

Koto-ku, Tokyo: Skycity Minamisuna

PHOTO

1. Characteristics of the fire

A fire broke out within a residential unit on the 24th floor of a 28-floor high-rise condominium building in Tokyo, damaging the unit and a portion of a common area. This incident attracted much attention in fire prevention/fighting circles in that it occurred on the highest floor of any fire in a multi-family dwelling in Japan.

2. Overview of the fire outbreak

(1) Date and time of outbreak

Approximately 16:00, Thursday, August 24, 1989

(2) Detection

16:02, Thursday, August 24, 1989 (emergency call to fire department)

(3) Under control

19:06, Thursday, August 24, 1989

3. Overview of fire origin

(1) Location

5-8-13 Minamisuna, Koto-ku, Tokyo, Japan

(2) Building of fire origin

Skycity Minamisuna

(3) Structure of building of fire origin, etc.

(1) Date of construction

March 8, 1988

(2) Additions/renovations

None

(3) Building utilization

High-rise condominiums (Category 5, 95 (ro))

(4) Building structure

Steel-framed reinforced concrete; 1 underground floor, 28 aboveground floors

(fire resistant)

(5) Area

Building area: 4,902.07 m²

Floor area: 33,209.00 m²

(6) Building occupancy (at time of outbreak)

a. Residents: 663

b. Households: 242

(7) Area and utilization by floor

Floor	Area	Utilization
Penthouse 1	138.69 m ²	Fan room, Stairwell
Penthouse 2		Fan room, Stairwell
28	1,128.40 m ²	Residential units, Storerooms
27		Residential units, Storerooms
26		Residential units, Storerooms
25		Residential units
24		Residential units, Storerooms
23		Residential units
22		Residential units, Elevator room
4–21		Residential units (and storerooms on floors 20 and 21)
3		Residential units
2		Guestroom, Assembly hall, Fire control center
1		Bicycle parking area, Garbage collection point, Trunk rooms

B1	878.85 m ²	Electrical room, Machinery room, Storerooms, Parking area
Total	33,209.00 m ²	Rooms, Hall

(4) Firefighting equipment, etc.

(1) Firefighting equipment

Fire extinguishers, interior fire hydrants, halogen fire suppression system (B1 electrical room), powder firefighting facilities (B1 parking area)

(2) Alarm devices

Automatic fire alarm, emergency broadcast system

(3) Evacuation facilities

Exit lights

(4) Other facilities necessary for firefighting

Firewater, fire hose station, emergency electrical outlets (11th floor and up)

(5) Fire prevention system

(1) Fire prevention officer

Appointed November 4, 1998 (report filed)

(2) Fire prevention plan

Presented June 5, 1988

(3) Fire drills

Comprehensive fire drills, firefighting training, and partial drills were conducted twice a year.

4. Weather conditions

(1) Weather

Clear

(2) Wind direction, speed

Southerly, speed 2.4m/s

(3) Temperature, humidity

Temperature: 31.5°C, humidity: 55.0%

(4) Weather warnings, bulletins, etc.

None

5. Cause of fire

(1) Ignition source

The fire broke out in the vicinity of an interior audio set. The cause, however, is unclear.

(2) Route

Unclear

(3) Ignited substance

Unclear

6. Fire damage

(1) People

(1) Fatalities

None

(2) Injuries

Six (42-year-old male, 9-year-old male, 29-year-old female, 27-year-old female, 3-year old female, 3-year-old female).

(2) Property

(1) Building where the fire emerged

a. Extent of fire loss

Partial loss

b. Area of fire loss

183.9 m² (24th floor — room 2403: 108.0 m²; balcony: 24.9 m²; common area: 51.0 m² — plus portion of 25th floor)

c. Monetary loss

141,985,000 yen

(2)

PHOTO

7. Fire route (progression)

(1) Overview of outbreak location

The fire broke out toward the south side of the living room of room 2403 (4LDK) on the 24th floor. It came from the around and audio set. A small (3-year old) girl was in the room at the time, noticed the fire, and tried to tell somebody. She fell from her chair, however, and lost consciousness.

(2) Situation up to the outbreak

Unclear.

(3) Progression up to fire detection

An adult resident of the room returned from shopping and, opening the door, was met by smoke coming from the inside. The resident went into the living room and saw flames coming out from the area around the audio set.

(4) Notification of fire department

The wife of the building manager, who was in the 2nd-floor fire control center, heard an automatic fire alarm (bell), confirmed from the control panel that it was coming from the 24th floor, went up to the 24th floor to check for herself, and then went back down to the fire control center, from where she placed an emergency call to the fire department.

(5) Initial firefighting attempts

Fire extinguishers and interior fireplugs are provided on each floor but were not used for initial firefighting.

(6) Fire spread

The area of the residential unit was 108 m², yet interior fire zones are limited to 100 m² or less. Because a partition was left open, the entire residential unit was lost. The fire also extended out from the front door onto the common area, of which approximately 50 m² was lost.

(7) Evacuation

The resident, upon returning home, discovered the little girl in the room in which the fire had broken out and dragged her out into the hallway. She made it to the stairway but, because she could not descend the stairway, took her to the northern balcony. There she met a housekeeper who had climbed up to that level. The housekeeper carried the child to the manager's office on the second floor.

(8) Activities of internal firefighting unit

The fire plan does call for the formation of a residential firefighting team; however, partly because of the building's nature as a large multi-family dwelling within an urban area, that team has carried out no organized activities.

(9) Fatalities

None

8. Activities of firefighting units

(1) Dispatched units, etc.

(1) Dispatched vehicles: 42 (on station), 1 (emergency assignment)

(2) Dispatched personnel: 185 (on station), 39 (emergency assignment)

(2) Firefighting and rescue activities

(1) Firefighting activities

Upon arrival, firefighters confirmed the location (floor) of the fire with the fire control center. They were told that the fire was at room 2403 on the 24th floor and that 2 people within that unit had yet to escape. Firefighters thus proceeded to set up a forward station on the 23rd floor. They carried firefighting equipment up to the 23rd floor by emergency elevator and, utilizing a fire hose station, proceeded to the floor of the fire via interior staircases. The activities of various firefighting units are tabulated below.

Floor	Units	Activities
24th floor	Pump units: 6	Search, firefighting

	Special rescue units: 2	
25th floor	Pump units: 3 Special rescue unit: 1	Search, monitoring
26th floor	Pump unit: 1	Search, monitoring
27, 28th floors	Ladder unit: 1 Special rescue unit: 1	Search
Rooftop	Special rescue unit: 1	Descended onto rooftop from helicopter, opened penthouse, cleared smoke and search for people on upper floors (27th, 28th)

9. Problems, lessons

(1) Although this high-rise condominium was provided with the latest fire prevention/fighting facilities, concerned parties did not use them, and thus no initial firefighting efforts were conducted. It is necessary to improve the quality of fire control center personnel.

(2) The emergency alarm and emergency broadcasting systems were not effectively utilized, and thus evacuation and guidance did not proceed smoothly.

(3) Because the building was well over 40 m high, it was not possible to conduct rescue operations with ladder trucks. Instead, to rescue those who had fled to verandas and needed help, a rescue unit was lowered down onto the building by rope. Here, it is necessary to put more emphasis into instilling the importance of providing hovering space, etc., around high-rise buildings.

(4) Smoke flowed into the emergency elevator hall, to be used by firefighters, and emergency staircases, to be used for evacuation, and thereby complicated evacuative and other efforts. To assure the safety of both evacuees and firefighters, it is necessary to examine why this happened.

10. Documents



10. Materials

Figure 1: Overview of Skycity Minamisuna

Overview looking from southeast



Overview looking from northeast

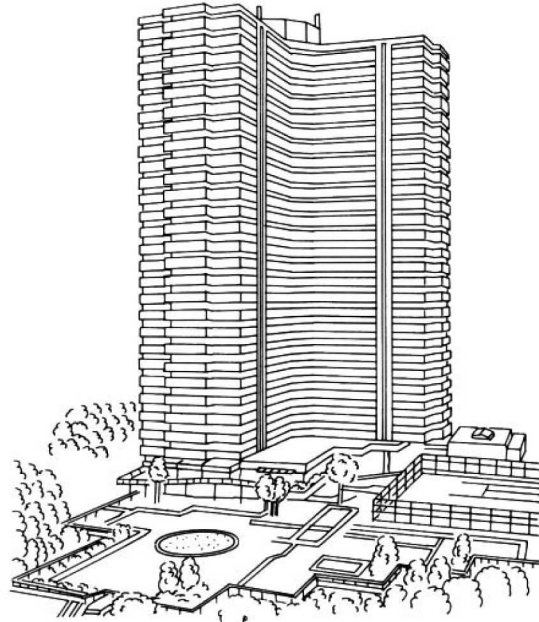
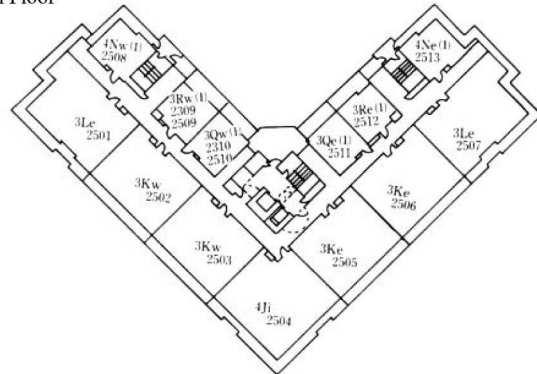


Figure 2: Floorplans

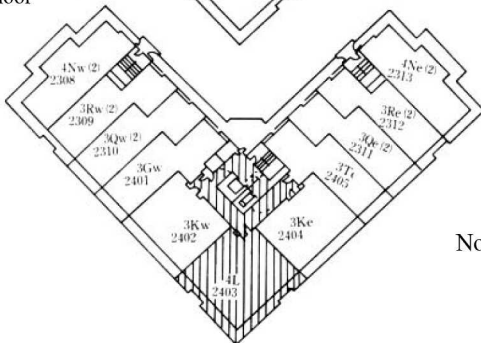
23rd floor



25th Floor



24th Floor



Note: Shading indicates fire loss

Figure 3: Floorplan of area around fire

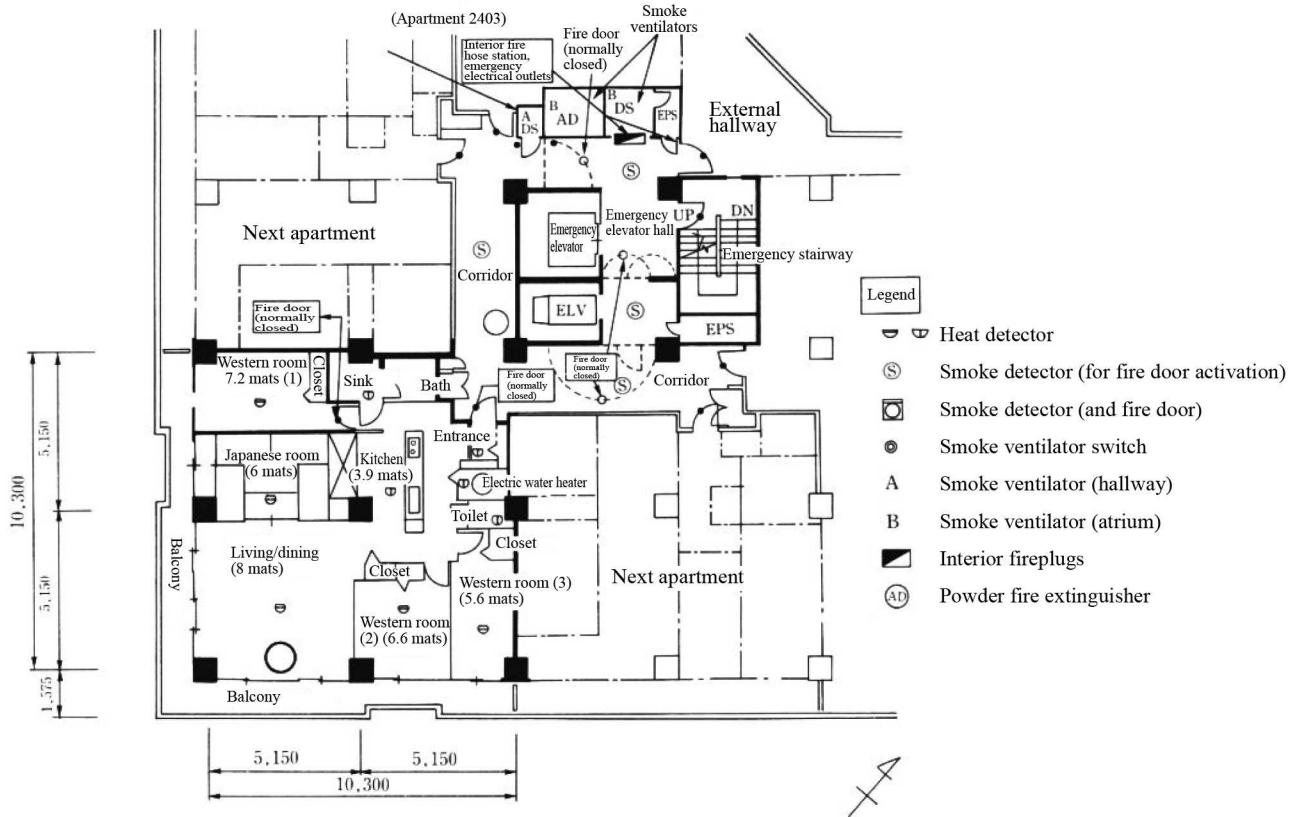
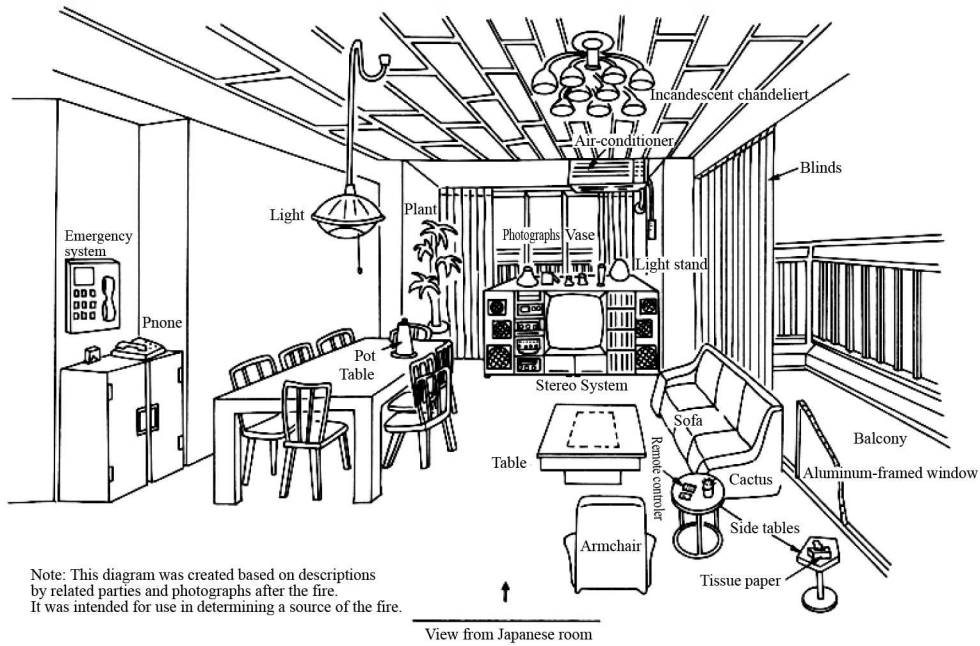


Figure 4: View of room before fire



Note: This diagram was created based on descriptions by related parties and photographs after the fire. It was intended for use in determining a source of the fire.