

Kawazu-cho, Shizuoka Prefecture: Kikusui-kan

PHOTO

1. Characteristics of the fire

A fire broke out within the wooden portion (main building) of the Kikusui-kan, a *ryokan* (traditional Japanese inn) built in 1927 and remodeled numerous times after that. Three guests died in the fire, and 56 were injured. The wooden portion was completely destroyed, and smoke filled a connected annex (new building). This incident occurred approximately 2 months after the Hotel Daitokan fire, in which 24 died and guests were similarly unable to be evacuated to safety because of a thin level of nighttime staffing. The two tragedies together point to a need to strengthen nighttime fire-prevention/fighting systems at lodging facilities.

2. Overview of the fire outbreak

(1) Date and time of outbreak

Approximately 02:04, Monday, April 21, 1986

(2) Detection

02:11, Monday, April 21, 1986 (emergency call to fire department)

(3) Under control

04:15, Monday, April 21, 1986

3. Overview of fire origin

(1) Location

439-1 Mine, Kawazu-cho, Kamo-gun, Shizuoka Prefecture, Japan

(2) Building of fire origin

Kikusui-kan

(3) Structure of building origin, etc.

(1) Date of construction

Main building: February 1927

(2) Additions/renovations

The main building has been renovated several times. It is connected to a new building (annex), which was constructed in 1971.

3) Building utilization

Hotel (Category 5, b)

(4) Building structure

Main building: wooden, 3-story

New building: steel reinforced concrete, 4-story (fire resistant)

(5) Areas

(a) Main building

Building area: 687.94 m²

Floor area: 1,103.76 m²

(b) New building

Building area: 339.55 m²

Floor area: 1,429.60 m²

(c) Total area

Building area: 2,533.36 .0m²

(6) Occupants at the time of outbreak

a. Employees: Approximately 28 room attendants, etc., work during the day, but the nighttime security staff consists of only 1 security guard.

b. Guests: 117

(7) Area and utilization by floor

Floor	Main building	New building

4		Guest rooms
3		Guest rooms
2	Guest rooms	Banquet hall
1	Game center, Lounge	Lobby
B1	Underground passage	

(4) Firefighting equipment, etc.

(1) Firefighting equipment

Fire extinguishers, interior fire hydrants

(2) Alarm devices

Automatic fire alarm, emergency broadcast system, circuit overload fire alarm

(3) Evacuation facilities

Exit lights

(4) Other

Drencher system within underground passage

(5) Fire prevention system

(1) Fire prevention officer

Appointed March 20, 1986

(2) Fire prevention plan

Presented on February 14, 1980

(3) Fire drills

Fire (evacuation) drills were conducted on September 1, 1985 and February 14, 1986.

(6) Fire safety mark

Presented: October 1, 1982 (returned April 24, 1986)

4. Weather conditions

(1) Weather

Cloudy

(2) Wind direction, speed

Southeasterly, speed 2.0m/s

(3) Temperature, humidity

Temperature: 14.0°C, humidity: 80.0%

(4) Weather warnings, bulletins, etc.

None

5. Cause of fire

Ignition source, route, ignited substance

While it was determined that the fire broke out in the vicinity of the 1st-floor tropical lounge, its cause remains uncertain.

6. Fire damage

(1) People

(1) Fatalities

Three (56-year-old male, 57-year-old female, 16-year-old male)

(2) Injuries

56 (55 guests, 1 employee)

(2) Property

(1) Building where the fire emerged

a. Extent of fire loss

Half loss

b. Area of fire loss

1,098.59 m² (wooden portion of main building)

c. Monetary loss

106,695,000 yen

(2) Other buildings

a) No. of other buildings

One

b) Extent of fire loss

Partial loss (wooden portion of Gyokuhou-kan, a 2-story steel-framed building)

c. Area of fire loss

66 m² of 1709.26 m²

d. Monetary loss

3,393,000 yen

7. Fire route (progression)

(1) Overview of outbreak location

The fire is thought to have broken out in a 1st-floor lounge, which is situated to the south of a game corner off the 1st-floor lobby. There was one gas cooking range placed on a counter within an adjacent snack room. At closing time (22:00), 2 female attendants checked the range and confirmed that it was off. Also, a security guard checked the area at around 01:00 while on his rounds and noticed nothing unusual.

(2) Situation up to the outbreak

Uncertain.

(3) Progression up to fire detection

Security Guard A, while in a 1st-floor office in the new building (annex), heard an automatic fire alarm (bell) at about 02:10. Thinking it was a false alarm, he shut it off. However, because the warning light on the control panel remained lit, he placed a telephone call to Manager B at his residence (the manager lived 80 m away from the main building).

(4) Notification of fire department

Manager B, awakened by the call, was told by Security Guard A that there appeared to be a fire. Manager B ran to the lobby of the main building and, observing flames in front of the hotel shop, placed an emergency call to the fire department.

(5) Initial firefighting attempts

No initial firefighting was carried out.

(6) Fire spread

The building was old (constructed in 1927) and made of wood. Because of this, together with a lack of initial firefighting efforts as one consequence of the late detection/notification, the fire apparently spread almost immediately to the 2nd floor.

(7) Evacuation

Even though no general broadcast had been made, the guests generally noticed the fire on their own and began to evacuate accordingly. Compiled below are the guests by room location and method of escape.

Age, Sex	Room location	Method of escape	Injuries, etc.
31, male	Main building, 2nd floor	Evacuated to new building through elevated hallway	None
39, male	Main building, 2nd floor	Evacuated through window onto hothouse roof	Cuts to right leg
36, male	Main building, 2nd floor	Evacuated through window onto water tank	Minor
35, female	Main building, 3rd floor	Evacuated to new building through elevated hallway	Minor
70, female	Main building, 3rd floor	Placed towel over mouth and nose	Smoke inhalation
80, female	Main building, 3rd floor	Carried out by tour guide	Smoke inhalation
62, female	Main building, 3rd floor	Evacuated from window down ladder	Smoke inhalation
71, female	Main building, 3rd floor	Crawled down stairway	Smoke inhalation
68, female	Main building, 3rd floor	Carried by man	Smoke inhalation
73, female	Main building, 3rd floor	Evacuated by stairway	Broken back

Age, Sex	Room location	Method of escape	Injuries, etc.
73, female	Main building, 3rd floor	Placed futon over mouth and nose	Facial burns
63, female	Main building, 3rd floor	Placed clothes over mouth and nose	None
85, male	Main building, 3rd floor	Evacuated by stairway	Hospitalized
65, female	Main building, 3rd floor	Evacuated by stairway	Smoke inhalation
51, male	Main building, 4th floor	Escaped from window by tying together sheets	Minor
53, male	Main building, 4th floor	Escaped from window by tying together sheets	Broken right leg
39, male	Main building, 4th floor	Escaped from window by tying together sheets	Minor
48, male	Main building, 4th floor	Escaped from window by tying together sheets	None
25, male	Main building, 4th floor	Escaped from window by tying together sheets	Cuts to hands and legs
25, male	Main building, 4th floor	Escaped by ladder from emergency exit	Smoke inhalation

(8) Activities of employee firefighting unit

Initial firefighting and evacuation guidance were not carried out. Seven employees, asleep in the hotel dormitory, were awakened. They ran to the main building, which was engulfed in flames by that time, and led guests to safety.

(9) Fatalities

Three guests staying in the “Matsu no Ma,” a room directly above the fire source, had been drinking and were presumably asleep when the fire broke out. That, together with the rapid spread of the fire, prevented them from escaping. They died in the fire.

8. Activities of firefighting units

(1) Dispatched units, etc.

(1) Dispatched vehicles: 8 (on station), 18 (emergency assignment)

(2) Dispatched personnel: 38 (on station), 345 (emergency assignment)

(2) Firefighting and rescue activities

When firefighters arrived, they observed (1) flames blowing from the 1st-floor ocean side of the main building and (2), from windows on the 3rd and 4th floors of the new building (annex), guests unable to escape because of smoke and thereby seeking rescue. Firefighters gave priority to rescue and, with double extension ladders, worked to find and evacuate stranded guests.

9. Problems, lessons

(1) The fire safety staff on duty that night consisted of only 1 security guard. The zone bell for the automatic fire alarm system had been turned off, but other ones were working properly. Even though the fire was detected at an early stage, the fire department and other parties were not properly notified.

(2) The security guard, once aware of the fire, is said to have gone around to each room to warn their occupants; but, because the warning could not be effectively conveyed to all rooms, 3 guests died in the fire.

(3) Despite the presence of interior fire hydrants, no initial firefighting efforts were made whatsoever.

(4) A fire door between the main building and the new building, and fire doors within each stairwell, etc., of the new building, had not been not closed, and thus smoke spread with great rapidity.

(5) A good number of guests, unable to secure another escape route from their rooms, evacuated by tying together sheets and ascending from windows. There would have been fewer injuries if the hotel had been provided with primary evacuation stations and a dependable route of escape from those stations to the ground.

10. Documents



10. Materials

Figure 1: Building locations

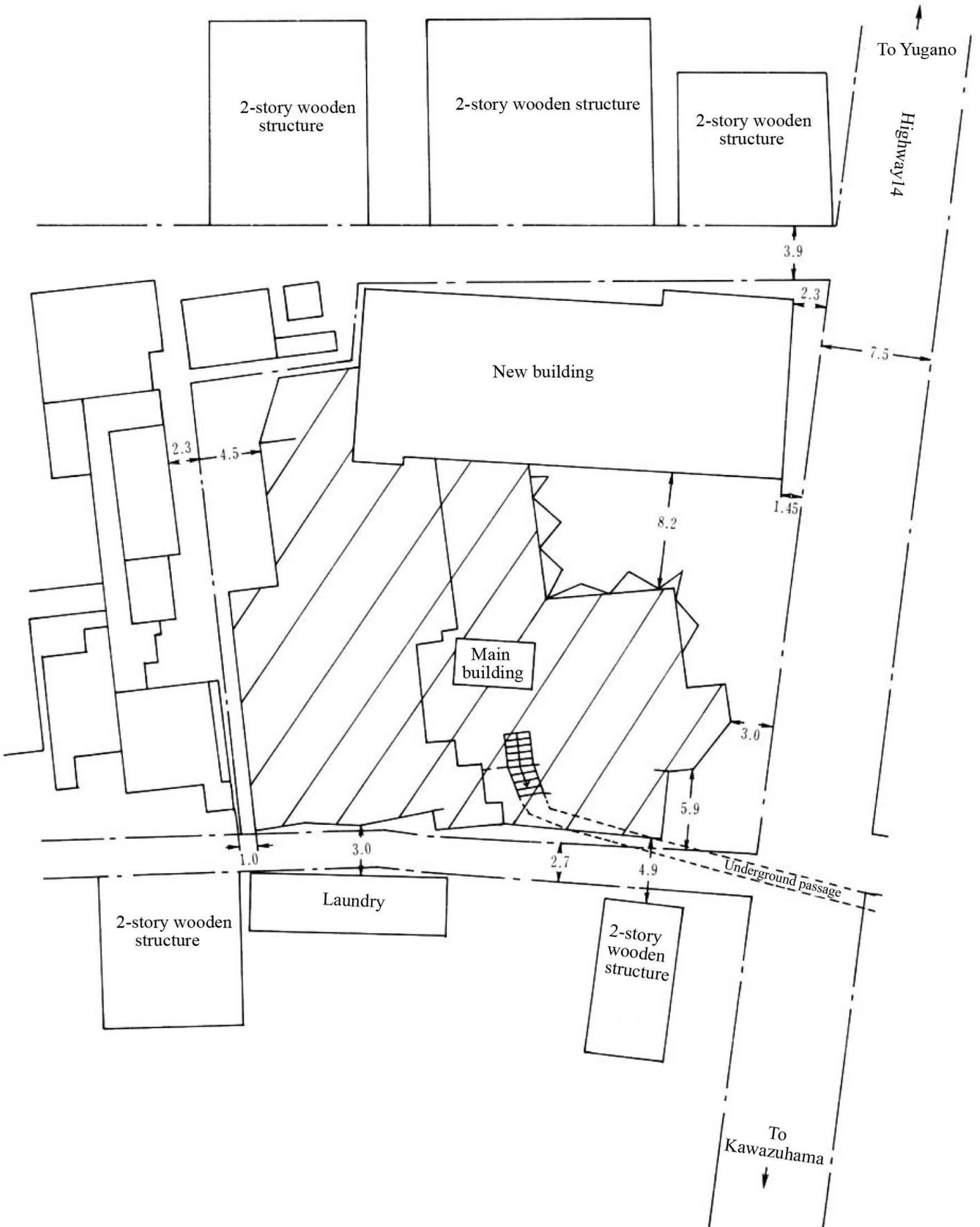


Figure 2: Floorplan, 1st floor (new building, main building)

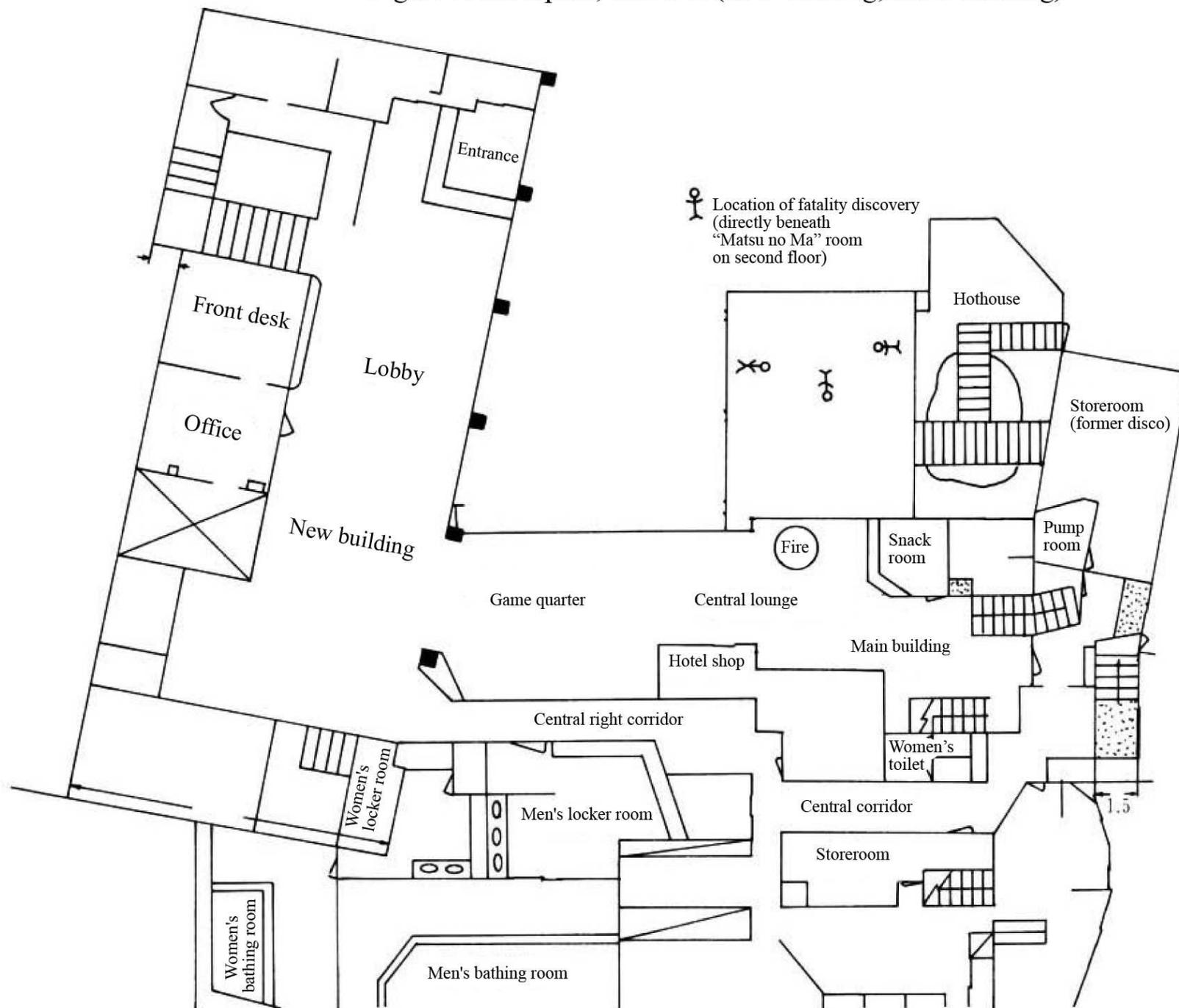


Figure 3: Floorplan, 2nd floor

