

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
Nodaya Kyoryuan Inn	Hotel (5) a	Jan 28, 1971	Fire resistive (main building)	All, Half , Partial, Small	Fatalities 2
		Breakout at 00:55 (approx) Detected at 00:55 Notified by a call to the police station Extinguished by 01:50	5 stories above ground and 0 below		
741-1 Suzenji, Suzenji-machi, SHIZUOKA			Building area m ²	880 m ²	Injured 2 ()
			Total floor area 3,098 m ²	(28%)	

I. Summary of Fire Incident

(1) Summary	<p>In the middle of the night, a fatal fire started from the floor right below the guest rooms in the hot spring inn. Although the automatic fire detection system promptly alerted people of the fire, the fire resulted in 2 fatalities because the guests were sound asleep and the night security was poor.</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				2 sets of inside stairs (1st to 5th floors)	9 sets of fire extinguishers per floor
		Main Building 3,098	880				3 sets of rope ladders (unknown)	10 sets of inside stairs (2nd to 5th floors)
5				Guest rooms	8			
4				Guest rooms	7	2		
③				Guest rooms				
2				Recreation room, Large hall				
1		Recreation room, Guest rooms	1	2				
Total	3,098	880		16	2		Automatic fire detection system Emergency alarm system (Portable microphone) Guiding lights	
(3) Origin of Fire	<p>(Floor, Room, Part, Combustibles, Habitable/Non-habitable Rooms, Present/Absent)</p> <p>The <i>futon</i> mattress storage area on the 3rd floor</p> <p>Combustible interior materials (ceiling, boards, walls, plywood, and <i>tatami</i> mats).</p> <p>Large amount of <i>futon</i> mattresses inside the storage room (10 m²)</p>					(4) Cause of Fire	Unknown	

(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;"> (Location of Fire Source) The <i>futon</i> storage area on the 3rd floor </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> (Propagation from Source) Combustible material such as interior materials and <i>futon</i> mattresses </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> (Propagation to Other Floors) Through the stairwell next to the storage room </div> </div>													
	<p>The cause of the fire is unknown, but it first burned the combustible materials (<i>futon</i> mattresses) inside the storage room. The fire spread to the interior materials and doorframe. Once the flames had reached the hallway, the fire grew higher in the stairwell next to the storage room and consumed the combustible doors of each guest room.</p> <p>○ Main Reasons for Propagation of the Fire The automatic fire detection system promptly alerted people of a fire; however, all of the subsequent actions such as the emergency call and fire control were delayed because there was only 1 night guard on duty.</p> <p>○ Smoke Propagation Path Heavy smoke emerged from the storage room of the 3rd floor and propagated along the hallways and the upper floors through both the south and north stairwells of the building.</p>													
II. Summary of the Building														
(1) Built Fire Prevention Management	Construction, Completion, and Major Renovations Unknown													
	(2) Vertical Shafts	(3) Fire Prevention												
	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Stairs</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;">[]</td></tr> <tr> <td>Escalators</td><td style="text-align: center;">[]</td><td>Other ()</td><td style="text-align: center;">[]</td></tr> </table> <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> ○ 2 sets of through stairs (one in the south corner and the other in the north corner of the building) ○ 1 elevator in the same corner of the south stairwell 	Stairs	[X]	Duct Spaces	[]	Elevators	[X]	Pipe Shafts	[]	Escalators	[]	Other ()	[]	<ul style="list-style-type: none"> ○ The hotel had appointed a fire-prevention manager and submitted the paper work to the local fire station. ○ The hotel had not prepared any fire defense plan. ○ The last fire drill was carried out in 1968 and none since then.
	Stairs	[X]	Duct Spaces	[]										
Elevators	[X]	Pipe Shafts	[]											
Escalators	[]	Other ()	[]											
(4) Fire Compartments	(5) Firefighting Equipment													
Both through stairs (north and south stairwells) were adequately protected by fire doors.	<ul style="list-style-type: none"> ○ The hotel properly maintained fire equipment such as fire extinguishers, indoor fire hydrants, an automatic fire detection system, and guiding lights. ○ The emergency alarm system was a portable microphone, not a PA system. ○ The hotel maintained 3 sets of rope ladders, but the locations of these are unknown. 													

III. Actions Taken after the Fire was Detected		
(1) First Detected	<ul style="list-style-type: none"> ◦ Detected by (Night guard) ◦ How and why (Alarm from the automatic fire detection system) ◦ Action taken (The night guard confirmed the fire) 	
	<p>Around 23:40, the automatic fire detection system in the security office alerted a night guard who had gone to bed in the office after his night patrol. He was the only night guard that night. He rushed to the fire location on the 3rd floor and saw a large amount of smoke pouring out of the storage room. He ran back to his office on the 1st floor and notified the owner and employees of the fire. When he returned to the fire room, the room was already engulfed in flames.</p>	
(2) Emergency Call	Emergency Call	Yes [] () Time elapsed since the discovery () minutes No [X]
(3) Initial Firefighting Activities	Initiated	Successful [] Failed [X] <ul style="list-style-type: none"> ◦ Extinguished timing [X] ◦ Firefighting difficulties [] ◦ Firefighting method []
	Not Initiated	<ul style="list-style-type: none"> ◦ Extinguished timing [] ◦ Firefighting difficulties [] ◦ Firefighting method [] ◦ Other []
(Reasons or Conditions)		
<p>The night guard woke up an individual at the front desk and they tried to extinguish the fire with a fire extinguisher and a bucket of water, but the fire was already out of control.</p>		
(4) Summary of Firefighting Activities	(Obstacles or Difficulties in Fire Control)	
	<ul style="list-style-type: none"> ◦ There were only 2 inside stairs leading to the rooftop. By the time the firefighters arrived, these stairs were filled with heavy smoke. Therefore, the firefighters had difficulty going up, but were able to utilize the balconies on east side of the guest rooms for rescue activities. 	

(5) Evacuation	Means of Escape (No. of Persons)	Obstacles to Evacuation
	<ul style="list-style-type: none"> ◦ Stairs [X] (7) ◦ Elevators/Escalators [] () ◦ Escape equipment [] () ◦ Directly to ground from windows or openings [] () ◦ Rescued [X] (6) ◦ 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 [X] (Heavy smoke in the stairwell)
<p>When the fire broke out, there were 7 guests on the 4th floor and 8 guests on the 5th floor. By the time the firefighters arrived, 6 of them were calling for help from the east-side balcony on the 5th floor. They climbed down the rope ladders that were prepared by the firefighters and landed on the 2nd floor one by one. From there, they jumped onto <i>futon</i> mattresses placed on the ground. Firefighters rescued 2 guests who were trapped in the large south stairwell on the 4th floor. The rest of the guests (7) were able to escape to the rooftop by themselves and descended via the south stairs when the fire started to die down.</p>		
(6) Casualties	Healthy individuals 2 (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 [] ◦ Other []
<p>The 2 guests who were rescued from the stairwell on the 4th floor were rushed to hospital, but died of carbon monoxide poisoning shortly after. They were staying in 4th-floor guest rooms next to the north-side stairwell and became aware of the fire at some point, but instead of going to the balcony on the east, they went to the hallway and ended up in the south stairwell where they were trapped by smoke.</p>		
IV. Issues and Lessons Learned		
<ol style="list-style-type: none"> 1. Hotels should be constructed with outside stairs that lead to the roof floor or an emergency ladder. 2. Hotel management should provide thorough fire response training (first response, emergency call, fire control, and evacuation procedures) to the employees. 3. Hotels need to have a sufficient number of nighttime security guards on duty. (There was only 1 guard on duty on that night.) 4. For effective training, hotels should prepare a fire defense plan and conduct fire drills according to the plan. 		



