

An Atrium Fire

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IN THE EARLY HOURS of April 2, 1973, fire involved the second-floor Blue Max night club in the Hyatt Regency O'Hare Hotel in the Chicago suburb of Rosemont. This fire is of particular interest by reason of the fire exposure of a 10-story atrium in the center of the hotel. Although the property damage was high, exceeding \$300,000, only one of the 1,000 registered guests required medical attention.

The reinforced-concrete building was 12 stories high with a basement. The basement area housed exhibition space, a parking garage, laundries, and a boiler room. The first floor contained the lobby area and related function rooms. The second story housed restaurants and shops, and the third through eleventh stories contained guest rooms. The top floor contained a revolving restaurant.

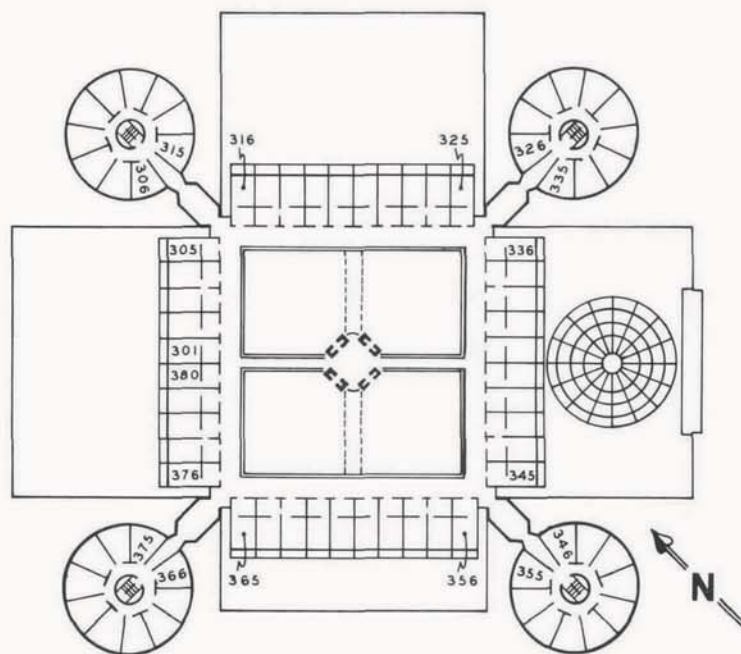
The atrium structure rose from the second to the eleventh floor and was topped by an extensive skylight area. The atrium measured 145 feet on a side. The revolving restaurant on the top floor was above the atrium structure.

Guest rooms were arranged in the walls surrounding the atrium as well as in the four circular tower structures located at the corners of the atrium (see Figure 1). Guest rooms in the atrium opened to interior concrete balconies in the atrium and to balconies on the exterior of the building. Rooms in the four towers opened to interior corridors that in turn opened to the balconies in the atrium.

The means of egress from rooms in the atrium were four stairways, one of which was located in each tower. Four elevators located in the center of the atrium operated from the second floor to the rooftop restaurant and served all guest floors. The elevators were automatic and could not be converted to manual operation.



The atrium is within the center balconied building. Two of the four towers are at left and right. NFPA



THIRD THRU SIXTH LEVELS

Figure 1

An open escalator ran between the first and second stories. Access to the interior balconies and guest rooms from the elevators was by open concrete walkways from the central core of the atrium to the interior balconies.

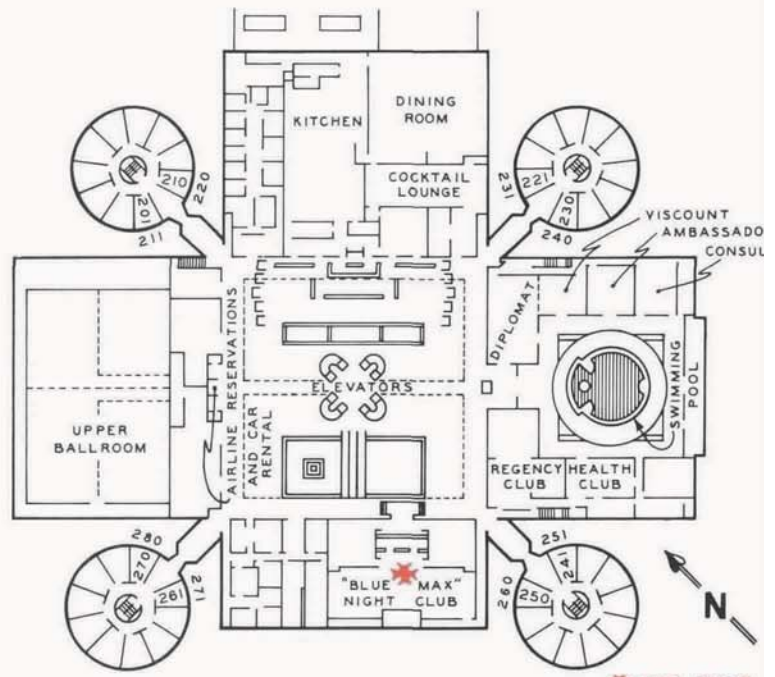
This report is based on information gathered at the fire scene by A. Elwood Willey, Manager, NFPA Fire Record Department, and on information in the report "Review of Fire Occurrence at Hyatt Regency O'Hare Hotel" by Professor Paul DeCicco, Director, Center for Urban Environmental Studies, Polytechnic Institute of New York, and Deputy Chief Sydney Ifshin, Fire Department, City of New York. The NFPA gratefully acknowledges the cooperation of Chief Roy W. Evans of the Rosemont Fire Department and Mr. Charles Rusch of the Hyatt Regency O'Hare Hotel.



Above: Looking toward the top of the atrium from the seventh-floor balcony. One of the elevator cars on the outside of the central core is at upper left.

Photo at right: Entrance to escalator in the first-story lobby. The maintenance employee who discovered the fire directed a 1½-inch hose stream up the escalator opening to the club entrance, near the escalator discharge on the second floor.

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LOBBY LEVEL

Figure 2



Guest rooms were separated from the atrium by one layer of ½-inch gypsum wallboard on metal studs on the room side and two layers on the atrium side. The partitions between rooms were constructed of metal studs with a double thickness of ½-inch gypsum wallboard on one side and 1½-inch fiber batts attached to one layer of ½-inch wallboard on the other. The ceilings in guest rooms were of ½-inch gypsum wallboard. The doors to the rooms were 1¾-inch solid-core wood. Sliding glass doors provided access from the rooms to the exterior balconies.

The interior wall finish throughout most of the hotel consisted of paint. However, the walls facing the interior of the atrium were vinyl-covered.

The atrium was provided with a smoke exhaust system that consisted of four 6,600-cfm fans automatically activated by ionization-type smoke detectors in the fan-room ducts.

The fire protection in the structure included portable extinguishers and eight standpipes. There were 1½-inch and 2½-inch outlets at each floor level. A length of 1½-inch hose for occupant use was connected to the standpipe at each floor and was hung in the hall. The basement areas were sprinklered. The sprinkler and standpipe systems were supplied by an automatic fire pump. The fire alarm system, which operated alarm bells in the building and transmitted an alarm to the Fire Department, was equipped with manual pull stations. It also operated if the fire pump started or if the ionization-type smoke detection system was actuated.

The Blue Max night club was located on the second floor of the hotel (see Figure 2) and was separated from the atrium by a plywood-on-wood-stud partition. The entrance doors were located directly below interior guest-room balconies. The club measured 60 feet by 80 feet and was divided into two areas, a bar area and a night club.

The wall finish in the Blue Max consisted of vinyl wainscoting with paper-backed fabric above. The carpeting on the floor reportedly was wool. There was no fire detection or suppression system installed in this area.

At approximately 4:30 am a maintenance employee discovered fire coming from the night club entrance into the atrium. He activated a manual fire alarm station, then pulled out a standpipe hose on the floor below and began playing water up the escalator opening toward the club entrance and the balcony above the entrance. A guest began using a second standpipe hose while other employees began notifying guests.

The Fire Department responded with one engine, an elevating platform, and a complement of five men and a chief. Additional alarms were sounded, bringing the total response, including mutual aid, to seven engines, one ladder, an elevating platform, and 65 men.

Fire fighters found the atrium charged with smoke and the night club fully involved. Reportedly, visibility was down to approximately 10 feet in most areas of the atrium. Some guests had left their rooms and evacuated the building over stairways. Many guests were calling for help, and some had tied sheets together for escape over exterior balconies. Of the first response, two of the fire fighters were assigned to attack the fire with a 1½-inch hand line while the rest were assigned to prevent panic among the occupants

and control their movements. As other companies arrived, one fire fighter was placed at the restaurant level with a portable loudspeaker to give instructions to the guests. Other fire fighters and a company officer went to the top floors to calm occupants and give them instructions. The panic situation was controlled in this manner and guests were either led to exit stairways or told to remain in their rooms with the exterior balcony doors open. The fire, which for the most part was confined to the club, was knocked down with the 1½-inch hand line and extinguished with two 1½-inch lines.

During the fire it was found that the atrium smoke exhaust system had failed to operate. On checking, it was found that the switch connecting the smoke detection system to the exhaust system had been turned off. The fans were then turned on and the atrium was cleared of smoke.

Although 1,000 guests were exposed to the fire conditions, only one required hospital treatment, because of a heart condition. One fire fighter was treated for smoke inhalation.

The contents and interior of the night club were destroyed. Flames coming from the entrance of the night club curled up and around the balcony to guest-room partitions on the third floor, but little damage was done, primarily because of the prompt use of standpipe lines by occupants to wet down this balcony. The smoke damage, however, was heavy throughout the atrium and its adjoining rooms. The damage is in excess of \$300,000.

Several items are worth noting concerning this fire:

1. The mechanical smoke exhaust system did not operate, because the switch connecting the smoke detection system to the smoke exhaust system had been turned off.

2. Visibility in the atrium was severely reduced, to the point of obscuring exit signs. The size and color of the exit signs, in addition to the smoke, tended to reduce their visibility.

3. Exit doorways were painted the same color as the surrounding wall, obscuring their location to occupants in the dense smoke.

4. The fire alarm system was not heard by all guests, necessitating the calling of guest rooms by telephone.

5. Guests attempted to use the automatic elevators for escape. Since the elevators could not be manually controlled for escape, fire fighters had to ride the cars to prevent their being used.

6. The large volume of the atrium did permit dilution of smoke in the early stages of the fire, enabling some of the guests to escape without much confusion.

7. Quick action by fire fighters to control panic probably held injuries to a minimum. △