

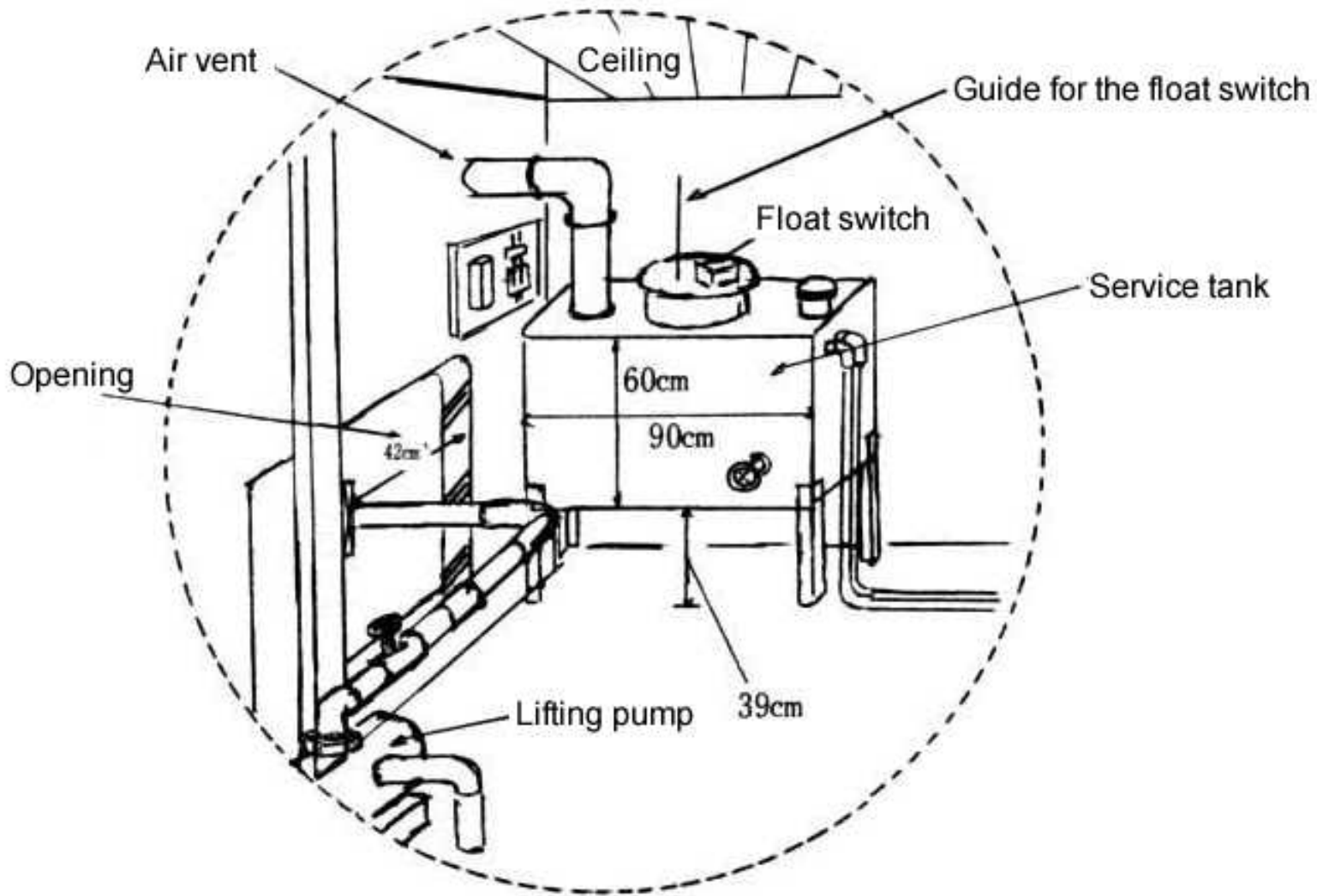
Building Name Address	Use (as per FSA Annexed Table 1)	Date and Time of Incident	Structure and Stories Area	Extent of Damage (Damaged Area/ Total Area)	No. of Casualties
<b>Turkish Bathhouse, Sono</b>	Bathhouses with private rooms (9) a	Mar. 29, 1969	Fire preventive 2 stories above ground and 0 below	<b>All</b> , Half, Partial, Small  358 m <sup>2</sup>  (100 %)	Fatalities 5
		Breakout at 17:05 (approx) Noticed at 17:08 Notified by emergency call Extinguished by 19:51			
1-442 Nishi-okubo, Shinjuku, TOKYO			Total floor area 358 m <sup>2</sup>		

I. Summary of Fire Incident									
(1) Summary	This fire originated in anon-fire resistive boiler room where overfilled boiler fuel ignited and several defects facilitated the fire to spread. The boarded window trapped the evacuees and resulted in 5 fatalities (employees) on the 2nd floor.								
	(2) Conditions per Floor	Floor	Total area	Damaged area	Use (Purpose)	No. of persons	No. of fatalities	Fire escape equipment	Firefighting equipment
			m <sup>2</sup>	m <sup>2</sup>				2 set of inside stairs	2 sets of fire extinguishers
		2	179	179	Turkish bathhouse Break room	6	5		
①		179	179	Turkish bathhouse Boiler room	7				
	Total	358	358		13	5			
(3) Origin of Fire	(Floor, Room, Part, Combustible, Habitable/ <u>Non-habitable</u> , Present/ <u>Absent</u> )				(4) Cause of Fire	A fuel track overfilled the heavy oil by 1000 liters in the indoor fuel tank for the boiler, and the excessive fuel spilled over the service tank, covering the boiler room. It was ignited by the flame for the active boiler.			
	<u>Flames emerged from the boiler room on the 1st floor</u> <ul style="list-style-type: none"> <li>o The boiler room was constructed with fire-preventive materials, and the entrance door was made of wood.</li> </ul>								

<b>(5) Fire Propagation Path</b>	(Location of Fire Source)	(Propagation from Source)	(Propagation to Adjacent Zones)	(Propagation to Upper Floors)
	Boiler room on the 1st floor	Spread from the ignition source, where the spilled fuel ignited from the boiler flame, to the wooden door	The flames from the door traveled to the hallway ceiling and ignited the duct insulation materials to accelerate spread of the fire.	The flame traveled to the 2nd floor via a wooden stairwell and floor carpet.
	<p>The overfilled heavy oil spilled into the boiler room on the 1st floor and was ignited by the flame from the boiler. Instantly the boiler room became an inferno and, via the room's wooden door, the flames and smoke spread to the walls and ceiling of the hallway. The fire spread rapidly and horizontally from the boiler room via the insulation material of the duct, and vertically to the 2nd floor via the stairwell.</p> <p>○ Main Reasons for Propagation of the Fire</p> <ul style="list-style-type: none"> <li>○ The boiler room was not fire resistive and the wooden door became the path for propagation.</li> <li>○ The wallpapered plywood that was used for the room's interior also facilitated the spread of the fire.</li> <li>○ The flame traveled faster through the HVAC vent of each room and the hallway.</li> </ul> <p>○ Smoke Propagation Path</p> <p>As the flames grew in the boiler room, the heavy smoke ascended toward the 2nd floor. Also from the nearby HVAC system, the smoke traveled through the ducts to obscure each room and the hallway.</p>			
<b>II. Summary of the Building</b>				
<b>(1) Built</b>	Construction, Completion, and Major Renovations (Inspection upon completion) May 21, 1965 (Modification) March 28, 1969			
	<b>(2) Vertical Shafts</b>		<b>(3) Fire Prevention</b>	
<b>Fire Prevention Management</b>	Stairs [X]	Duct Spaces [X]	<ul style="list-style-type: none"> <li>○ No fire-prevention manager was appointed because a building that contains less than 50 occupants was not required to do so and this building was in that category.</li> <li>○ The building management did not retain a permit for storing hazardous material (1800 liters of heavy oil). The hazardous material was handled by unqualified personnel and no supervision was provided at the time of delivery.</li> <li>○ All windows on the 1st and 2nd floors were covered by wooden boards to ensure privacy.</li> <li>○ No permit or paperwork was filed for the alteration of use, renovation or new boiler installation.</li> </ul>	
	Elevators [ ]	Pipe Shafts [ ]		
	Escalators [ ]	Other ( ) [ ]		
This (2-story) building was made of wood and plaster and was not legally required to take fire preventive measures on the stairs or for the ducts.				
<b>(4) Fire Compartments</b>		<b>(5) Firefighting Equipment</b>		
<p>The interior of the building was not designed in accordance with the local building safety code.</p> <ul style="list-style-type: none"> <li>○ The boiler room was not fire resistive and had no fire doors installed.</li> <li>○ The bathrooms on the 2nd floor were not fire resistive.</li> </ul>		Building management failed to install fire escape equipment as required by law.		

III. Actions Taken after Fire was Detected			
<b>(1) First Detected</b>	<ul style="list-style-type: none"> <li>◦ <b>Detected by</b> ( Assistant manager of the bathhouse )</li> <li>◦ <b>How and why</b> ( After being notified of the fuel spill, he went to the boiler room and saw flames)</li> <li>◦ <b>Action taken</b> ( Assistant manager alerted the manager and made a 119 call)</li> </ul>		
	<p>The president of the equipment company was in the building during building construction work, and he went to look for a tool in the storage area next to the indoor tank. He found the fuel spill around the tank and notified the bathhouse manager at the front desk. The assistant manager was next to the manager and hearing this went to confirm the spill and discovered growing flames (approx. 1 m high) inside the boiler room. After he alerted the manager, he ran back to the boiler room with a fire extinguisher from the front desk, but the manager told him to call the fire station. Before he made a call, he told Hostess A, who happened to be in the hallway, to evacuate the guests immediately.</p>		
<b>(2) Emergency Call</b>	<b>Emergency Call</b>	Yes [ X ] ( Assistant manager of the bathhouse )	Time elapsed since discovery ( 3 ) minutes
	No [ ]		
<p>The assistant manager tried to make a 119 call from the pay phone (aka "pink phone") on the front desk; however, he could not find the "key". So, he went to make a call from the "red phone" on the other side of the street and then to another red phone in the tobacco shop a few doors away, but the shop owners did not have the key. Finally, a further few doors down, he was able to make the call from another tobacco shop. (Back then, in order to make a 119 call from a pay phone (aka, pink phone or red phone), the caller needed to unlock the switch with the special key, otherwise the receiver of the call could not hear anything.)</p>			
<b>(3) Initial Firefighting Activities</b>	<b>Initiated</b>	Successful [ ] Failed [ X ]	<b>(Reasons or Conditions)</b> The bathhouse manager who was notified of the fire by the assistant manager rushed to the boiler room with a foam extinguisher from the front desk, but the room was fully engulfed in flames and filled with black smoke. His attempt to contain the incipient-stage fire was ineffective.
	Not initiated	<ul style="list-style-type: none"> <li>◦ Extinguished timing [ ]</li> <li>◦ Firefighting difficulties [ ]</li> <li>◦ Firefighting method [ ]</li> <li>◦ Other [ ]</li> </ul>	
<b>(4) Summary of Firefighting Activities</b>	<b>(Obstacles or Difficulties in Fire Control)</b>		
	<ul style="list-style-type: none"> <li>◦ By the time the firefighters arrived, the search and rescue operation was no longer feasible because the building was engulfed in flames: heavy smoke was pouring out of both the 1st and 2nd floors and flames were emerging from the main entrance on the 1st floor. The wooden boards on each window to protect privacy also interfered with the firefighter's attempt to enter the building when they tried to knock out the 2nd-floor windows and the exterior walls.</li> </ul>		

<b>(5) Evacuation</b>	Means of Escape (No. of Persons)	Obstacles to Evacuation
	<ul style="list-style-type: none"> <li>◦ Stairs [ X ] (1)</li> <li>◦ Elevators/Escalators [ ] ( )</li> <li>◦ Escape equipment [ ] ( )</li> <li>◦ Directly to ground from windows or openings [ X ] (7)</li> <li>◦ Rescued [ X ] (7)</li> <li>◦ Other ( ) [ ] ( )</li> </ul>	<ul style="list-style-type: none"> <li>◦ No windows [ ]</li> <li>◦ Barred openings [ X ]</li> <li>◦ Locked emergency doors (Exits) [ ]</li> <li>◦ Alarm System [ ] (Poorly controlled, Malfunctioned, Not Installed)</li> <li>◦ Power outage [ ]</li> <li>◦ Other ( ) [ ]</li> </ul>
	<ul style="list-style-type: none"> <li>◦ One male guest who was taking a bath in Room 7 on the 1st floor was alerted by Hostess A, and he evacuated himself out of the building.</li> <li>◦ Two male guests who were taking a bath in Room 3 on the 1st floor evacuated on their own because they heard the bathhouse manager's alert.</li> <li>◦ The manager who failed to contain the fire on the 1st floor evacuated through the entrance with the president of the equipment company, and the assistant manager was probably still trying to make a call outside.</li> <li>◦ Hostess A also alerted 1 male staff member and 5 hostesses who were in the break room on the 2nd floor. The male staff member was able to evacuate via the stairs filled with heavy smoke. Hostess B was rescued after she jumped from a small window of the bathroom next to the break room onto the corrugated iron roof of the parking space on the south side of the building and slipped off the roof to the parking lot. (A total of 5 hostesses were killed.)</li> </ul>	
<b>(6) Causality</b>	Healthy individuals 5 (Drunk persons ) Individuals in need of assistance Infants Elderly Handicapped Patients/ill persons	Obstacles to Evacuation <ul style="list-style-type: none"> <li>◦ No windows [ ]</li> <li>◦ Barred openings [ X ]</li> <li>◦ Locked emergency doors (Exits) [ ]</li> <li>◦ Alarm system [ ] (Poorly controlled, Malfunctioned, Not installed)</li> <li>◦ Power outage [ ]</li> <li>◦ Other ( ) [ ]</li> </ul>
	<ul style="list-style-type: none"> <li>◦ Hostess A, who was notified of the fire by the assistant manager and alerted the guest in Room 7 and her colleagues on the 2nd floor, tragically lost her chance to escape and burned to death because the way out was blocked by flames and smoke from downstairs.</li> <li>◦ Hostess C who was in the break room, tried to escape from the same window from which Hostess B jumped, but she was trapped by the smoke and burned to death when her body was half way out of the window. Presumably, the 3 other hostesses were trapped by the rapidly approaching flames and smoke from the stairs and burned to death.</li> </ul>	
<b>IV. Issues and Lessons Learned</b>		
<ol style="list-style-type: none"> <li>1. The bathhouse management failed to obtain a permit to handle and store hazardous material (heavy oil, 1800 liters), and an unqualified person was handling the hazardous material and supervising the fuel delivery, which led to the careless spill.</li> <li>2. The principal structural part of the boiler room and the 2nd-floor bathrooms were not constructed as required by law and the interior was made of combustibile materials, which caused the fire to spread.</li> <li>3. The wooden boards on the windows made evacuation through the windows impossible and resulted in 5 fatalities.</li> </ol>		



Layout of the service tank

