverings consisted of carpeting of various types and backings. Jute padding was used in some areas; a foam-type padding was used in renovated or newer sections of the hotel. Except in the room of fire origin, the carpeting did not appear to have contributed significantly to the fuel load of the fire, although the contribution of carpeting to smoke generation is unknown.

A local alarm system had been installed in the building when the "Holidome" was constructed. The system was arranged to sound an evacuation alarm and was not connected to the fire department. The system consisted of manual pull stations adjacent to all exits. Evacuation alarm-sounding devices were provided at the end and middle of each guest-room wing and within the "Holidome." Connected to these alarms were emergency lighting units powered by AC current with battery back-up. The fire alarm system was divided into ten zones, with an announcement panel located in the manager's office, behind the registration desk. Smoke detection was limited to the "Holidome" area.

On the night of the fire, approximately 325 registered guests occupied the 210 available rooms of the hotel. Only one room was unoccupied. Three staff personnel, two at the front desk and one roaming security person, were on duty at the time of the fire. Officials indicated that weather was not a factor, although temperatures were warmer than usual for Nebraska in mid-January.

PUBLIC PROTECTION

The city of Kearney, with a population of over 22,000, was protected by a mainly volunteer fire department. Two career fire fighters staff the single, centrally located fire station. The fire department operates two engine companies, a combination engine/100-foot aerial platform truck, one salvage van, and two emergency units. The fire fighters were alerted by way of automatic dialers that reach 75 fire department members. Existing mutual-aid agreements were not used during this fire.

CODE ENFORCEMENT

At the time of the initial construction (1965), the only code in effect was a city building ordinance that dealt mostly with "fire limits" in the downtown area. At the time of the original construction, the only building requirements were Holiday Inn specifications. In 1969, the state of Nebraska adopted the 1967 edition of NFPA 101, the Life Safety Code®. With some deletions, the state adopted the 1973 edition of the Code in 1973. In 1978, the city adopted the 1976 edition of The Uniform Building Code.

FIRE IGNITION SEQUENCE AND DISCOVERY

The fire was discovered at approximately 11:45 pm by an entertainer with the band performing in the restaurant lounge. During a break, the entertainer went to his room (No. 105). While resting on his bed, he reportedly smelled smoke and discovered flames on the corner of the bed and on an adjacent wall. After failing to beat out the flames with his hands, he telephoned the desk to report the fire, then left the room, leaving the room door open. There were no self-closers on the guest-room doors.

At this time, one of the staff members at the front desk walked to the room of fire origin with a pressurized water-type fire extinguisher and found that the fire had progressed rapidly. The fire was beyond the capabilities

of the extinguisher, and the staff member did not attempt to use it. Using a portable radio, he immediately reported the fire to the front desk. He then pulled the manual alarm and began banging on doors to alert the guests. The evacuation alarms sounded throughout the building.

FIRE GROWTH AND DEVELOPMENT

As determined by the Kearney Fire Department and the Nebraska State Fire Marshal's Office, the fire was reportedly of electrical origin. Fire growth, development, and spread were rapid. The bedding material and plywood wall finish ignited and spread the fire, producing heavy smoke.

The fire and products of combustion entered the corridor through the open guest-room door, and traveled horizontally south along the first-floor corridor and north to the open stairway approximately 40 feet away. At this point, the fire traveled horizontally to the nonfire-rated glass door at the north end of the guest-room wing, consuming vinyl wallcoverings in the corridor, but stopped at the glass door. If the fire had penetrated this door, there would have been exposure to the restaurant and lounge areas, which were filled with patrons.

The fire spread rapidly up the open stairway over the plywood paneling, and entered a meeting/bedroom suite at the top of this stairway, consuming all combustibles in the suite. It was undetermined whether the door to this room had been left open. The fire continued south through the second-floor corridor, causing heavy smoke and heat damage.

Heat damage extended to and into the southern portion of the original wing. Smoke damage was evident throughout both floors of the building, including the East Wing and the newer South Wing. Damage was especially heavy on the second floor.

Reports indicated that most of the occupants evacuated from their rooms to the "Holidome" area, which was relatively free of smoke. (When smoke did build there at the ceiling level, a large fan used to ventilate chlorine odors over the enclosed swimming pool was turned on, and this seemed to clear the smoke quickly.) The egress movement was mostly through doors from guest rooms that faced the "Holidome" area. Occupants of rooms on the first-floor level at the exterior of the building (as opposed to those facing the "Holidome") exited directly to the grade level.

Many occupants of the second-floor exterior rooms appeared to have attempted to avoid the interior corridor (which was the only means by which they could leave the rooms through a door). Some of these occupants either sought refuge in rooms or escaped through exterior windows. Media advice on firesafety, as well as reports of the more publicized hotel fires, seemed to have played a role, since there was much evidence of wet towels, bedspreads, etc. placed around guest-room doors, as well as the use of blankets to cover broken glass when guests exited through the windows.

Guests reportedly found it difficult to break the large, double-pane windows. Unlike the Cambridge, Ohio, Holiday Inn fire, however, no injuries caused by the broken glass were reported.1

FIRE FIGHTING AND RESCUE

At 11:57 pm, the City Communication Center received a telephoned alarm. The Kearney Fire Department dispatched the two career fire fighters on duty and alerted the volunteer members. The first pumper was at the scene at 12:03 am; a second alarm was placed immediately. It was estimated that some 65 members responded to the scene.

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Fire fighters begin to attack the fire, which at this point had spread to the open stairwell. The fire is feeding on combustible interior-finish materials in the stairwell. CRAIG SPENCER, HUB PHOTO
On arrival, fire fighters found a serious rescue situation and focused their initial efforts on evacuation of guests. Fire fighters assisted occupants on the second floor by raising ladders and breaking the windows.

As more fire fighters arrived between 12:10 and 12:15 am, initial fire-fighting efforts were begun. Preconnected 1¾-inch hose lines were taken into the room of fire origin from the exterior, at grade level, and a 2¾-inch line was brought in on the first floor at the middle stairway location in the original wing. The use of this 2¾-inch line may have accounted for the relatively slight damage south of this point on the first floor.

The nearest hydrant was found to be inoperable, causing a slight delay in establishing a water supply. It is believed that the hydrant may have been struck by an automobile.

**CASUALTIES**

Fortunately, no casualties resulted from this fire. Smoke inhalation accounted for most of the injuries. Twenty-two people were transported to the hospital and six were admitted. Four of the injured were released the next day and one was released two days later. One of the casualties was flown to the burn center in nearby Lincoln, Nebraska, on the night of the fire; he remained there for several weeks, including some time on the critical list.

The 22 people transported to the hospital included thirteen guests, two hotel employees, three police officers, and four fire fighters. Fire fighters found a critically injured male guest in the room adjacent to the north stairway on the second floor. He was slumped on the floor, just inside the exterior door at this entrance. Evidently, he had attempted to escape by using the open stairway, going down the stairs as the fire progressed upward.

**DAMAGE**

The first and second floors of the original guest-room wing sustained significant fire damage. Rooms with doors that had been left closed suffered relatively little or no damage, while the few rooms with doors left open were heavily damaged.

Smoke damage of varying severity was evident throughout the guest-room wings and corridors. Heavy soot deposits were found in guest rooms where doors had been left open during the fire; guest rooms where the doors had remained closed were relatively clean. The "Holidome" suffered slight smoke damage.

**ANALYSIS**

Based on the extent and severity of the smoke damage in the corridors and in guest rooms with doors left open, the fire created heavy smoke in its early stages. If the door to the room of fire origin had remained closed, heat and smoke exposure to the corridor system would have been less severe.

It was reported that the emergency alarms were difficult to hear, and many guests could not recall hearing the alarm. Shouting and banging on doors were the main actions that had alerted them. The early discovery of the fire apparently resulted in prompt alerting of guests and reduced the potential for fatalities.

As indicated, there were no barriers to smoke spread, and consequently, the entire corridor system of some 500 feet was rendered untenable for egress purposes early in the fire. In addition, the door was blocked open in the only wing (the South Wing) separated by a fire-rated door, resulting in heavy smoke damage. The enclosed stairway in the original section had doorstops installed on the rated fire doors, leading to extensive smoke damage in this enclosure and smoke spread up to the second floor.

The compartmentation between rooms and the 1¾-inch solid-core guest-room doors were factors that limited injuries and prevented casualties. The availability of alternative exits to the enclosed "Holidome" area, especially in the original wing sections near the point of fire origin, was another factor that limited loss.

This fire again seems to indicate that combustible wallcoverings can contribute heavily to fire spread and smoke generation. The double layers of vinyl wallcovering in redecorated areas may have increased smoke generation. The thin ¼-inch plywood paneling was completely consumed in the room of origin and the stairways, and contributed to fire growth and development.