

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
Sennichi Building 3-1 Mannba-shinchi, Minami-ku, Osaka City, OSAKA	Complex (16) a	May 13, 1972	Fire resistive	All, [Half] , Partial, Small 8,763 m ² (34%)	Fatalities 118
		Breakout at 22:27 (approx) Noticed at 22:40 Notified by emergency call Extinguished at 17:30 on May 15th	7 stories above ground and 1 below Building area 3,770 m ² Total floor area 25,923 m ²		

I. Summary of Fire Incident

(1) Summary	<p>This fire is the most catastrophic fire with respect to the number of casualties in the history of building fires in Japan. This devastating disaster was brought on by common issues at the multi-tenant building and there was a lack of a sufficient cooperative management system. This fire gave crucial momentum to the enforcement of regulations pertaining to fire prevention related to management and hardware such as firefighting equipment, particularly at a multi-tenant complex.</p>							
	(2) Conditions per Floor	Floor	Total area	Damaged area	Use (Purpose)	No. of persons	No. of fatalities	Fire escape equipment
		m ²	m ²					
PH3		134					5 sets of inside stairs (from B1 to 7th) and 1 set (from B1 to 4th)	Fire extinguishers Indoor fire hydrants Automatic fire detection system
PH2		156						
PH1		200		Sales			1 set of rope ladders on each floor (2nd and 3rd floors)	Emergency alarm system (PA system) Guiding lights
7		1,780		Cabaret ("Playtown")	181	118		
6		3,350		Games center, former Sennichi Theater	6		1 set of escape chutes on each floor of 3rd to Roof floors and 2 sets on 4th to 6th floors	Sprinkler system (on the stage of former Sennichi Theater)
5		2,049		Retail units				
4		3,520	2,353	Supermarket ("Nichii")	2			
③		3,665	3,218	Supermarket ("Nichii")	7			
2		3,439.6	3,192	Retail ("Sennichi Department Store")				
1		3,770.21		Retail units, Machine room	14			
B1		3,860.0		Restaurant, Machine room	2			
Total	25,923.81	8,763		212	118			

(3) Origin of Fire	<p>(Floor, Room, Part, Combustibles, Habitable/Non-habitable rooms, Present/Absent)</p> <p>From the sales floor (near the women's clothing section) on the 3rd floor.</p> <p>Ongoing electrical construction on the 3rd floor.</p>	(4) Cause of Fire	<p>The cause of the fire is strongly suspected to be a burning cigarette, because Construction Supervisor B was walking around with it during the renovation of the 3rd floor. However, the cause could be a lit match discarded by Supervisor B or another individual, and therefore the definite cause is undetermined as it is unclear if it was started by a cigarette or match.</p>
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(5) Fire Propagation Path	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>(Location of Fire Source)</p> <p>From the sales floor on the 3rd floor</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>(Propagation from Source)</p> <p>Spread to the clothing and other similar sections</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>(Propagation to Other Floors)</p> <p>From the opening for the escalator in the center of the sales floor to the 4th and 2nd floors</p> </div> </div>													
	<p>The fire that emerged on the sales floor of the 3rd floor spread to the 4th and 2nd floors via the escalators where the fire shutters had been left open. However on the 5th floor, the horizontal fire compartment on the escalator portion effectively prevented the fire from spreading further and firefighters were able to stop it from spreading.</p>													
<p>○ Main Reasons for Propagation of the Fire</p> <ul style="list-style-type: none"> ○ The unclosed fire shutters on the 2 sets of escalators allowed the fire to spread quickly, both above and below the fire floor. ○ In addition to the large amount of clothing present, there were various decorative objects near the origin of the fire, which produced smoke and heat upon burning. This became an obstacle to the firefighting operation. <p>○ Smoke Propagation Path</p> <p>In earlier stages of the fire, as the fire propagated, Playtown on the 7th floor was filled by large amounts of smoke that came through the AC return duct, elevator shaft, sanitary vent, and Stairs E.</p>														
II. Summary of the Building														
(1) Built	Construction, Completion, and Major Renovations (Completion) October 1932, (Expansion) 1958													
Fire Prevention Management	<p>(2) Vertical Shafts</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Stairs</td> <td style="width: 5%;">[]</td> <td style="width: 50%;">Duct Spaces</td> <td style="width: 5%;">[]</td> </tr> <tr> <td>Elevators</td> <td>[]</td> <td>Pipe Shafts</td> <td>[]</td> </tr> <tr> <td>Escalators</td> <td>[]</td> <td>Other ()</td> <td>[]</td> </tr> </table>	Stairs	[]	Duct Spaces	[]	Elevators	[]	Pipe Shafts	[]	Escalators	[]	Other ()	[]	<p>(3) Fire Prevention</p> <ul style="list-style-type: none"> ○ The store had appointed a fire-prevention manager and submitted relevant paper work to the local fire station. ○ The store had submitted a fire defense plan to the local fire station. ○ Fire drills had been conducted by the in-house firefighting team: the Sennichi Department Store carried out drills 16 times since 1963, and Playtown carried out drills 7 times since 1967. ○ There was no cooperative fire safety management system.
	Stairs	[]	Duct Spaces	[]										
	Elevators	[]	Pipe Shafts	[]										
	Escalators	[]	Other ()	[]										
<p>The vertical (stairwell and escalator) shafts had fire shutters and doors that remained open during the fire. In addition, there were various defects such as unsealed clearances on the walls.</p>														
<p>(4) Fire Compartments</p>	<p>(5) Firefighting Equipment</p>													
<p>The sales floor was partitioned by fire shutters, but the shutters were left open during off-business hours because of the ongoing electrical construction.</p>	<p>The building retained adequate firefighting equipment, but there was minimal concern about maintenance.</p>													

III. Actions Taken after the Fire was Detected									
(1) First Detected	<ul style="list-style-type: none"> ◦ Detected by (Electrician from the electrical company) ◦ How and why (Cracking sound of glass, flames, and smoke) ◦ Action taken (Shouted out "Fire!" to alert others) 								
	<p>Around 22:30, electrician A who was carrying out electrical work in the hallway of the women's underwear section on the 3rd floor (Sennichi Department Store) heard a cracking sound of glass and saw blackish flames in the east part of the floor. He shouted "Fire!" to alert his colleagues and went to look for a fire extinguisher as he ran toward his supervisor, B. Supervisor B pushed the fire alarm button near Stairs E on the street side of the building and he yelled "Fire!" 3 times toward the security office on the 1st floor.</p>								
(2) Emergency Call	<p>Emergency Call Yes <input checked="" type="checkbox"/> (Security guard supervisor) Time elapsed since the discovery (6) minutes No <input type="checkbox"/></p>								
	<ul style="list-style-type: none"> ◦ Around 22:34, Security Supervisor C who was in the security office became aware of the fire occurring on the 3rd floor because of the alarm sound from the control panel of the automatic fire detection system. He made a 119 call from the security office after sending 2 security guards to confirm the fire. ◦ However, there was no communication between the security office of the Sennichi Department and Playtown on the 7th floor to confirm the conditions, such as smoke. 								
(3) Initial Firefighting Activities	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 30%;"> Successful <input type="checkbox"/> Failed <input checked="" type="checkbox"/> </td> <td rowspan="2" style="width: 50%; vertical-align: top;"> (Reasons or Conditions) Initial attempts to extinguish the fire failed. The electricians, Playtown employees, and security guards responded to control the fire, but they lost the chance while ineffectively pouring and spraying water on the smoke. </td> </tr> <tr> <td style="text-align: center;">Initiated</td> <td> <ul style="list-style-type: none"> ◦ Extinguished timing <input checked="" type="checkbox"/> ◦ Firefighting difficulties <input type="checkbox"/> ◦ Firefighting method <input checked="" type="checkbox"/> </td> </tr> <tr> <td style="text-align: center;">Not initiated</td> <td> <ul style="list-style-type: none"> ◦ Extinguished timing <input type="checkbox"/> ◦ Firefighting difficulties <input type="checkbox"/> ◦ Firefighting method <input type="checkbox"/> ◦ Other <input type="checkbox"/> </td> <td></td> </tr> </table>		Successful <input type="checkbox"/> Failed <input checked="" type="checkbox"/>	(Reasons or Conditions) Initial attempts to extinguish the fire failed. The electricians, Playtown employees, and security guards responded to control the fire, but they lost the chance while ineffectively pouring and spraying water on the smoke.	Initiated	<ul style="list-style-type: none"> ◦ Extinguished timing <input checked="" type="checkbox"/> ◦ Firefighting difficulties <input type="checkbox"/> ◦ Firefighting method <input checked="" type="checkbox"/> 	Not initiated	<ul style="list-style-type: none"> ◦ Extinguished timing <input type="checkbox"/> ◦ Firefighting difficulties <input type="checkbox"/> ◦ Firefighting method <input type="checkbox"/> ◦ Other <input type="checkbox"/> 	
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(4) Summary of Firefighting Activities	<p>(Obstacles or Difficulties in Fire Control)</p> <ul style="list-style-type: none"> ◦ The allocation of necessary manpower and equipment was delayed by illegally parked cars on the street, which interfered with the ladder trucks maneuvering at the premises. ◦ Search and rescue activities inside the building were not feasible. The firefighters tried to move up to the fire floor and above, but because of poor visibility, lack of oxygen, and intense heat, they had to retreat. 								

(5) Evacuation	Means of Escape (No. of Persons)	Obstacles to Evacuation
	<ul style="list-style-type: none"> ◦ Stairs [X] (2) ◦ Elevators/Escalators [X] (1) ◦ Escape equipment [X] (8) ◦ Directly to ground from windows or openings [X] (3) ◦ Rescued [X] (50) ◦ Other () [] () 	<ul style="list-style-type: none"> ◦ No windows [] ◦ Barred openings [] ◦ Locked emergency doors (Exits) [] ◦ Alarm system [] (Poorly controlled, Malfunctioned, Not installed) ◦ Power outage [X] ◦ Other [X] (Heavy smoke)
<p>No one alerted Playtown that the 3rd floor was on fire. People on the 7th floor learned about the fire from the smoke that poured out of the return duct in the hallway near the Playtown office and the smoke that emerged from the dedicated elevator next to the front desk. Thus, the people started to evacuate 15 to 20 minutes after the fire was detected. In addition, the evacuation was inappropriately handled. Only 2 people came down the escape stairs (Stairs B) that had access to balconies. Because of the smoke and heat, many evacuees jumped from the window to their deaths or suffocated to death on the floor. Despite the poor conditions, 50 evacuees were rescued by ladder trucks. Thus, the number of survivors from the 7th floor was 63. (Refer to the attachment for details.)</p>		
(6) Casualties	Healthy individuals 118 (Drunk persons) Individuals in need of assistance Infants Elderly Handicapped Patients/ill persons	Obstacles to Evacuation <ul style="list-style-type: none"> ◦ No windows [] ◦ Barred openings [] ◦ Locked emergency doors (Exits) [] ◦ Alarm system [] (Poorly controlled, Malfunctioned, Not installed) ◦ Power outage [X] ◦ Other [X]
	<p>The fire caused 118 fatalities: on the cabaret seating area of Playtown, 1 person died (presumably he was inebriated); 26 people were found in the cabaret lobby where the number of fatalities was the greatest compared to other locations, presumably they ran around in panic and collectively became unconscious and fell on top of each other; the 2nd highest number of fatalities, 24 persons, were found next to the wall dividing the cabaret and the former Sennichi Theater, and they might have tried to knock the wall down to escape. Some died by jumping from windows while trying to escape from there or when waiting for help.</p>	
IV. Issues and Lessons Learned		
Refer to the attachment.		

Attachment

1. Number of evacuated or rescued people from the Playtown cabaret

Details		Gender	Male	Female	Total	
Estimated number of occupants in the cabaret when the fire broke out			95	86	181	
Fatalities	Died on the 7th floor		42	54	96	
	Jumped to death		6	16	22	
	Total		48	70	118	
Survivors	Self-evacuation	Elevator		1	1	
		Stairs B		2	2	
		Jumped	2		2	
		Escape chute	3	2	5	
		Subtotal	5	5	10	
	Rescued by ladder	South side			2	2
		East side	5	3	8	
		West side	6	4	10	
		Abeno ??	18	2	20	
		North side	10		10	
	Subtotal		39	11	50	
	Rescued using salvage sheets		2	1	3	
	Total		46	17	63	

2. IV. Issues and Lessons Learned

(1) IV. Issues, Lessons Learned

A) Old multi-tenant building

The building was first constructed in 1932. As a result of many subsequent renovations, the building became a typical multi-tenant shopping center comprised of 176 tenants (multiple tenants on the basement to 5th floors, a games center and a theater (being renovated to a bowling alley) on the 6th floor, and a cabaret on the 7th floor. The business hours varied by tenant, and depending on the business, the number of visitors differed significantly throughout the day, which created inconsistency in the building's management.

B) Grandfather clause exempting older buildings

There was no established regulation such as the Fire Service Law and Building Standards Law when the building was originally constructed as a theater (Osaka Kabuki Theater). Even at the time of the renovations, certain regulations were inapplicable to this building. From the aspect of the intended use of a building, this building falls under the category where the fire safety measures such as a sprinkler system and automatic fire detection system are required; however, not complying with such measures was not necessarily illegal because of the grandfather clause exempting older buildings until some amount of remodeling occurs.

C) Emergency call, Evacuation, Locked out (No communication)

The security office did not alert or provide any information to the upper floors when the fire broke out. Despite the unusual smell, the manager of the 7th floor did not verify it with other tenants. After the fire

broke out, it took 7 minutes to notify the security office of the fire, 6 minutes for the security office to alert the fire station, and 17 minutes for the first team of firefighters to arrive.

On the 7th floor, when 181 people instinctively became aware of the fire, they rushed to the exits in panic, which coincided with when smoke rapidly became thicker. Some employees misdirected the customers to routes that were closed since April or always locked. In addition, they did not know how to use the escape chutes. Although 2 people were able to escape via the only stairs that were not locked, these 2 were ironically the employees (male staff member and hostess).

D) Heavy smoke and intense heat (smoke in an enclosed area)

The propagation paths of the fire from the 3rd floor to the adjacent floors (2nd and 4th floors) were the unclosed fire shutters on the escalators, whereas the paths of the smoke/fumes were the exhaust air ducts running on the 3rd, 4th and 7th floors. So the smoke that was produced on the 3rd floor accumulated on the 7th floor. The smoke also traveled through the unclosed spiral stairs on the 3rd floor and the elevator shaft, and exited from 3 sections of the escape route, which created poor visibility and a closed room filled with smoke and fumes.

The subsequent investigation revealed that the exhaust air duct had an aged damper which did not function properly.

E) Pro forma Fire Prevention

Within the same building, certain tenants carried out 7 fire drills by themselves, which seems to indicate defective cooperative security management. The fire defense plan was last created in 1963. The fire drills were minimally carried out and only by certain people. Maintenance of the firefighting equipment was limited to the escape chutes.

(2) Cause of fatalities

The most obvious factor that caused the 118 fatalities is fire safety failure. With all things considered, there are several notable factors as follows:

A) No internal communication

The security guards of the Sennichi Department Store notified the fire station, but did not alert the occupants on the 7th floor. Therefore, the cabaret employees and the guests did not become aware of the fire until smoke started pouring out of the ducts and the elevator shaft, which led to mass panic. The hostesses did not react properly by guiding the guests to escape routes, and the situation worsened when the power went out.

This is attributed to the fact that this multi-tenant building did not establish sufficient communication procedures for an emergency event.

B) Inadequate evacuation guide

Including the general manager of the cabaret who was also the fire-prevention manager of the 7th floor, almost no one helped the guests systematically. According to witnesses, even after the fire was confirmed, the exits remained locked and half the guests did not even notice the emergency

announcement over the speakers, which inadequately just stated "Be calm" and provided no specific direction for evacuation. In the meantime, the power outage caused sudden mass panic. People were trapped: 22 people managed to make it to a window, but eventually jumped to their deaths because of the deadly smoke.

C) Locked emergency stairs

On the 7th floor, Stairs A (next to the elevator), Stairs E (emergency stairs next to the locker room) and the door to Stairs F (north corner of the floor) were all locked or closed off and no-one took the keys from the office. Stairs B (next to the cloakroom) was not locked, but it was hidden by a curtain and went unnoticed. Only 2 employees who knew about Stairs B evacuated. Some people even opened the shutter on Stairs F to escape to the rooftop; however, the door to the rooftop was closed off.

D) Mishandling of escape chute

On the south corner of the audience seated area, the employees deployed an escape chute incorrectly. They did not lift the entrance frame all the way up (so there was no entrance to go in) and tragically people slid down outside of the chute instead of inside it. Because of this, those people who started sliding down had to hang on to the outside of the chute in the air and eventually fell to the ground. If this escape chute had been properly deployed, it could have saved many lives.

E) Heavy smoke (noxious fumes)

As previously mentioned, since no-one communicated with the 7th floor, by the time people there noticed the fire, the cabaret was probably filled with a significant amount of smoke. Not only that, but the door to the rooftop was closed off and the smoke itself was trapped on that floor. In the meantime, a flashover occurred on a lower floor and created a smoke inferno on the 7th floor. The smoke poured out unceasingly from every window, which made the rescue operation very difficult.

(3) Lessons learned

A) Thorough understanding of evacuation procedures and training with an in-house firefighting team is necessary.

This building fire was a catastrophic disaster because the people involved failed to act upon the three principals of fire response: Prompt call, Immediate fire control, and Safe evacuation. Particularly, they failed on the evacuation rule, which was the direct cause of the great number of fatalities. This fire proved that a paper plan needs to be put into practice.

Without executing detailed planning and actual training, no-one will be able to respond appropriately and another disaster will inevitably take lives.

In light of this incident, not only people who work directly in building fire prevention, but every person should now be motivated to become involved in practical fire safety management efforts while the fire stations and the authorities improve quality and strengthen administrative capacity politically as well as raise awareness and invest in fire safety.

B) Reinforced cooperative fire safety management system for multi-tenant buildings

From case studies and inspections, various multi-tenant buildings required to be fire-preventive structures have been recognized to create complicated problems because the tenants are uncooperative in many aspects. To solve this, the authorities have created and stipulated regulations with respect to cooperative fire safety management and fire prevention system.

However, even if a building complies with structural and hardware requirements, management may disregard the maintenance or cut budgets for fire safety as part of their business priorities. Therefore, as long as fire prevention are seen as being seen as less valuable, all kinds of disasters are predestined to happen.

Ideally, fire safety should not need to be manipulated by laws and regulations, because it should be socially shared knowledge that can be effectively used in a cooperative fire safety system.

Considering this case as a wake-up call, fire stations and authorities should understand the spirit of the law and put the lessons to good use.

C) Safety measures to protect escape routes from smoke and noxious fumes

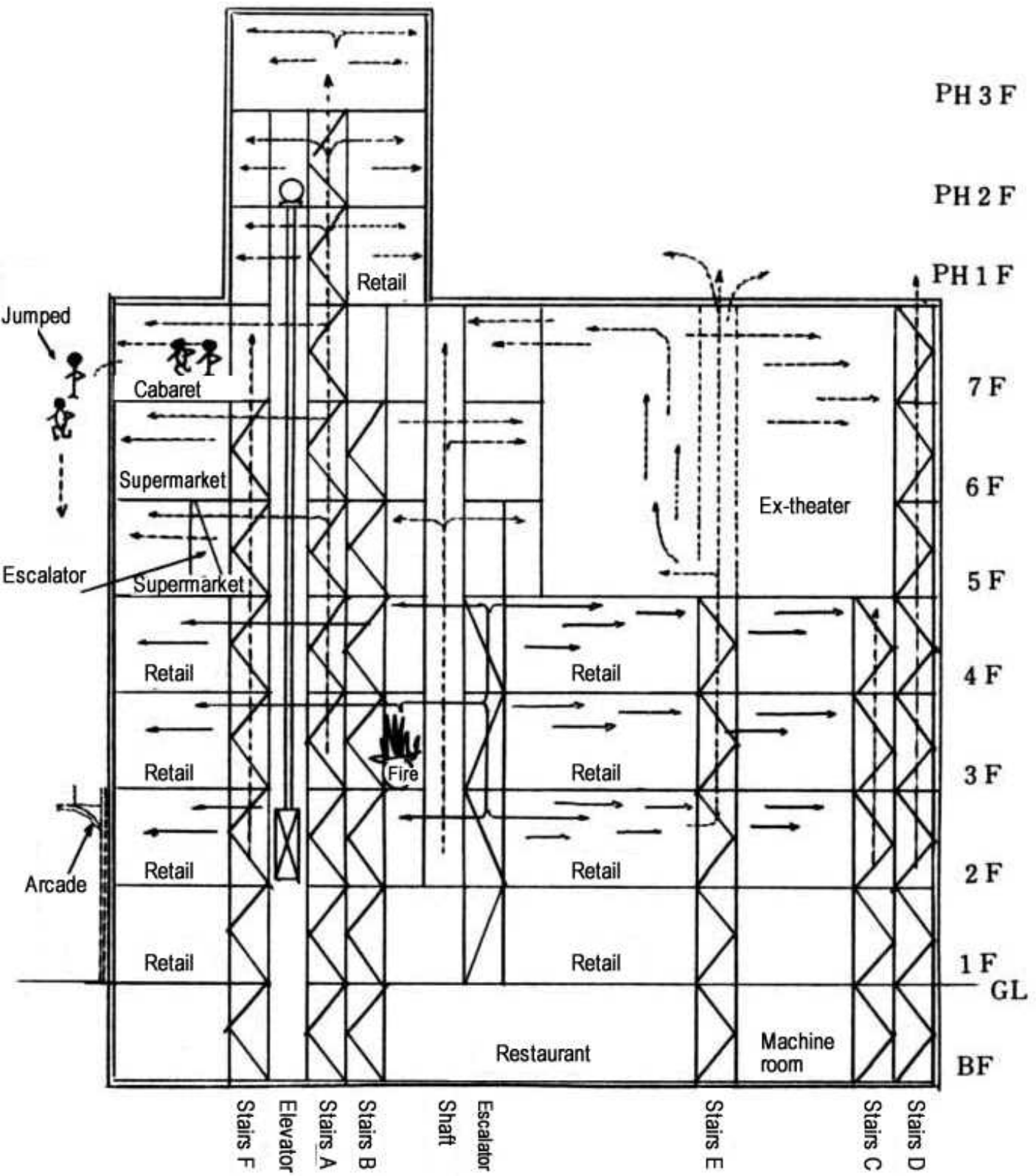
This fire proved that the presence of special escape stairs (Stairs B = a Article 123 stairs) was safe and important. In contrast to this—and repeatedly acknowledged to be a problem—the stairwell and the unsealed walls caused the smoke and noxious fumes to spread. This can be managed by maintenance, but it may be necessary to implement more fundamental safety measures with structural and hardware technology or a legal approach.

Particularly, a facility holding an unspecified number of people should be inextricably stable in all aspects of structural performance and management quality, to avoid casualties and property damage in the future.

Regardless of regulations or administrative advice being issued, now is the time to proactively untangle the financial constraints and review alternative solutions.

D) Construction fire safety during off-business hours and at night

As the data shows, many fires were associated with ongoing construction and/or occurred during off-business hours or at night. This fire was also caused by the careless behavior of a construction supervisor who is thought to have discarded a burning cigarette or match. Construction or renovation efforts can make a building vulnerable to accident, which can be triggered by a burning cigarette. Any work involving flammable materials should be managed as professionally as possible with multiple preventive measures in place throughout the construction period including when the workers are taking a break.



※ Refer to plane view for details of casualties

Symbol \dashrightarrow Smoke and heat \longrightarrow Propagation path

