

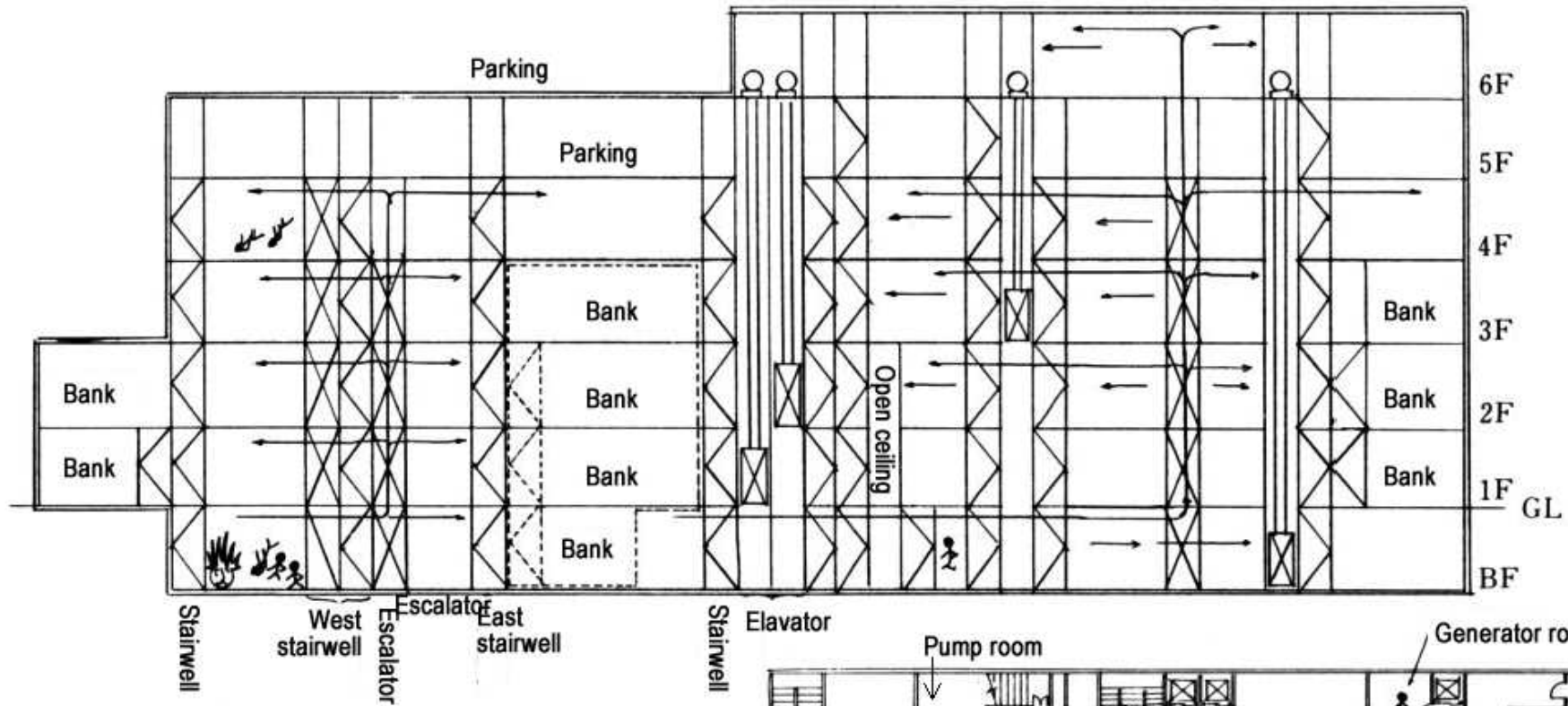
Building Name Address	Use (asper FSA Annexed Table 1)	Date and Time of Incident	Structure and Stories Area	Extent of Damage (Damaged Area/ Total Area)	No. of Casualties
Takatsuki Shopping Center	Department store (4)	Sept 25, 1973	Fire resistive 6 stories above ground and 1 below	All, <u>Half</u> , Partial, Small 34,647.2 m ² (59%)	Fatalities 6 Injured 13 (10)
		Breakout at 06:00 (approx.) Detected at 06:27 Notified by Extinguished at 02:00 next day	Building area 10,477.7 m ² Total floor area 59,145.7 m ²		
150-3 Hakubaicho, Takatsuki, OSAKA					

I. Summary of Fire Incident

(1) Summary	This great fire emerged from the 1st basement floor of a 6-story shopping mall. The mall was being built under a busy construction schedule for the grand opening in 4 days' time. The fire burned 60% of the total floor area of 6000 m ² and caused 6 fatalities and 14 injuries. Since this steel-frame fire-resistive building was engulfed in flames for hours, the concrete floor collapsed and damage was extensive.							
(2) Conditions per Floor	Floor	Total area m ²	Damaged area m ²	Use (Purpose)	No. of persons	No. of fatalities	Fire escape equipment	Firefighting equipment
	PH	189.3			4		3 sets of inside through stairs (B1 floor to 6 th floor) 17 sets of partial inside stairs 2 sets of outside stairs (1 st to 5 floors) 3 sets of other outside stairs	Fire extinguishers Indoor fire hydrants Sprinkler system CO ₂ extinguishing system (Electrical room in B1 and Parking on 5th) Outdoor fire hydrants Automatic fire detection system Emergency alarm system (PA system) Water pipe connections Smoke control system
	6	3,797.7	510	Parking, Lease office, Restaurant				
	5	6,511.8	0	Parking, Lease office				
	4	9,774.1	9,744.1	Retail units	16	2		
	3	9,601.7	9,601.7	Retail units, Bank	6			
	2	9,722.2	9,722.2	Retail units, Bank	21			
	1	10,476.5	218	Retail units, Bank	11			
	B1	9,502.0	4,851	Retail units, Machine room				
	Total	59,145.7	34,647.2					
(3) Origin of Fire	(Floor, Room, Part, Combustibles, Habitable/Non-habitable rooms, Present/Absent) <u>From the north center of the 1st basement floor (Estimate)</u> The origin of the fire was surrounded by large amounts of combustible materials such as the sales goods that were brought in for the grand opening in 4 days' time and some construction materials for interior finishing. At that time, there were a dozen staff members taking a nap in the 1st basement (8 guards in the security office, 2 electricians in the electrical room, and 2 staff members on the center of the floor).				(4) Cause of Fire	Unknown		

(5) Fire Propagation Path	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">(Location of Fire Source)</td> <td style="width: 25%; text-align: center;">(Propagation from Source)</td> <td style="width: 25%; text-align: center;">(Propagation to Adjacent Zones)</td> <td style="width: 25%; text-align: center;">(Propagation to Other Floors)</td> </tr> <tr> <td style="text-align: center;">Near the stairs at the center of the 1st basement floor</td> <td style="text-align: center;">Cardboard boxes (sales goods)</td> <td style="text-align: center;">Through the unclosed fire doors/shutters that were left open for the construction</td> <td style="text-align: center;">Through the opening of the escalator in the center of the north-side floor</td> </tr> </table>				(Location of Fire Source)	(Propagation from Source)	(Propagation to Adjacent Zones)	(Propagation to Other Floors)	Near the stairs at the center of the 1st basement floor	Cardboard boxes (sales goods)	Through the unclosed fire doors/shutters that were left open for the construction	Through the opening of the escalator in the center of the north-side floor			
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<p>The fire ignited the sales goods that were stored on the 1st basement floor and the intensive fire spread throughout the floor because the fire shutter for the escalator was open in the north center and this opening caused a draft effect. On the 1st floor, the fire shutter for this escalator was closed, but that of the other escalator was open, so the fire spread to the 1st floor through that opening. After that, the fire propagated to upper floors as some other shutters also remained open.</p> <p>○ Main Reasons for Propagation of the Fire</p> <ul style="list-style-type: none"> ○ The fire floor contained a large number of cardboard boxes (sales goods). ○ Due to the draft effect through the vertical opening of the escalator near the origin of the fire, the fire quickly spread to the upper floors. ○ Delayed 119 call <p>○ Smoke Propagation Path</p> <p>The smoke ascended rapidly to the upper floor through the escalator openings located in the north center of the floor. In addition, the smoke that was concentrated in the basement floor ascended through the openings of the other escalators and stairwells.</p>															
II. Summary of the Building															
(1) Built	Construction, Completion, and Major Renovations (Confirmation) August 30, 1974, (Scheduled Grand Opening) September 29, 1973														
	(2) Vertical Shafts		(3) Fire Prevention												
Fire Prevention Management	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Stairwells</td><td style="width: 10%; text-align: center;">[X]</td><td style="width: 50%;">Duct Spaces</td><td style="width: 10%; text-align: center;">[]</td> </tr> <tr> <td>Elevators</td><td style="text-align: center;">[X]</td><td>Pipe Shafts</td><td style="text-align: center;">[X]</td> </tr> <tr> <td>Escalators</td><td style="text-align: center;">[X]</td><td>Other ()</td><td style="text-align: center;">[X]</td> </tr> </table>		Stairwells	[X]	Duct Spaces	[]	Elevators	[X]	Pipe Shafts	[X]	Escalators	[X]	Other ()	[X]	As part of the health and safety management plan, a fire prevention plan was in place, but had not been submitted to the fire station.
	Stairwells	[X]	Duct Spaces	[]											
Elevators	[X]	Pipe Shafts	[X]												
Escalators	[X]	Other ()	[X]												
The vertical shafts (inside stairs, elevator shaft, escalator, pipe shaft, and open ceiling) had a fire compartment system.		General fire safety instructions and training were provided originally, but there was no established system that managed overall construction and fire safety. Therefore, since each tenant started to work on their own construction, no-one was really monitoring or supervising in general.													
(4) Fire Compartments		(5) Firefighting Equipment													
<ul style="list-style-type: none"> ○ In addition to the fire compartments for the floors and vertical shafts, there were fireproof partition walls in between the retail units and the bank. ○ The fire shutters were linked with smoke detectors (with backup batteries), and the fire doors were a self-closing type and linked with heat detectors. 		<ul style="list-style-type: none"> ○ The installation of the sprinkler system was just finished, but the control valve was closed and therefore no water came out of the head. ○ The indoor fire hydrant, automatic fire detection system, and emergency announcement system were still under construction. ○ Fire escape equipment was not yet installed. ○ The installation of the water pipe connections was completed and usable. 													

(5) Evacuation	Means of Escape (No. of Persons)	Obstacles to Evacuation
	<ul style="list-style-type: none"> ◦ Stairs [X] (33) ◦ Elevators/Escalators [] () ◦ Escape equipment [] () ◦ Directly to the ground from windows or openings [] () ◦ Rescued [X] (8) ◦ Other (parking slope, scaffolding, and rope) [X] (15) 	<ul style="list-style-type: none"> ◦ No windows [] ◦ Barred openings [] ◦ Locked emergency doors (Exits) [] ◦ Alarm system [] (Poorly controlled, Malfunctioned, Not installed) ◦ Power outage [] ◦ Other []
<ul style="list-style-type: none"> ◦ When the fire broke out, 73 people were preparing for the grand opening. ◦ Evacuation: 11 people from the entrance of the 1st floor, 33 people used the stairs, 6 people used the scaffolding, 8 ran down the parking slope and 1 person descended using a rope. ◦ From 4th and 5th floors, 8 trapped people were rescued by a ladder truck. 		
(6) Causalities	Healthy individuals 6 (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] (Asleep)
	<ul style="list-style-type: none"> ◦ Out of 4 persons who died in the basement, 3 were taking a nap in the security office. Presumably, they were woken by the guard who first detected the fire and came outside the office; however, they ended up in the pump room because of disorientation, power outage, and heavy smoke. The person who woke last because of the smoke also woke his colleague, but he became trapped by heavy smoke. Although he was rescued by firefighters when on the floor of the generator room in an unconscious state, he later died in hospital. ◦ On the 4th floor, 2 persons died. One died near the central stairs. Probably, he noticed the flames while working on the lighting construction. On the way out, he became disoriented in the restaurant area and fell unconscious near the stairs. The other person was probably napping somewhere on the sales floor, but no one woke him up and as soon as he realized there was a fire, he was trapped by heavy smoke and became unconscious. 	
IV. Issues and Lessons Learned		
<ol style="list-style-type: none"> 1. The building was a brand new structure where some installations were still under construction and some areas contained a large amount of combustible materials (sales goods) for the grand opening. 2. The main switch of the smoke detector that was linked to the type-B fire shutter that was a part of the fire compartment was inactive at that time to avoid a false alarm that might be triggered by dust from the construction. 3. The control valve of the sprinkler system was closed due to construction. 4. The installation of the automatic fire detection system and PA system were also in the process of being tested with temporary wiring and the main switch was off when the fire broke out. 5. For the upcoming grand opening in 4 days' time, over 1,000 people (construction workers, building owner, and tenants) were working around-the-clock to complete the last touch-ups. In this busy environment, no-one knew who was doing what and where, and fire safety became less important. 		



Intended use of the building

	Parking	Office	Restaurant	
	Parking	Office	Office	
	Seibu Dept Store		Restaurant	
	Seibu Dept Store	Bank	Clothing store	
Bank	Seibu Dept Store	Bank	Clothing	Market
Bank	Seibu Dept Store	Bank	Clothing	Market
	Seibu Dept Store			Market
	S	S		

