

Building Name Address	Use (as per FSA Annexed Table 1)	Date and Time of Incident	Structure and Stories Area	Extent of Damage (Damaged Area/ Total Area)	No. of Casualties
Nozawaya Department store 1-5-6 Isezaki-cho, Naka-ku, Yokohama, KANAGAWA	Department Store (4)	Sept. 9, 1970	Fire resistive 7 stories above ground and 2 below	All, Half, Partial, Small 145 m ² (0.7%)	Fatalities 1 Injured 1 ()
		Breakout at 15:57 (approx.) Detected at 16:03 Notified by emergency call Extinguished by 17:50	Building area 3,221 m ² Gross floor area 21,955 m ²		

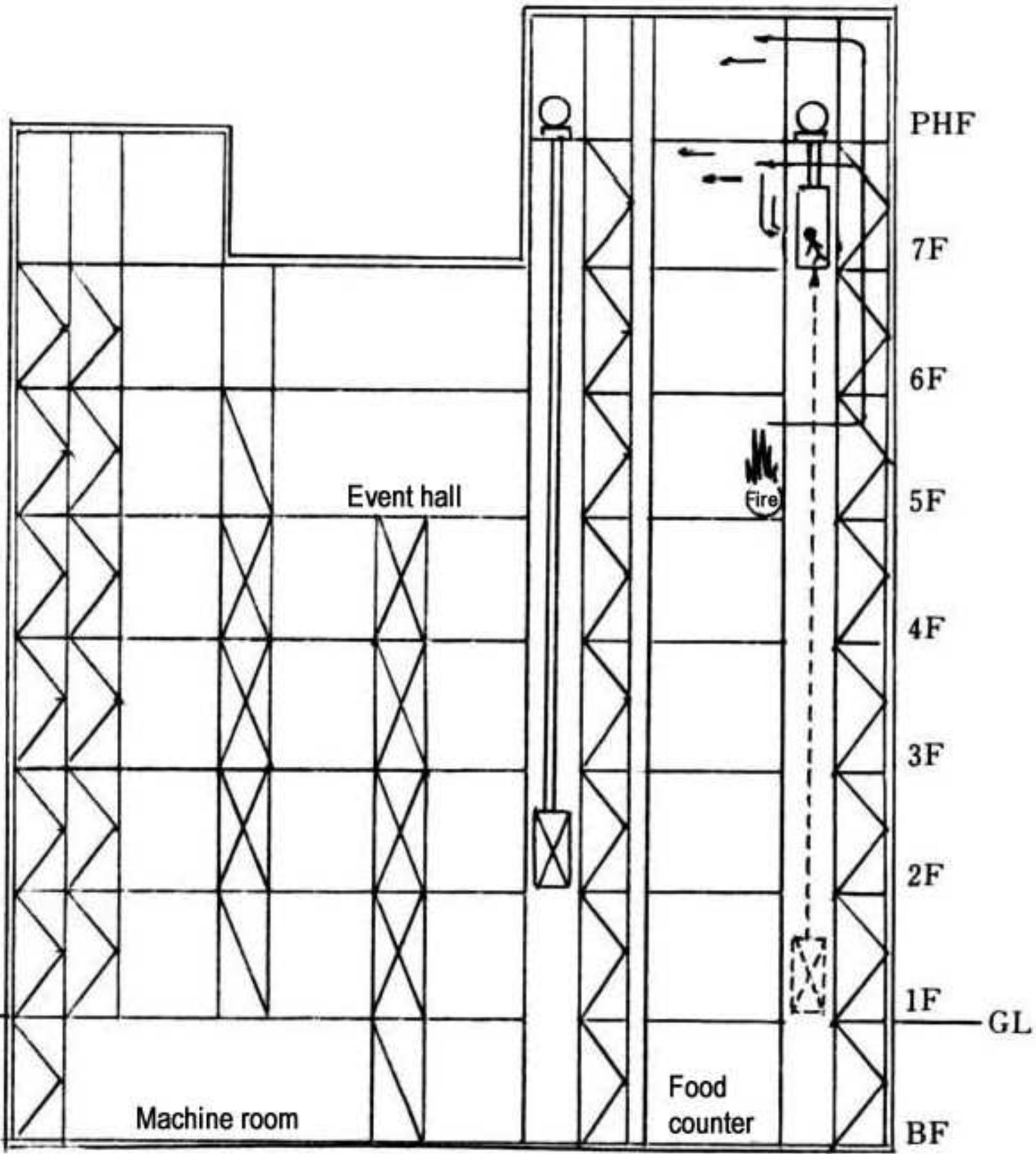
I. Summary of Fire Incident

(1) Summary	This department store fire originated from the elevator hall on the 5th floor. The fire first burned a pile of cardboard boxes nearby, but fortunately, when the fire spread to the sales floor through an open fire door, the sprinkler system was effectively activated and successfully prevented the fire from spreading. Although the sprinkler installation was partial, every single floor had a fair degree of installation. As the department store was closed that day, the evacuees were all department store employees who were familiar with the building.							
	(2) Conditions per Floor	Floor	Total area	Damaged area	Use (Purpose)	No. of persons	No. of fatalities	Fire escape equipment
		m ²	m ²				5 sets of inside stairs	Fire extinguishers Indoor fire hydrants Sprinkler system Automatic fire detection system
R		305	23					
7		1,701	71	Sales		1		
6		2,727	19					
⑤		2,922	32		20			
4		3,201						
3		3,201						
2		3,201						
1		3,201						
B1		2,128						
Total	21,955	145		85	1			
(3) Origin of Fire	(Floor, Room, Part, Combustibles, Habitable/Non-habitable rooms, Present/Absent)				(4) Cause of Fire	The cause of the fire is unknown, but it is believed to be a burning match that was thrown away by someone as the origin of the fire was the cardboard boxes inside a garbage container in front of the elevator hall on the 5th floor.		
	<u>Elevator hall on the 5th floor</u> The department store was closed that day and the store clerks were preparing for a special furniture sale starting the next day, and the empty cardboard boxes were piled up in the elevator hall of the 5th floor.							

(5) Fire Propagation Path	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>(Location of Fire Source)</p> <div style="border: 1px solid black; padding: 5px; width: 150px;">Elevator hall on the 5th floor</div> </div> <div style="text-align: center;"> <p>(Propagation from Source)</p> <div style="border: 1px solid black; padding: 5px; width: 150px;">Cardboard that was placed in the elevator hall</div> </div> <div style="text-align: center;"> <p>(Propagation to Adjacent Zones)</p> <div style="border: 1px solid black; padding: 5px; width: 150px;">Through the open type-B fire door</div> </div> <div style="text-align: center;"> <p>(Propagation to Other Floors)</p> <div style="border: 1px solid black; padding: 5px; width: 150px;">Via the employee stairs</div> </div> </div>								
	<p>The fire that emerged from the elevator hall on the 5th floor burned the empty cardboard boxes and others of similar nature and spread through the open type-B fire door nearby. Fortunately, the spread of fire was suppressed by the sprinkler system on the sales floor. However, through the open the fire door to the right of where the fire emerged, the fire spread to the beauty parlor (no sprinkler system). The beauty parlor had many combustible hair spray cans, which triggered the fire to spread further, but this portion of the fire was extinguished by the firefighters. To the left of where the fire emerged, the fire propagated through the open fire door (type B) and ascended along the employee stairs to the upper floors because of combustible materials on the stairs, but this fire was also extinguished by the sprinkler system and the firefighters.</p>								
	<ul style="list-style-type: none"> ○ Main Reasons for Propagation of the Fire The growth of the fire was accelerated by the large amount of empty cardboard boxes, explosive hair spray cans, and combustible materials on the stairs; therefore, despite immediate attempts to extinguish the fire, the fire spread beyond control. ○ Smoke Propagation Path The smoke propagated via the employee stairs. 								
II. Summary of the Building									
(1) Built	<p>Construction, Completion, and Major Renovations This structure was confiscated by the US military and therefore the construction history of this building prior to February 1953 is unknown. (Expansion) January 23, 1962, (Expansion) October 3, 1937</p>								
	<p>(2) Vertical Shafts</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Stairs <input checked="" type="checkbox"/></td> <td style="width: 50%;">Duct Spaces <input type="checkbox"/></td> </tr> <tr> <td>Elevators <input checked="" type="checkbox"/></td> <td>Pipe Shafts <input type="checkbox"/></td> </tr> <tr> <td>Escalators <input type="checkbox"/></td> <td>Other () <input type="checkbox"/></td> </tr> </table>		Stairs <input checked="" type="checkbox"/>	Duct Spaces <input type="checkbox"/>	Elevators <input checked="" type="checkbox"/>	Pipe Shafts <input type="checkbox"/>	Escalators <input type="checkbox"/>	Other () <input type="checkbox"/>	<p>(3) Fire Prevention</p> <p>The fire code regarding the fire-prevention manager, fire defense plan, and in-house firefighting team were duly complied with, and comprehensive inspections and fire drills were executed monthly in accordance with the plan.</p>
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Escalators <input type="checkbox"/>	Other () <input type="checkbox"/>								
Fire Prevention Management	<p>N/A</p>								
	<p>(4) Fire Compartments</p> <p>The inspectors recommended that the store maintain fire shutters that could be closed easily anytime and to remove any objects from the stairwells and nearby hallways.</p>		<p>(5) Firefighting Equipment</p> <p>The inspector also recommended extending the installation of the sprinkler system to areas at less risk, to clear the premises of the fire escape equipment for effective use, and to install backup power for guiding lights.</p>						

III. Actions Taken after Fire was Detected									
(1) First Detected	<ul style="list-style-type: none"> ◦ Detected by (Store clerk) ◦ How and why (S/he saw the flames and smoke) ◦ Action taken () 								
	<p>The department store was closed that day and the store clerks were rearranging the sales items on every floor, piling up empty cardboard boxes in the elevator hall on the 5th floor. A number of store clerks in the vicinity noticed smoke and flames emerging from the elevator hall. About the same time, the automatic fire detection system detected the fire.</p>								
(2) Emergency Call	<table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">Emergency Call</td> <td style="width: 45%;">Yes <input checked="" type="checkbox"/> (Security guard)</td> <td style="width: 40%;">Time elapsed since the discovery (6) minutes</td> </tr> <tr> <td></td> <td>No <input type="checkbox"/> []</td> <td></td> </tr> </table>	Emergency Call	Yes <input checked="" type="checkbox"/> (Security guard)	Time elapsed since the discovery (6) minutes		No <input type="checkbox"/> []			
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	<ul style="list-style-type: none"> ◦ Security Guard Supervisor K (age 39) and Security Guard U heard the alarms from both 5th and 6th floors. With 2 other security guards, they went to the 5th and 7th floors. After confirming the status of the fire, they alerted and communicated with others to start controlling the fire. The fire station received calls from the security office of the department store and from a passerby. ◦ The first call came from the passerby (male), followed by 5 other calls. 								
(3) Initial Firefighting Activities	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 35%;"> Successful <input type="checkbox"/> Failed <input checked="" type="checkbox"/> </td> <td rowspan="2" style="width: 50%; vertical-align: top;"> (Reasons or Conditions) <ul style="list-style-type: none"> ◦ Six contractors who were inspecting the customer elevator came and used fire extinguishers nearby. They were able to extinguish the flames on the floor, but were unable to control the flames on the ceiling and therefore the fire spread further. There was an indoor fire hydrant near the origin of the fire; however, the contractors did not know about its existence. ◦ When the store security guards came to the fire floor first, the fire was already beyond the control of portable devices. Therefore, under the leadership of the security guard, the in-house firefighting team extended a hose from the outdoor fire hydrants of the 4th floor to prevent the fire from spreading to the 5th floor. </td> </tr> <tr> <td style="text-align: center;">Initiated</td> <td> <ul style="list-style-type: none"> ◦ Extinguished timing [] ◦ Firefighting difficulties [] ◦ Firefighting method [] </td> </tr> <tr> <td style="text-align: center;">Not Initiated</td> <td> <ul style="list-style-type: none"> ◦ Extinguished timing [] ◦ Firefighting difficulties [] ◦ Firefighting method [] ◦ Other [] </td> <td></td> </tr> </table>		Successful <input type="checkbox"/> Failed <input checked="" type="checkbox"/>	(Reasons or Conditions) <ul style="list-style-type: none"> ◦ Six contractors who were inspecting the customer elevator came and used fire extinguishers nearby. They were able to extinguish the flames on the floor, but were unable to control the flames on the ceiling and therefore the fire spread further. There was an indoor fire hydrant near the origin of the fire; however, the contractors did not know about its existence. ◦ When the store security guards came to the fire floor first, the fire was already beyond the control of portable devices. Therefore, under the leadership of the security guard, the in-house firefighting team extended a hose from the outdoor fire hydrants of the 4th floor to prevent the fire from spreading to the 5th floor. 	Initiated	<ul style="list-style-type: none"> ◦ Extinguished timing [] ◦ Firefighting difficulties [] ◦ Firefighting method [] 	Not Initiated	<ul style="list-style-type: none"> ◦ Extinguished timing [] ◦ Firefighting difficulties [] ◦ Firefighting method [] ◦ Other [] 	
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(4) Summary of Firefighting Activities	(Obstacles or Difficulties in Fire Control)								
	<ul style="list-style-type: none"> ◦ By the time the firefighters arrived, black smoke was pouring out of the east windows on the 5th floor. As the floor had almost no windows, the firefighters had difficulty in venting the smoke to the outside. Although the fire spread to the 6th and 7th floors, they were able to spray water effectively from the 8th floor, and the fire was completely extinguished 100 minutes after emergence. ◦ The firefighters used 25 oxygen masks and 50 oxygen tanks and notably, the oxygen supply team was dispatched for this operation. ◦ Entering the building was a challenge for the firefighters. The width of the employee stairway was narrow, as is often the case, and the firefighters spent valuable time unlocking the tight lock on the steel door on the rooftop. 								

(5) Evacuation	Means of Escape (No. of Persons)	Obstacles to Evacuation
	<ul style="list-style-type: none"> ◦ Stairs [] () ◦ Elevators/Escalators [] () ◦ Escape equipment [] () ◦ Directly to ground from windows or openings [] () ◦ Rescued [] () ◦ Other () [] () 	<ul style="list-style-type: none"> ◦ No windows [] ◦ Barred openings [] ◦ Locked emergency doors (Exits) [] ◦ Alarm system [] (Poorly controlled, Malfunctioned, Not installed) ◦ Power outage [] ◦ Other []
<p>The department store was closed for the day and store clerks were preparing for a special furniture sale starting the next day, and the empty cardboard boxes were piled up in the elevator hall of the 5th floor. There were 85 people (61 company workers, 24 store clerks) in the building when the fire broke out and they all evacuated safely on their own because the fire that started from the elevator hall was detected relatively early, due to activation of the automatic fire detection system.</p>		
(6) Casualties	Healthy individuals 1 (Drunk persons)	Obstacles to Evacuation
	Individuals in need of assistance Infants Elderly Handicapped Patients/ill persons	<ul style="list-style-type: none"> ◦ No windows [] ◦ Barred openings [] ◦ Locked emergency doors (Exits) [] ◦ Alarm system [] (Poorly controlled, Malfunctioned, Not installed) ◦ Power outage [] ◦ Other []
<p>Supervisor K was on the 1st floor when he heard the automatic fire detection system alarm, and along with 2 other security guards, he took the elevator to confirm the origin of the fire. As soon as the elevator door opened on the 7th floor, flames flashed in and he became unconscious. The security guards took him back inside the elevator and for safety reason returned to the 1st floor. The supervisor was rushed to hospital, but died the next day.</p>		
IV. Issues and Lessons Learned		
<ol style="list-style-type: none"> 1. The sprinkler system was highly effective and prevented the fire from spreading to the sales floors. 2. The fully closed fire doors were highly effective and prevented the fire from spreading through the building. 3. Any object that can be an accelerant and/or an obstacle should not be piled up on emergency stairs or any other kind of stairs, and this practice should be strictly reinforced to maintain a safe evacuation route and minimize casualties. 4. In a building fire, "surround and drown" is a highly effective plan of attack, suppressing the fire floor from both upper and lower floors instantaneously. However, the rooftop of this building was occupied by amusement facilities and had no space to deploy such operations. Learning from this, buildings need to have effective space for evacuation and firefighting operations to avoid serious problems in the future. 5. For off-business hours or construction periods, contractors should be advised of the fire safety and prevention system in place, the location of the firefighting equipment, and be provided with appropriate training/drills. 		



Stairwell

Escalator

Escalator

Elevator

Stairwell

Pipe shaft

Elevator

Employee stairs

Machine room

Event hall

Food counter

PHF

7F

6F

5F

4F

3F

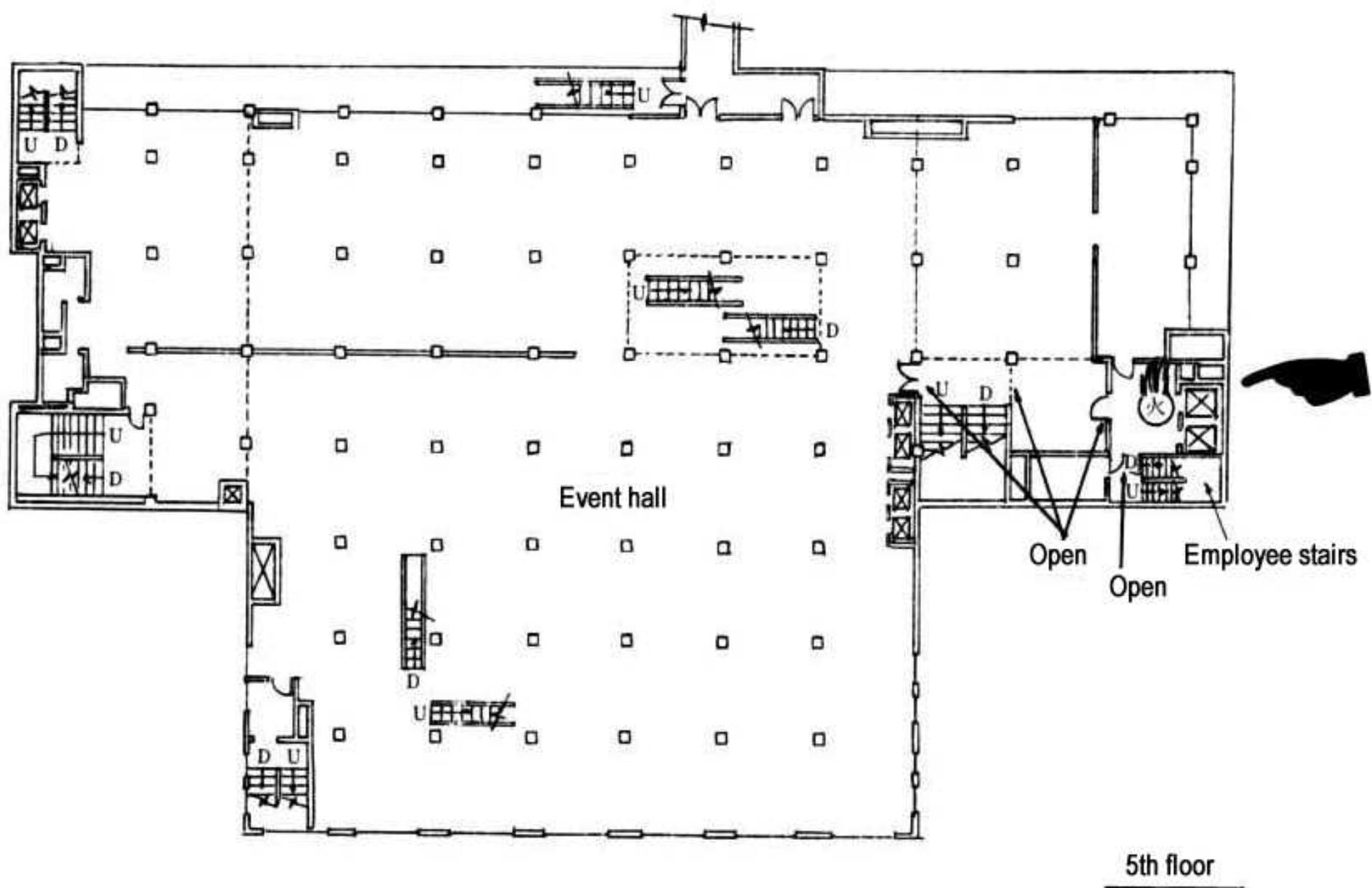
2F

1F

GL

BF





※ The burned victim heard the automatic fire detection system alarm, and along with 2 other security guards, he entered the elevator on the 1st floor to confirm the origin of the fire. As soon as the elevator door opened on the 7th floor, the flame flashed in and he became unconscious. The security guards pulled him back inside the elevator and returned to the 1st floor, but he died in hospital.