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
Saiseikai Yahata General Hospital 5-9-27 Harunomachi, Yahata-ku, Kitakyushu, FUKUOKA	Hospital (6) a	Mar. 8, 1973 Breakout at 03:21 (approx) Detected at 03:51 Notified by Extinguished by 05:25	Partially fire resistive Fire preventive 5 stories above ground and 1 below Building area 1,500 m² Total floor area 6,269.5 m²	All, Half, **Partial**, Small 888 m² (14%)	Fatalities 13 Injured 3 (1)

I. Summary of Fire Incident

(1) Summary

Despite people's lives depending on the very nature of this building, this hospital fire resulted in 13 fatalities and 3 individuals were injured because of the emergency call being significantly delayed. The fire-prevention management system was insufficient and faulty fire compartments facilitated propagation of the fire. The direct cause of the fire was a mosquito coil, which one of the doctors mishandled.

(2) Conditions per Floor

Floor	Total area	Damaged area	Use (Purpose)	No. of persons	No. of fatalities	Fire escape equipment: Inside stairs	Fire escape equipment: Outside stairs
	m²	m²					
	Number inside the ( ) indicates areas made of wood and plaster						
PH	38.8		Machine room				
5	443.3		Lab, Dialysis room			1	1
4	1,086.4	400	Exam room, Patient room	93	13	2	2
3	1,182.0	400	Exam room, Patient room	91	(1 person died at another hospital)	2	2
2	1,397.7 (99)	18	Exam room, Patient room	51		2	2
(1)	1,500.0(134)	70	Exam room, Office	5			
B1	621.3		Machine room			1	3
Total	6,269.5	888		250	13		

Firefighting equipment:
- Fire extinguishers
- 48 sets of indoor fire hydrants
- Automatic fire detection system
- Emergency alarm system (PA system and bell)
- Guidng lights
- Emergency stairs
- 1 set of slow descending machines on the 2nd floor
- 1 set of slow descending machines on the 3rd floor
- 1 escape chute on the 4th floor

(3) Origin of Fire

(Floor, Room, Part, Combustibles, Habitable/Non-habitable Rooms, Present/Absent)

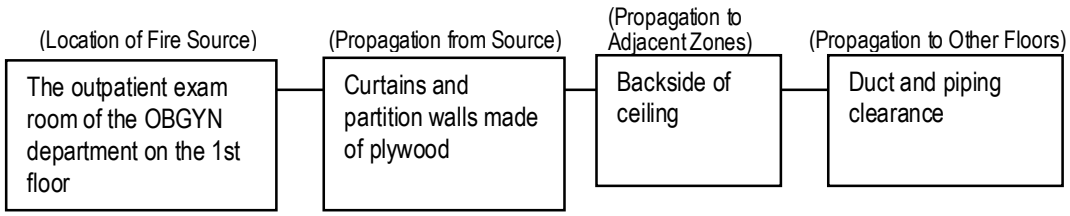
The fire started in the outpatient examination room of the OBGYN department on the 1st floor

- The ceiling of the fire room was made of plaster board, and the two sidewalls were made of wallpapered plywood. A bed and curtains were next to the partition wall. The interior wall panel was extended beyond the ceiling.

(4) Cause of Fire

OBGYN Head Physician I (age 39) was drinking with his colleagues and he went to bed in the outpatient exam room of the OBGYN department but left a burning mosquito coil unattended, which led to the curtain catching fire.

(5) Fire Propagation Path



The curtain caught on fire from the burning mosquito coil that was placed next to the bed in the outpatient exam room in the OBGYN department on the 1st floor, and the fire spread to the plywood partition walls and then to the joist and the suspension portions of the double ceiling. The fire further spread to the 4th floor through the backside of the ceiling, duct clearance that was not sealed off, and the coverings of pipes and wires. The flames on the backside of the ceiling caused the ceiling of the 2nd to 4th floors to collapse, which allowed the fire to spread simultaneously to each floor.

- O Main Reasons for Propagation of the Fire
  - ° On each floor, duct clearances on the partition walls and the ceiling were never sealed off, and therefore the fire spread through these defects.
  - ° The ceiling suspensions, piping and covering of the wires facilitated the fire to spread.
- O Smoke Propagation Path
  From the outpatient exam room, the pervasive smoke traveled along the backside of the ceilings through the unsealed clearances of the duct and wire spaces and ascended to the upper floors.

II. Summary of the Building

(1) Built

Construction, Completion, and Major Renovations
(Permit) July 1,1954, (Permit for the second building) October 2, 1974

Fire Prevention Management

(2) Vertical Shafts

Stairs	[X]	Duct Spaces	[X]
Elevators	[X]	Pipe Shafts	[X]
Escalators	[ ]	Other ( )	[ ]

There was no fire compartment on the backside of the ceiling where the duct and wire spaces were running. The fire doors of the service lift were left open all the time.

(3) Fire Prevention

- ° The hospital had a fire prevention committee and the hospital director was the chairman of the committee. The fire-prevention manager was the general affairs supervisor.
- ° The hospital director was also the head of the in-house firefighting team that consisted of 250 members who worked in a 3-shift system in daytime and 15 members at night under a defined chain of command.
- ° The local fire station had provided training once in that year.

(4) Fire Compartments

- ° Each floor was partitioned by 2 sets of type-B fire shutters.
- ° When the hospital was adding the 4th floor to the building, they received an official letter from the local fire station recommending the installation of a self-closing fire door around the stairwell and the addition of some fireproof treatment in between the fire-preventive portion and fire-resistive portion of the building.

(5) Firefighting Equipment

In an official letter of notification, the local fire station recommended the hospital to:

- ° Install fire escape equipment on the 5th floor.
- ° Replace smoke detectors in the stairwell and hallways to comply with safety standards.
- ° Modify the PA system and guiding lights to comply with safety standards.

III. Actions Taken after the Fire was Detected

(1) First Detected

- **Detected by** (Head physician of OBGYN (age 39))
- **How and why** (He woke up because he felt heat on his foot)
- **Action taken** (He tried to extinguish the fire with his jacket)

Around 03:00, Head OBGYN Physician I (age 39), who was asleep in the outpatient exam room, woke up because he felt heat on his foot and saw the curtain next to the bed was on fire. He tried to extinguish the fire with his jacket, but by doing that, he made the fire much larger. He filled a bucket of water twice from the washstand and poured water on the flames, but the fire was still strong. He then loudly alerted the other physician and nurses on duty.

(2) Emergency Call

Emergency Call

Yes [X] (Head nurse on the 1st floor) Time elapsed since the discovery (30) minutes

No [ ]

Approximately 30 minutes since the fire broke out, around 03:51, the fire station received a call from a female saying, "Saiseikai Yahata General Hospital is on fire. The fire is coming from the OBGYN section". A little before this call, around 03:49, the local police station received a 110 call from the elementary school principal (age 57) who lives across from the hospital. He reported, " Saiseikai Yahata General Hospital is on fire and I believe the smoke is coming from the 4th floor".

(3) Initial Firefighting Activities

Initiated	Successful [ ] Failed [X] ° Extinguished timing [X] ° Firefighting difficulties [ ] ° Firefighting method [ ]	**(Reasons or Conditions)** The alert by the OGBYN head physician reached the head nurse, nurse, administrative clerk, and security guard on the 1st floor and the physician on duty. They used 3 dry-chemical extinguishers to try to extinguish the fire, and the security guard extended the hose from the indoor fire hydrant. However, the fire was already above the ceiling and beyond their control. Therefore, the head nurse made a 119 call and the rest of the staff went to help the inpatients with severe injuries on the 2nd floor to evacuate. (The security guard remained at the fire location and sprayed water until the firefighters arrived.)
Not Initiated	° Extinguished timing [ ] ° Firefighting difficulties [ ] ° Firefighting method [ ] ° Other [ ]	

(4) Summary of Firefighting Activities

(Obstacles or Difficulties in Fire Control)

° There were 3 driveways at the hospital and 2 of them had a clear width of 4 m, and the south side of the building (where the fatalities were reported) was under construction for a new addition. This limited access was problematic for the ladder trucks and affected the rescue operation. For this fire, 8 units comprised of ladder trucks and snorkel trucks were dispatched (4 units worked on the rescue operation).

° The hospital did not provide necessary information to the firefighters, and because of this, the rescue operation was focused on only one corner when the firefighters could have gone to the other sections to rescue more people.

(5) Evacuation

Means of Escape (No. of Persons)	Obstacles to Evacuation
° Stairs [X] (108) ° Elevators/Escalators [ ] ( ) ° Escape equipment [ ] ( ) ° Directly to ground from windows or openings [X] (2) ° Rescued [X] (105) ° Other (Climbed down drain pipes from the 4th floor) [X] (9)	° No windows [ ] ° Barred openings [ ] ° Locked emergency doors (Exits) [ ] ° Alarm system [ ] (Poorly controlled, Malfunctioned, Not installed) ° Power outage [ ] ° Other [ ]

° 2nd floor: 31 patients were rescued by nurses and 20 patients were rescued by firefighters. (According to the information provided, these patients were staying in the hospital for treatment of severe injuries.)

° 3rd floor: Patients temporarily escaped to the rooftop garden (130 m^2). From there, 64 people were able to descend via the outside stairs and 27 people were rescued by snorkel trucks.

° 4th floor: 24 people escaped on their own, 58 people were rescued by firefighters, 9 people climbed down drain pipes, and 3 people jumped from windows (1 of whom died).

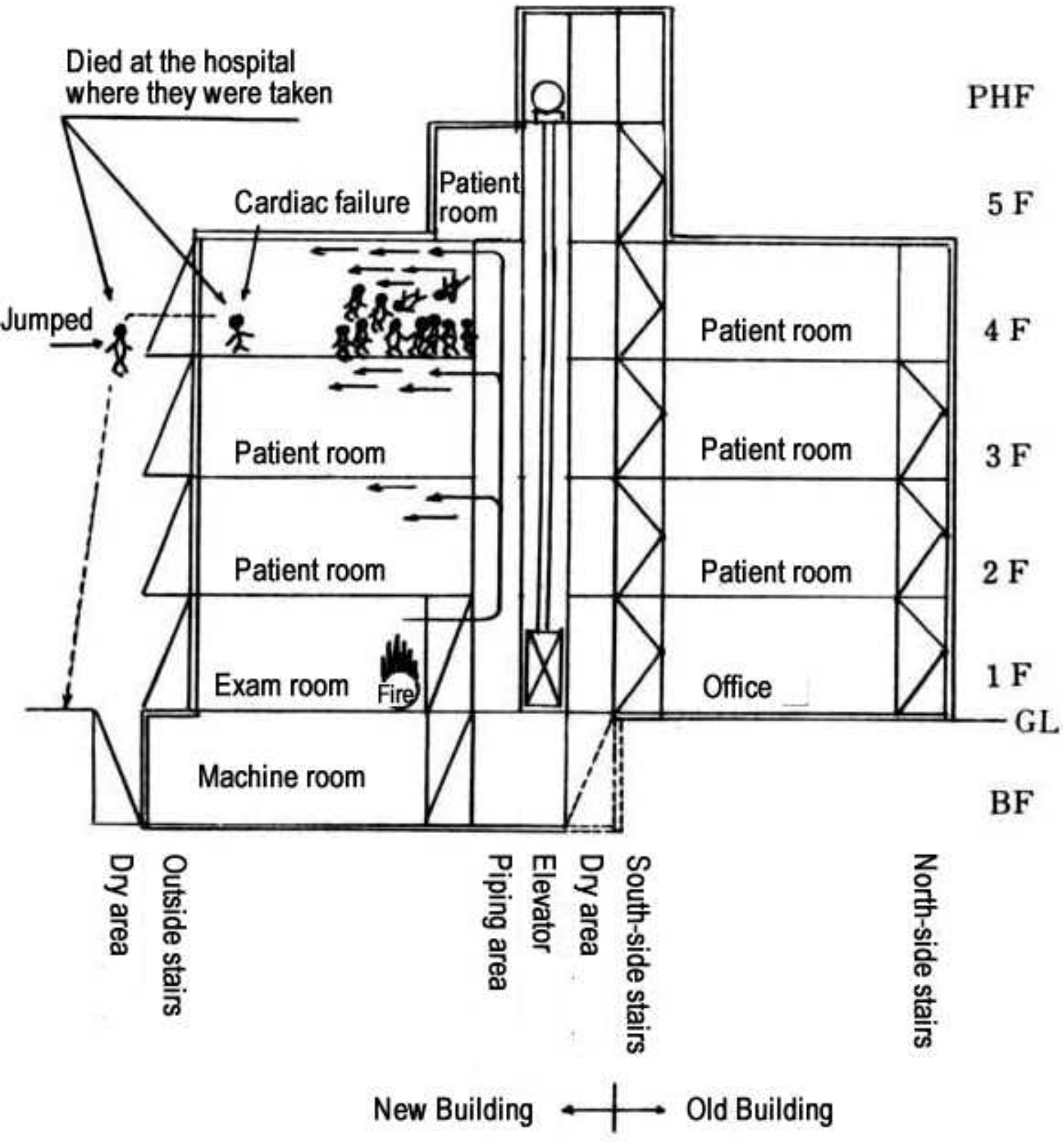
(6) Causalities

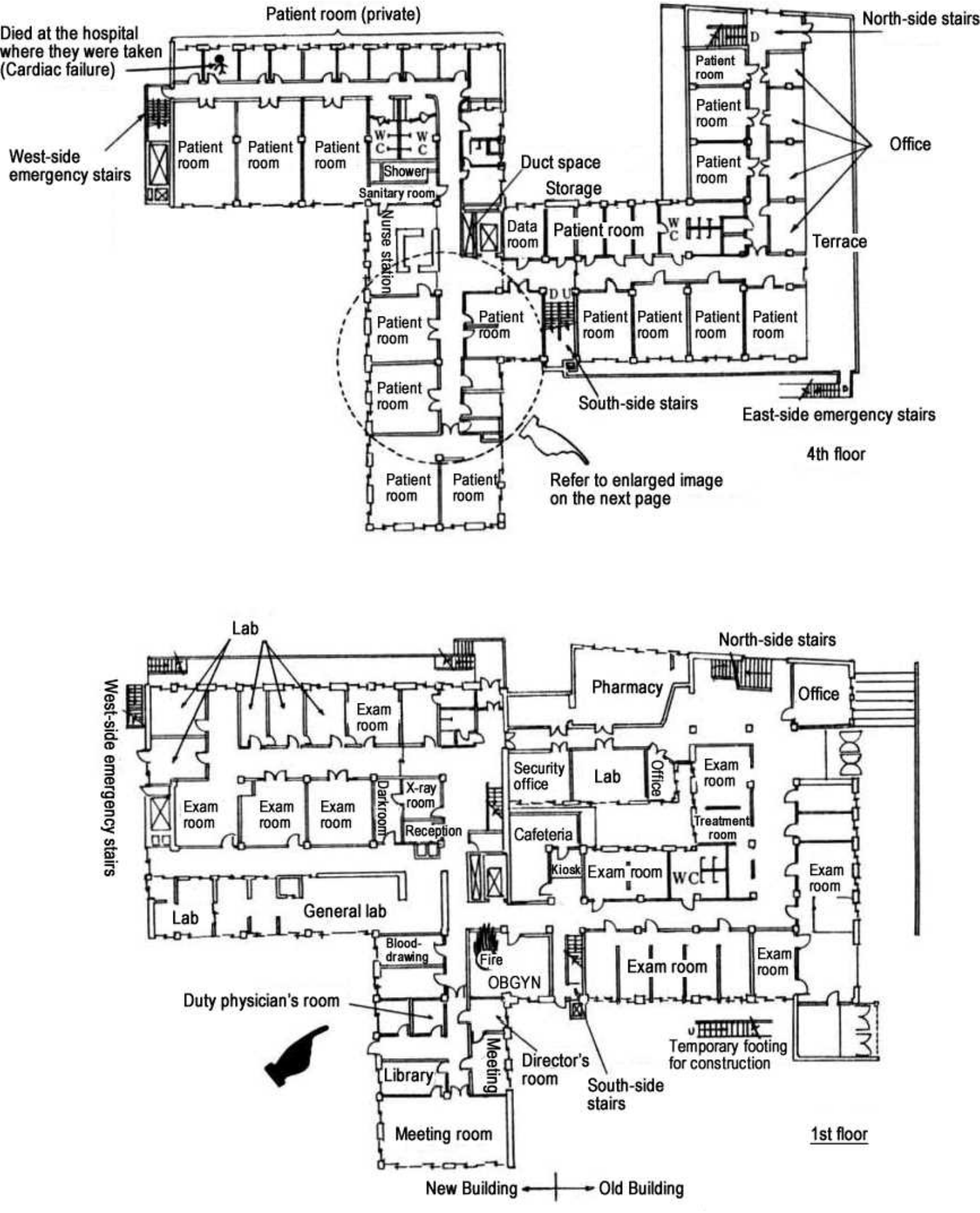
Healthy individuals (Drunk persons) Individuals in need of assistance 13 Infants Elderly Handicapped Patients 13	Obstacles to Evacuation ° No windows [ ] ° Barred openings [ ] ° Locked emergency doors (Exits) [ ] ° Alarm system [ ] (Poorly controlled, Malfunctioned, Not installed) ° Power outage [ ] ° Other [ ]

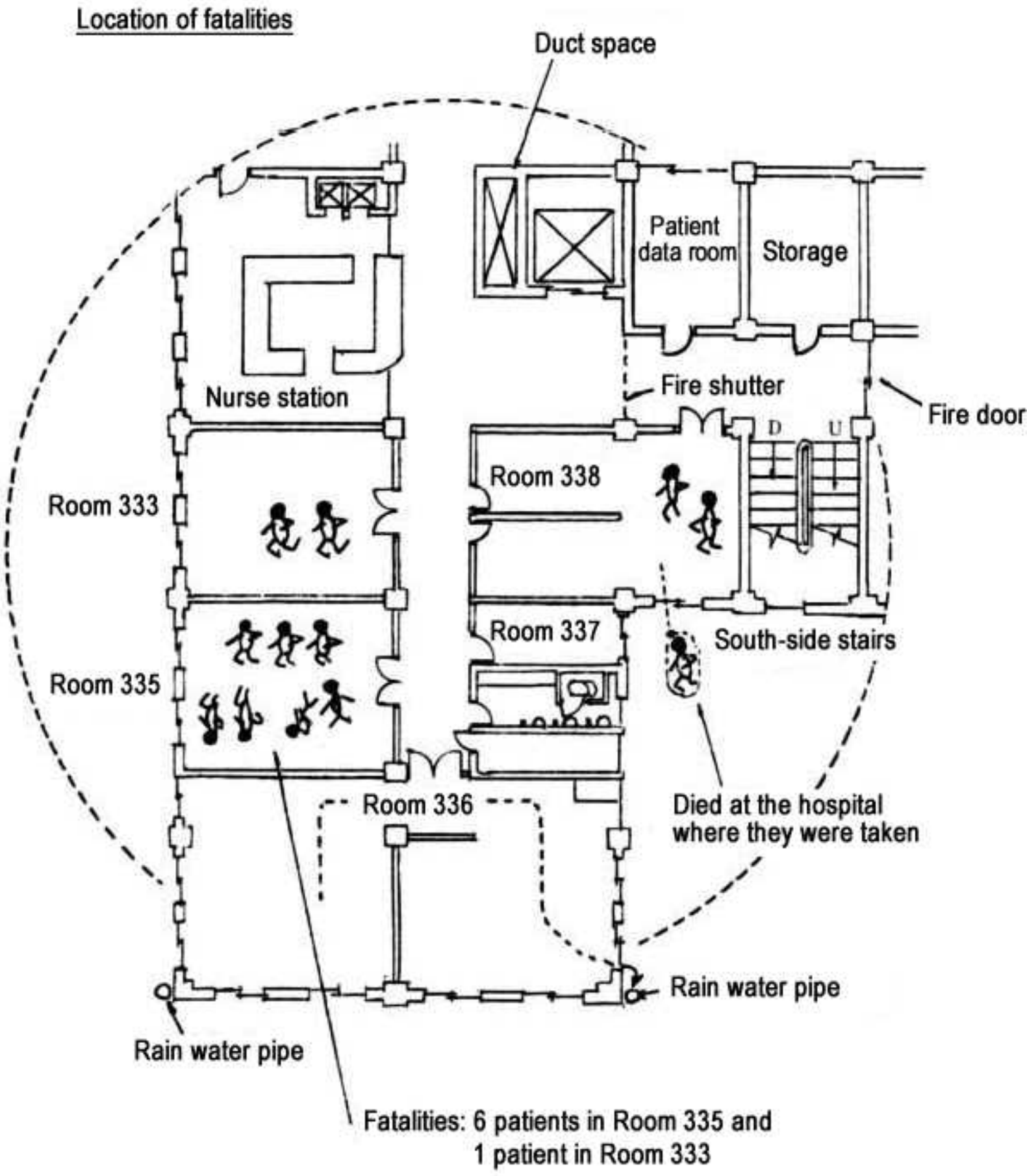
Through the pipe shaft, duct space, and service lift, the pervasive smoke quickly traveled through the hallway of the 4th floor and this smoke trapped the patients in Rooms 333, 335, and 308. Many of the patients were physically-challenged children and elderly women, and they could not escape through the heavy smoke. As a result, 11 patients died of suffocation, and 1 patient died after jumping from a window. Although the fire did not reach Room 327, 1 male patient (age 48) who was in that room died of shock after he was taken to another hospital.

IV. Issues and Lessons Learned

1. The late 119 call delayed the firefighters' arrival and rescue activities.
2. The vertical shaft (duct and wire spaces) on the backside of the ceiling did not have any fire compartments, and these faulty portions allowed smoke to travel to the 4th floor and obscured the evacuation route.
3. The initial response was poorly handled. Despite the automatic fire detection system alerting staff about the location of the fire, they turned the alarm off before confirming the location. Because of this, not all of the patients were alerted and their evacuation was therefore delayed.
4. The hospital did not provide necessary information to the firefighters, and this affected the rescue operation.
5. The hospital disregarded the fire station's recommendation regarding the fireproofing treatment on the curtains and fire drills in accordance with the fire defense plan.
6. It is necessary to review patient room layout to facilitate safe evacuation of physically-challenged patients.


Died at the hospital where they were taken
Cardiac failure
Patient room
Jumped
Patient room
Patient room
Patient room
Exam room
Fire
Machine room
Patient room
Patient room
Patient room
Office
PHF
5 F
4 F
3 F
2 F
1 F
GL
BF
Dry area
Outside stairs
Piping area
Elevator
Dry area
South-side stairs
North-side stairs
New Building
Old Building


Patient room (private)
Died at the hospital where they were taken (Cardiac failure)
West-side emergency stairs
Patient room
Patient room
Patient room
W C
W C
Shower
Sanitary room
Nurse station
Duct space
Storage
Data room
Patient room
W C
North-side stairs
Patient room
Patient room
Patient room
Office
Terrace
Patient room
Patient room
Patient room
Patient room
Patient room
Patient room
Patient room
Patient room
South-side stairs
East-side emergency stairs
4th floor
Patient room
Patient room
Refer to enlarged image on the next page
Lab
West-side emergency stairs
Exam room
Exam room
Exam room
Exam room
Darkroom
X-ray room
Reception
Lab
General lab
Blood-drawing
Duty physician's room
Fire
OBGYN
Meeting
Library
Meeting room
Director's room
South-side stairs
Pharmacy
North-side stairs
Office
Security office
Lab
Office
Exam room
Treatment room
Cafeteria
Kiosk
Exam room
WC
Exam room
Exam room
Exam room
Temporary footing for construction
1st floor
New Building
Old Building



※ 1 patient who was staying in a private room on the 4th floor died (cardiac failure) after being taken to another hospital