

The building is a four-story reinforced concrete school building as described in the “Standard for Seismic Evaluation of Existing Reinforced Concrete Buildings, 2001” published by the Japan Building Disaster Prevention Association.

1. Floor plan

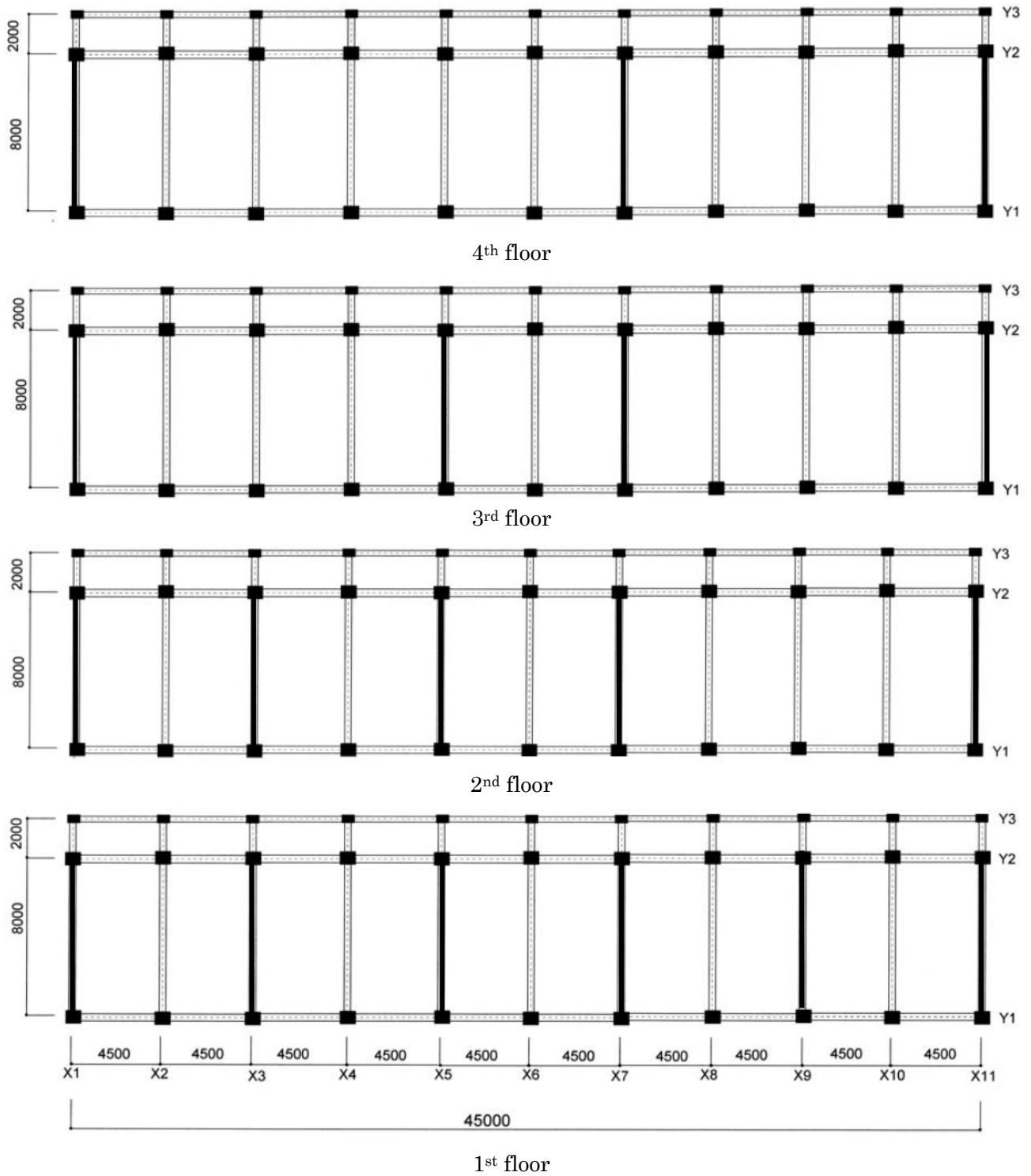
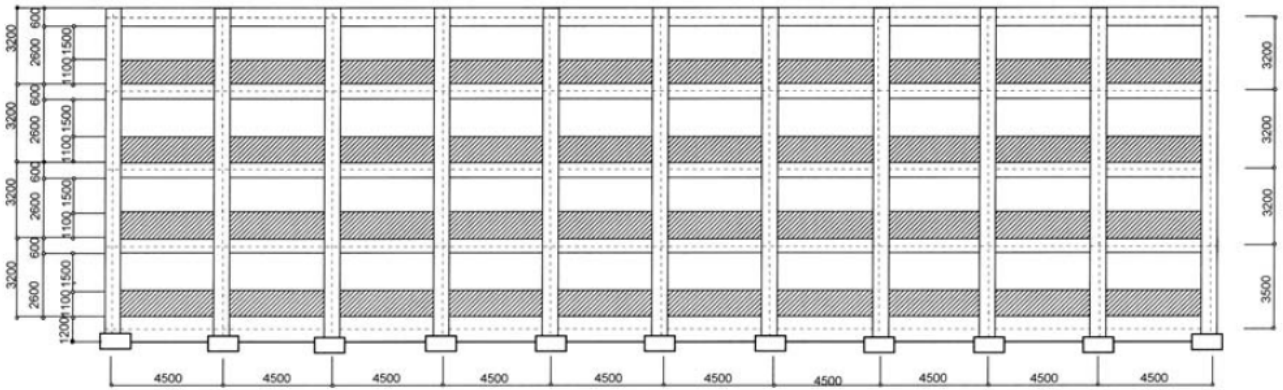
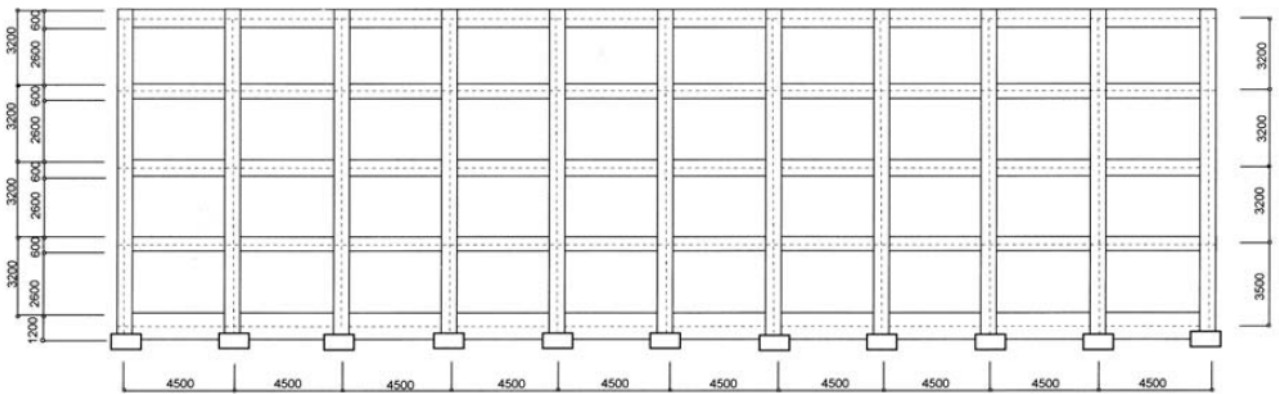


Figure 1. Floor plan

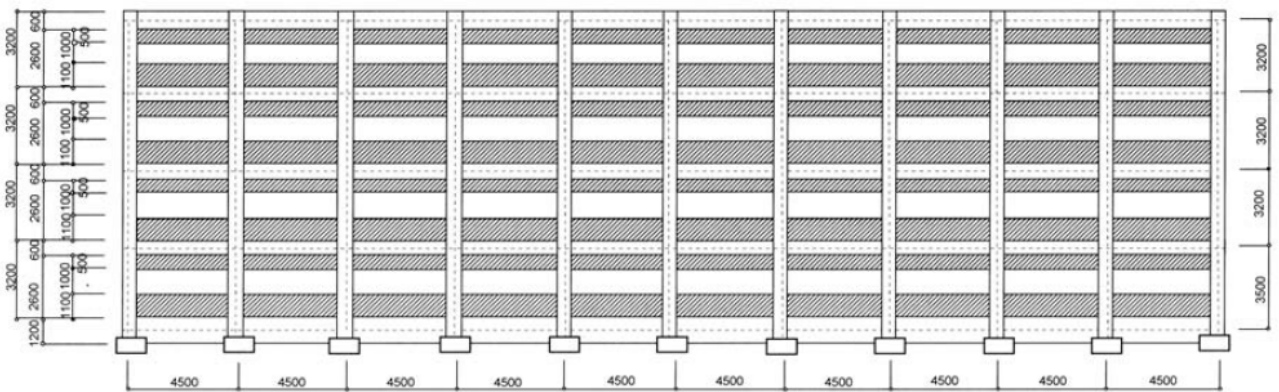
2. Elevation of each frame



Y1 frame



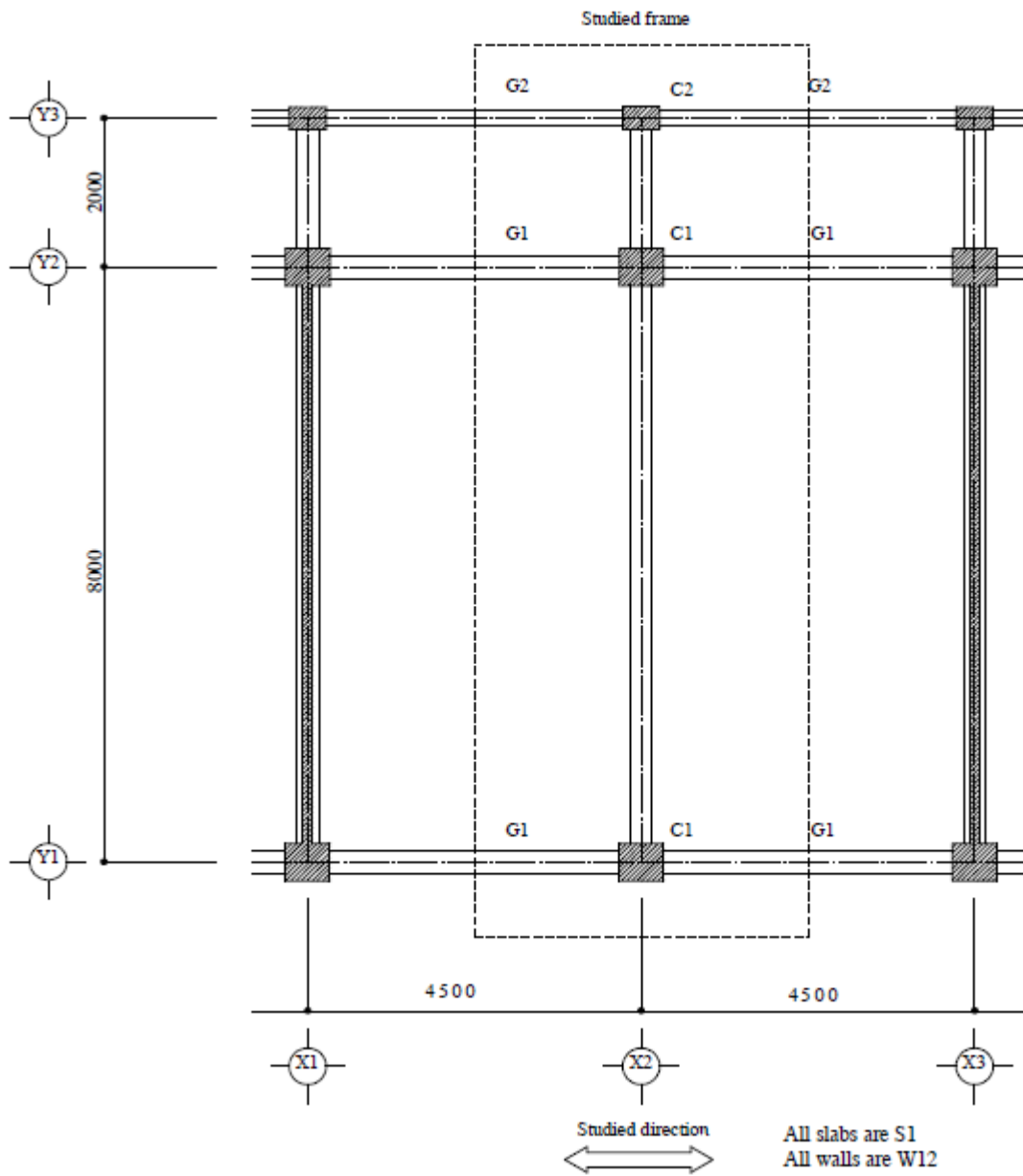
Y2 frame



Y3 frame

Figure 2. Elevation

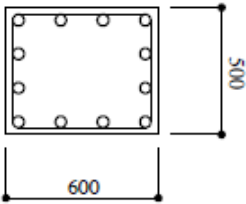
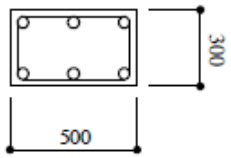
### 3. Structural element



### 使用材料

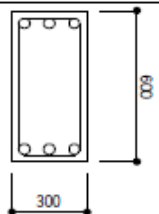
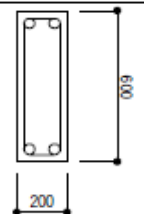
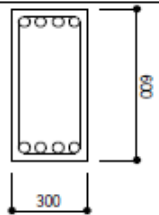
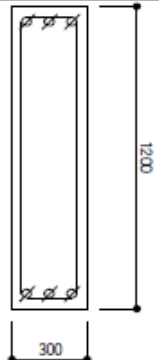
(Material properties)	
Concrete	: $F_c = 17.7 \text{ N/mm}^2$
Rebar	: For column and beam SD30 $\left( \sigma_y = 343 \text{ N/mm}^2 \right)$
	: For hoop, wall, and slab SR24 $\left( \sigma_y = 294 \text{ N/mm}^2 \right)$

Column List

Story		C1	C2
1~4	Section		
	$b \times D$	500 × 600	300 × 500
	Main bar	12-D22	6-D22
	Hoop	2- $\phi$ 9	2- $\phi$ 9

\*Hoop spacing of 100, 200, and 300mm will be applied for the second level screening, and that of 100mm will be applied for the third level screening

Beam List

Story		G1	G2
4~R	Section		
	$b \times D$	300 × 600	200 × 600
	Main bar	3-D22 (Top & Bottom)	2-D22 (Top & Bottom)
	Hoop	2- $\phi$ 9@300	2- $\phi$ 9@300
2~3	Section		Ditto
	$b \times D$	300 × 600	
	Main bar	4-D22 (Top & Bottom)	
	Hoop	2- $\phi$ 9@300	
Underground	Section		Same as in the left
	$b \times D$	300 × 1200	
	Main bar	3-D19 (Top & Bottom)	
	Hoop	2- $\phi$ 9@300	

#### Wall List

Remark	Thickness (t)(mm)	Wall reinforcement	End reinforcement
W12	120	$\phi$ 9@300 Single layered (Vertical and horizontal)	1- $\phi$ 13

#### Slab List

Remark	Thickness (t)(mm)	Slab reinforcement
S1	120	$\phi$ 9 @300 Double layered (Cross arrangement)

#### 4. Structural weight

The weight of the structure is calculated based on the assumed weight for unit area of 11.8 kN/m<sup>2</sup>.

Floor area: 450 m<sup>2</sup>

Floor weight: 450 m<sup>2</sup>  $\times$  11.8 kN/m<sup>2</sup> = 5310 kN