

HGE

Machine Room Elevator Planning Guide

The information in this catalogue is subject to change without notice. The information and diagram in this catalogue reflect the technical features and configuration of the elevator model at press time (refer to the version number). In line with the principle of continuous development of products, our company reserves the right to change the selection of product technical parameters and colour at any time. The existing image technology cannot accurately reproduce the elevator component structure and decoration colour. Therefore, this catalogue only provides general information, not as a contract document. The specific configuration parameters are subject to the formal agreement.

If you need detailed information, please contact us.

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Rated Load (kg)	Number of Passengers ^①	Rated Speed (m/min)	Maximum Number of Stops	Maximum Travel (m)	Maximum Travel with Fireman Operation (m)	Minimum Floor Height (mm)
450	6	60/90/105	24	60	—	2800
630	8	60/90/105	60m/min:22 90m/min:32 105m/min:32	60m/min:60 90m/min:100 105m/min:100	60m/min:58 90m/min:86 105m/min:99.5	
825	11	60/90/105				
900	12					
1050	14					

Note:
 ① Passenger numbers calculated at 75kg per person.
 ② The above information are based on GB7588-2003 standards.

Elevator Function

Standard Function

Control System			
SA1	Selective Collective Control	SA2	Floor Height Self Measurement
SA3	On-Cage (Car Top) Maintenance Operation	SA4	In-Cage Slow Speed Operation
SA5	Machine Room Debugging Operation		
System Protection			
SB1	Overspeed Electrical Protection	SB2	Overspeed Mechanical Protection
SB3	Rope Slipping Running Protection	SB4	Motor Overload (Thermal) Protection
SB5	Automatic Fault Detection	SB6	Automatic Fault Recording
SB7	Standby Regular Auto-Check	SB8	Double Brake-Safety Check Operation
SB9	Synchronous Motor Magnetic Pole Test	SB10	Lift-Position Abnormity Auto-Correction Function
SB11	Nearest Landing Operation	SB12	Anti-Electromagnetic Interference
SB13	Unintended Car Movement Protection, UCMP Function ①	SB14	Intelligent Auxiliary Brake Function
SB15	Ascending Car Overspeed Protection, ACOP Function		
Safe Communication			
SC1	Car Intercom Communication	SC2	Car Top Intercom Communication
SC3	Pit Intercom Communication		
Safe Riding			
SD1	Alarm System	SD2	Door Safety Return System
SD3	Full Load Bypass Operation	SD4	Overload Detection System
SD5	Overload Alarm	SD6	Next Drive (Door Open Abnormity)
SD7	Door Opening/Closing Time Abnormity Protection	SD8	Automatic Door Dwell Time Control
SD9	Automatic Door Dwell Time Adjustment	SD10	Number of Runs Indicator
SD11	Intelligent Multi-Beam Protection ①	SD12	Maintenance Indication at Hall Indicator ①
SD13	Overload Indicator (In Car)		
Emergency Solution			
SE1	Out of Door-Open Zone Alarm	SE2	Car Emergency Lighting
SE3	Fire Emergency Operation (Automatic)		
Design for Comfort			
SF1	Parking Operation	SF2	Automatic Return Function
SF3	Start Torque Auto-Adjustment	SF4	Door-Stop Function (Maintenance)
SF5	Micro Levelling (Travel ≥ 45m)	SF6	Door Bypass Detection
SF7	Mischievous Call Cancellation (Applicable for Simplex and Duplex only)	SF8	Opposite Direction Car Call Cancellation
SF9	Car Light Auto Turn-Off	SF10	Car Fan Auto Turn-Off
SF11	Car Floor Button Flashing	SF12	Step-Less Speed Control

Note:

① For details, please contact us.

Elevator Function

Optional Function

Control System			
OA1	Duplex Collective Control	OA2	FI-10 Group Control System (Maximum 4 Cars Group)
OA3	Independent Automatic Operation (For Duplex and Group Control) ①		
Safe Communication			
OB1	Interphone System (5 Ways) (5 Ways: Monitoring Center, Machine Room, In Car, Car Top and Pit)		
Safe Riding			
OC1	IC Card Security System (In Car) (Not Applicable with OC2, OC4, OC5 or OE5)	OC2	IC Card Security System (Hall) (Not Applicable with OC1, OC4, OC5 or OE5)
OC3	Multi-Beam + Safety Edge Protection	OC4	Hitachi Smart Security [ITM] Interface (Not Applicable with OC1, OC2, OC5 or OE5)
OC5	Intercom Linkage Interface For Elevator Access (Not Applicable with OC1, OC2, OC4 or OE5)	OC6	Contact at Control Panel (RS485)
OC7	Contact at Control Panel (Dry Contacts) (Not Applicable with OC8)	OC8	Supervisory Panel (Dry Contact Type) (Not Applicable with OC7)
OC9	Elevator Monitoring System (Computer Type)	OC10	Twisted Pair Cable (1 Pair) for CCTV Interface
OC11	Twisted Pair Cable (1 Pair) for BGM Interface		
Emergency Solution			
OD1	Fireman Operation (Rated Load ≥ 825kg)	OD2	Automatic Rescue Device (ARD) (Maximum Travel Distance Between Landings ≤ 30m)
OD3	Pit Flood Operation		
Design for Comfort			
OE1	Attendant Operation	OE2	Independent Operation
OE3	Voice Synthesiser	OE4	Arrival Chime (Car Top and Bottom)
OE5	Floor Lockout Operation (Not Applicable with OC1, OC2, OC4 or OC5)	OE6	Quick Door Closing Function (In Car)
OE7	Sub Car Operating Panel	OE8	Double Opening Function
OE9	Horizontal Car Operating Panel	OE10	Braille Button
OE11	Operation Status Indication at Hall Indicator ①	OE12	Car Call Deselect Function
OE13	Hall Call Deselect Function ① (Applicable for Simplex, Duplex or FI-10 with Single Opening only)	OE14	Nighttime Protective Operation
OE15	Micro Levelling (Travel < 45m)	OE16	Advance Door Opening
OE17	Reserved Elevator Specific Floor Door Opening Inspection Interface ①	OE18	Current Floor Push-Button Reopening Function
OE19	Regenerative System Function ①	OE20	Overloading Hall Call Recovery Function
OE21	Abnormal Duration Hall Call Detection	OE22	Door Nudging Operation (Only Applicable with OC3)

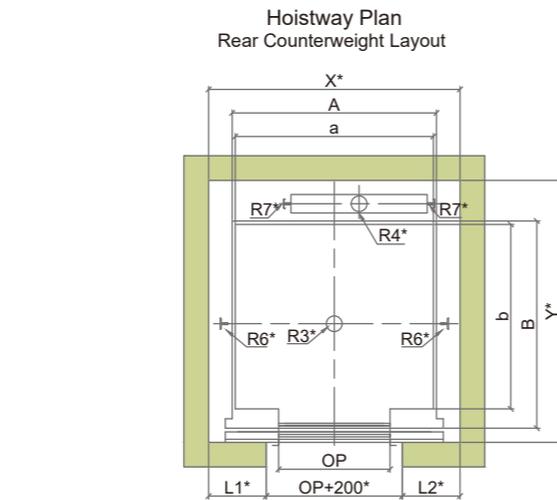
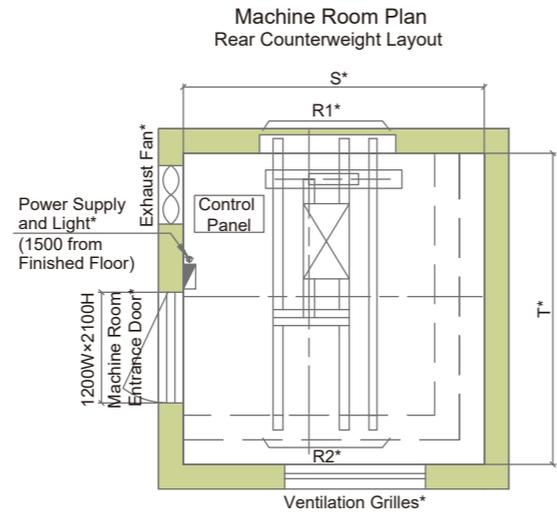
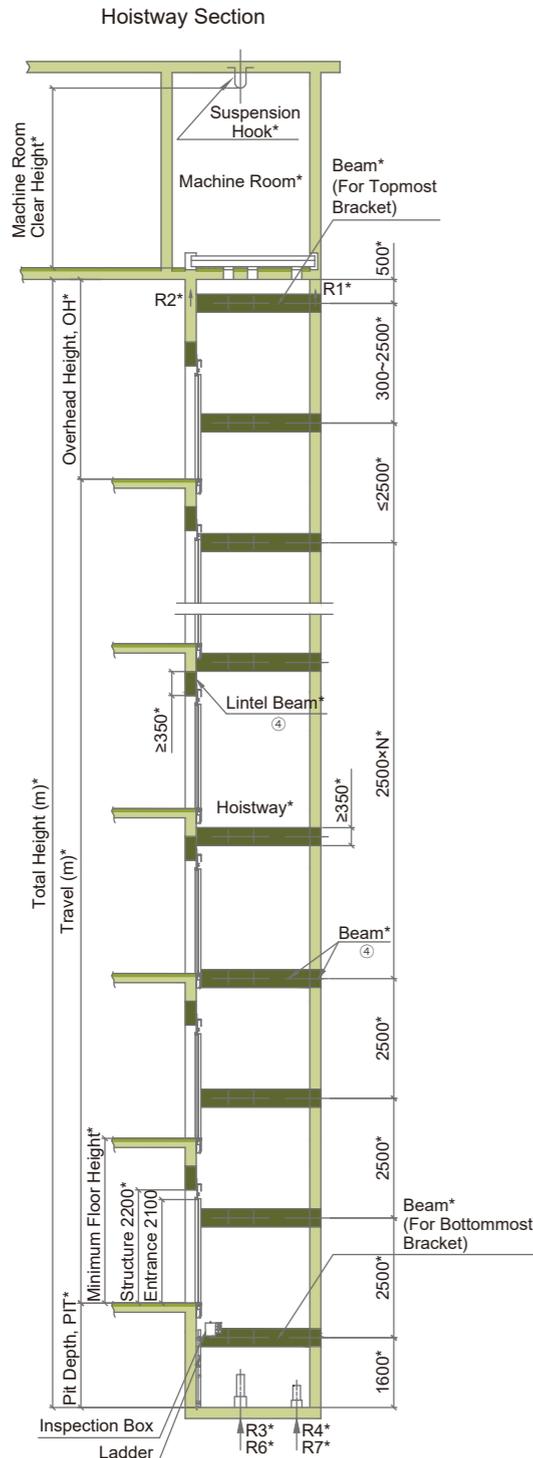
Note:

① For details, please contact us.

Hoistway and Machine Room

The followings shall be furnished by building contractors:

- Building Structure
- Wall and Floor Finishes
- Beam



- Note:
- ① The above information are based on GB7588-2003 standards.
 - ② Items with "*" shall be furnished by building contractors.
 - ③ Unit of dimension shall be in mm unless otherwise stated.
 - ④ The hoistway construction shall be reinforced concrete ring beam with strength C25 or whole hoistway of reinforced concrete wall. If you have other situations, please contact us.
 - ⑤ For hoistway and machine room details, please contact us.
 - ⑥ The suspension hooks capacity shall be as follows:

Rated Load (kg)	Rated Speed (m/min)	Machine Room Clear Height (mm)	Suspension Hook Capacity (Tons)
450/630/825/900/1050	60/90/105	2100	3

Hoistway and Machine Room

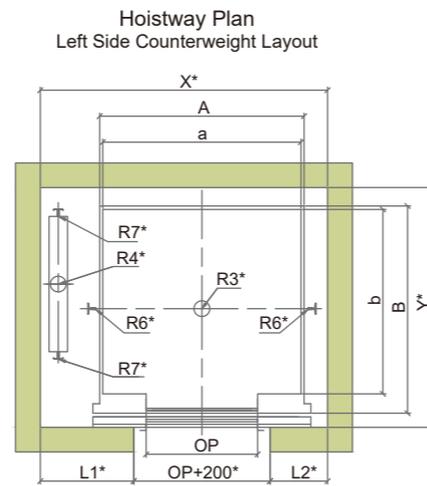
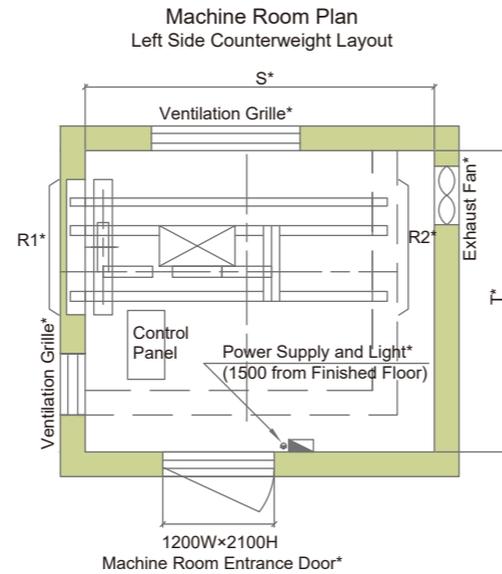
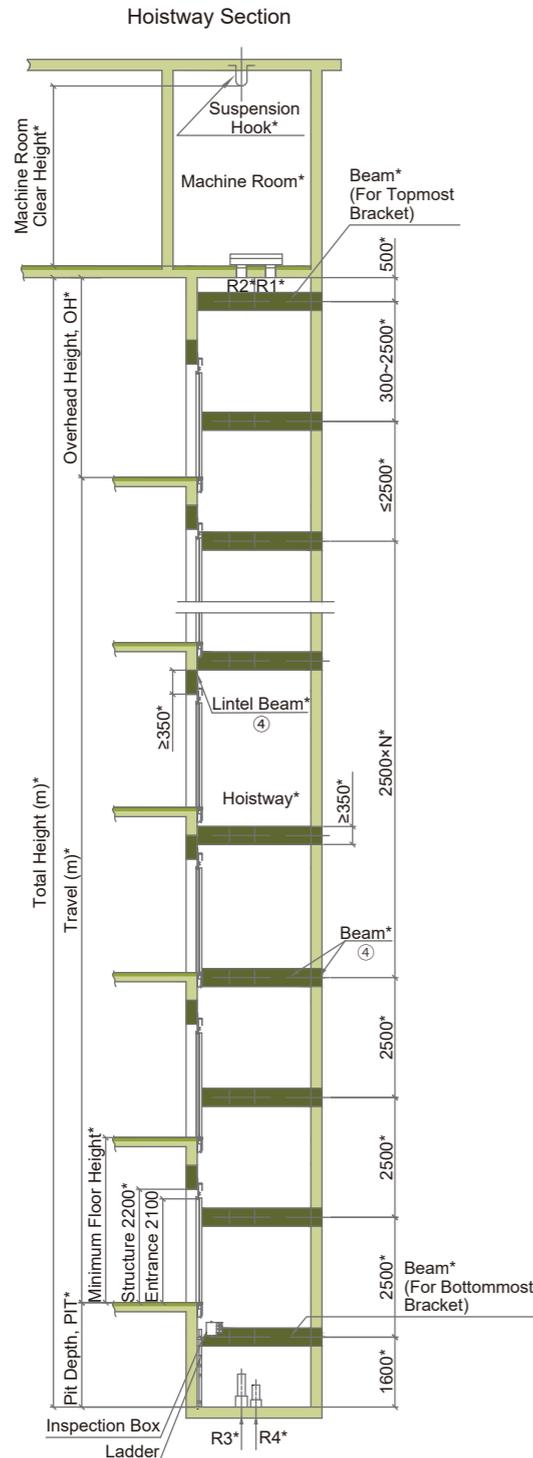
Rated Load (kg)	Rated Speed (m/min)	Car Size (mm)		Door Opening (mm)		Front Wall Arrangement (mm)		Hoistway Size (mm) X*Y	Machine Room Size (mm) S*T	Machine Room Reaction Force (KN)						
		Car Inside (axb)	Car Outside (AxB)	Type	Width OP	L1	L2			R1	R2	R3	R4	R6	R7	
450	60	1200×1000	1250×1185	2P-CO	800	375	375	1750×1580	1800×1880	48.5	30	95	82	29	3	
	90									51	31.5	101	88	34	5	
	105															
630	60	1400×1100	1450×1285	2P-CO	800	415	415	1830×1680	1830×1880	48.5	30	95	82	29	3	
	90									51	31.5	101	88	34	5	
	105															
825	60	1400×1350	1450×1535	2P-CO	800	415	415	1830×1930	1830×1930	58	34.5	113	95	37	3	
	90									61	36	120	103	44	5	
	105															
	60	1400×1300	1450×1485	2P-CO	800	415	415	1830×1880	1830×1880	58	34.5	113	95	37	3	
	90									61	36	120	103	44	5	
	105															
	60	1300×1400	1350×1585	2P-CO	800	415	415	1830×1980	1830×1980	58	34.5	113	95	37	3	
	90									61	36	120	103	44	5	
	105															
900	60	1600×1350	1650×1535	2P-CO	900	465	465	2030×1930	2030×1930	63	37	122	103	40	3	
	90									67	39	131	112	48	5	
	105															
1050	60	1600×1500	1650×1685	2P-CO	900	465	465	2030×2080	2030×2080	66	40	135	113	42	3	
	90									69.5	42	145	123	50	5	
	105															
	60	1600×1400	1650×1585	2P-CO	900	465	465	2030×1980	2030×1980	66	40	135	113	42	3	
	90									69.5	42	145	123	50	5	
	105															
	60	1500×1500	1550×1685	2P-CO	900	430	430	1960×2080	1960×2080	66	40	135	113	42	3	
	90									69.5	42	145	123	50	5	
	105															
60	1400×1600	1450×1785	2P-CO	900	430	430	1960×2180	1960×2180	66	40	135	113	42	3		
90									69.5	42	145	123	50	5		
105																
60	1500×1600	1550×1785	2P-CO	900	430	430	1960×2180	1960×2180	66	40	135	113	42	3		
90									69.5	42	145	123	50	5		
105																

- Note:
- ① The above information are based on GB7588-2003 standards.
 - ② The above information and configuration are based on rear counterweight layout.
 - ③ Configuration is without counterweight safety gear.

Hoistway and Machine Room

The followings shall be furnished by building contractors:

- Building Structure
- Wall and Floor Finishes
- Beam



- Note:
- ① The above information are based on GB7588-2003 standards.
 - ② Items with "*" shall be furnished by building contractors.
 - ③ Unit of dimension shall be in mm unless otherwise stated.
 - ④ The hoistway construction shall be reinforced concrete ring beam with strength C25 or whole hoistway of reinforced concrete wall. If you have other situations, please contact us.
 - ⑤ For hoistway and machine room details, please contact us.
 - ⑥ The suspension hooks capacity shall be as follows:

Rated Load (kg)	Rated Speed (m/min)	Machine Room Clear Height (mm)	Suspension Hook Capacity (Tons)
450/630/825/900/1050	60/90/105	2100	3

Hoistway and Machine Room

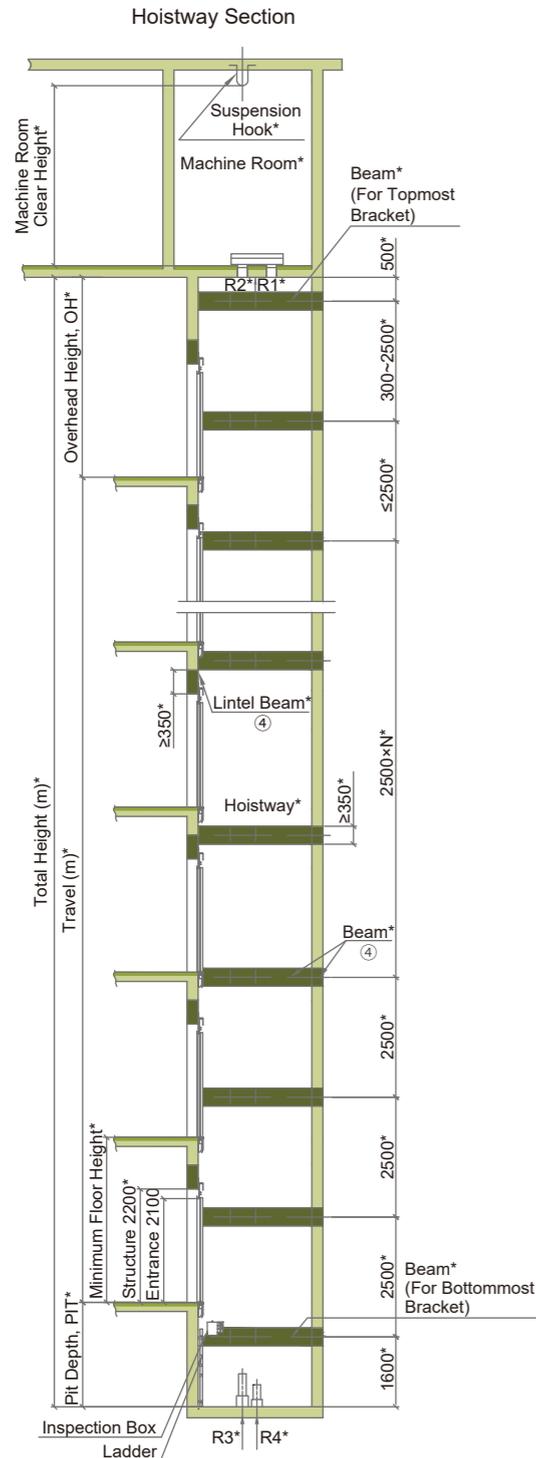
Rated Load (kg)	Rated Speed (m/min)	Car Size (mm)		Door Opening (mm)		Front Wall Arrangement (mm)		Hoistway Size (mm) X×Y	Machine Room Size (mm) S×T	Machine Room Reaction Force (KN)						
		Car Inside (axb)	Car Outside (AxB)	Type	Width OP	L1	L2			R1	R2	R3	R4	R6	R7	
450	60	1400×900	1450×1085	2P-CO	800	700	400	2100×1300	2150×1650	48	31	95	82	29	3	
	90									50.5	32	101	88	34	5	
	105															
630	60	1400×1100	1450×1285	2P-CO	800	735	415	2150×1550	2150×1750	48	31	95	82	29	3	
	90									50.5	32	101	88	34	5	
	105															
825	60	1400×1350	1450×1535	2P-CO	800	705	415	2120×1800	2120×1850	56.5	37	113	95	37	3	
	90									59.5	38.5	120	103	44	5	
	105															
	60	1400×1300	1450×1485	2P-CO	800	705	415	2120×1800	2120×1850	56.5	37	113	95	37	3	
	90									59.5	38.5	120	103	44	5	
	105															
	60	1300×1400	1350×1585	2P-CO	800	655	385	2040×1850	2040×1850	56.5	37	113	95	37	3	
	90									59.5	38.5	120	103	44	5	
	105															
900	60	1600×1350	1650×1535	2P-CO	900	755	465	2320×1800	2320×1850	61.5	39	122	103	40	3	
	90									64.5	40.5	131	112	48	5	
	105															
1050	60	1600×1500	1650×1685	2P-CO	900	755	465	2320×1950	2320×1950	67.6	40.2	135	113	42	3	
	90									70.4	42.1	145	123	50	5	
	105															
	60	1600×1400	1650×1585	2P-CO	900	755	465	2320×1850	2320×1850	67.6	40.2	135	113	42	3	
	90									70.4	42.1	145	123	50	5	
	105															
	60	1500×1500	1550×1685	2P-CO	900	705	430	2235×1950	2235×1950	67.6	40.2	135	113	42	3	
	90									70.4	42.1	145	123	50	5	
	105															
	60	1400×1600	1450×1785	2P-CO	900	655	430	2185×2050	2185×2050	67.6	40.2	135	113	42	3	
	90									70.4	42.1	145	123	50	5	
	105															
	60	1500×1600	1550×1785	2P-CO	900	705	430	2235×2050	2235×2050	67.6	40.2	135	113	42	3	
	90									70.4	42.1	145	123	50	5	
	105															

- Note:
- ① The above information are based on GB7588-2003 standards.
 - ② The above information and configuration are based on left side counterweight layout.
 - ③ Configuration is without counterweight safety gear.

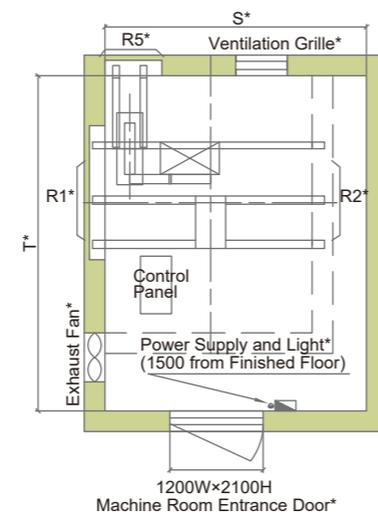
Hoistway and Machine Room

The followings shall be furnished by building contractors:

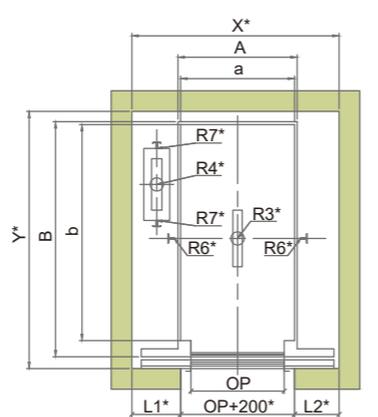
- Building Structure
- Wall and Floor Finishes
- Beam



Machine Room Plan
Left Side Counterweight Layout



Hoistway Plan
Left Side Counterweight Layout



Note:

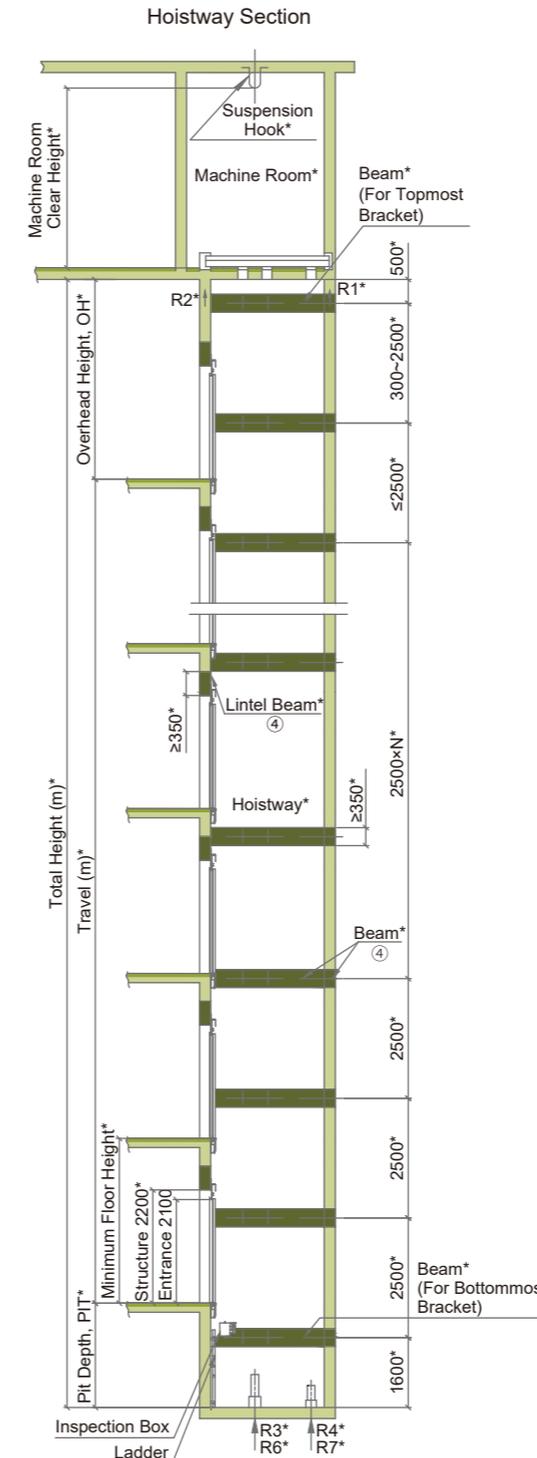
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- ④ The hoistway construction shall be reinforced concrete ring beam with strength C25 or whole hoistway of reinforced concrete wall. If you have other situations, please contact us.
- ⑤ For hoistway and machine room details, please contact us.
- ⑥ The suspension hooks capacity shall be as follows:

Rated Load (kg)	Rated Speed (m/min)	Machine Room Clear Height (mm)	Suspension Hook Capacity (Tons)
1050	60/90/105	2100	3

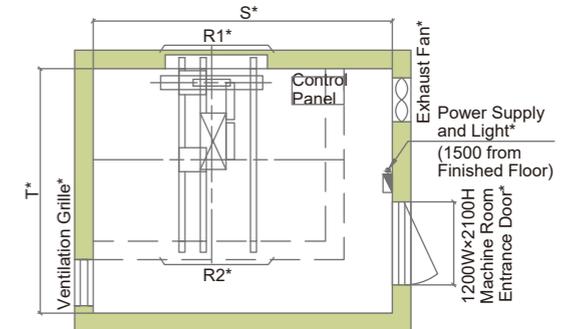
Hoistway and Machine Room

The followings shall be furnished by building contractors:

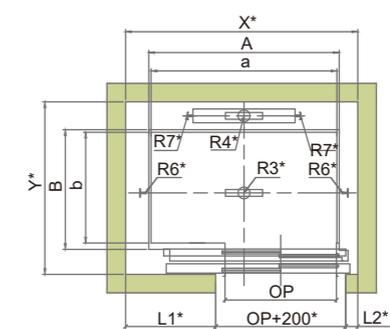
- Building Structure
- Wall and Floor Finishes
- Beam



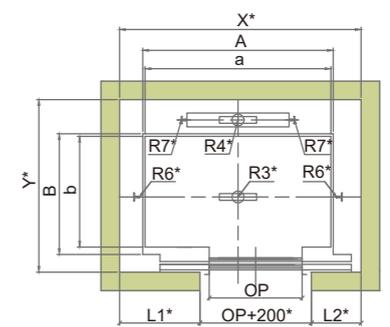
Machine Room Plan
Rear Counterweight Layout



Hoistway Plan
Rear Counterweight Layout
(Opening Type: 2S-2P)



Hoistway Plan
Rear Counterweight Layout
(Opening Type: 2P-CO, Door Offset: 190mm)



Note:

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- ④ The hoistway construction shall be reinforced concrete ring beam with strength C25 or whole hoistway of reinforced concrete wall. If you have other situations, please contact us.
- ⑤ For hoistway and machine room details, please contact us.
- ⑥ The suspension hooks capacity shall be as follows:

Rated Load (kg)	Rated Speed (m/min)	Machine Room Clear Height (mm)	Suspension Hook Capacity (Tons)
1050	60/90/105	2100	3

Hoistway and Machine Room

Overhead Height and Pit Depth

Deep Car

Rated Load (kg)	Rated Speed (m/min)	Car Size (mm)		Door Opening (mm)		Front Wall Arrangement (mm)		Hoistway Size (mm)	Machine Room Size (mm)	Machine Room Reaction Force (KN)			Pit Reaction Force (KN)			
		Car Inside (a×b)	Car Outside (A×B)	Type	Width OP	L1	L2			X×Y	S×T	R1	R2	R5	R3	R4
1050	60	1100×2100	1150×2285	2P-CO	900	430	430	1960×2500	1960×2500	67.6	40.2	5.5	135	113	42	3
	90									70.4	42.1	5.5	145	123	50	5
	105									70.4	42.1	5.5	145	123	50	5
1050	60	1300×1900	1350×2085	2P-CO	900	520	430	2050×2300	2050×2300	67.6	40.2	5.5	135	113	42	3
	90									70.4	42.1	5.5	145	123	50	5
	105									70.4	42.1	5.5	145	123	50	5

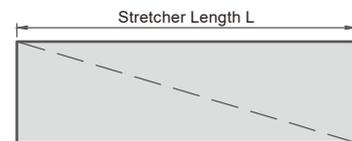
- Note:
- The above information are based on GB7588-2003 standards.
 - The above information and configuration are based on left side counterweight layout.
 - Configuration is without counterweight safety gear.

Wide Car

Rated Load (kg)	Rated Speed (m/min)	Car Size (mm)		Door Opening (mm)		Front Wall Arrangement (mm)		Hoistway Size (mm)	Machine Room Size (mm)	Machine Room Reaction Force (KN)			Pit Reaction Force (KN)			
		Car Inside (a×b)	Car Outside (A×B)	Type	Width OP	L1	L2			X×Y	S×T	R1	R2	R3	R4	R6
1050	60	2000×1200	2050×1398	2S-2P	1200	980	120	2500×1825	2500×1850	66	40	135	113	42	3	
	90									69.5	42	145	123	50	5	
	105									69.5	42	145	123	50	5	
1050	60	2000×1200	2050×1385	2P-CO (Door Offset)	1000	800	500	2500×1800	2500×1800	66	40	135	113	42	3	
	90									69.5	42	145	123	50	5	
	105									69.5	42	145	123	50	5	

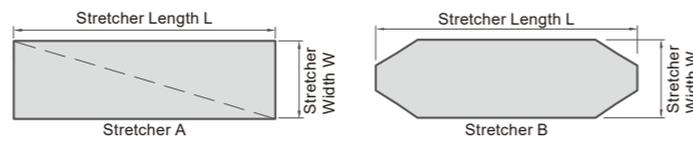
- Note:
- The above information are based on GB7588-2003 standards.
 - The above information and configuration are based on rear counterweight layout.
 - Configuration is without counterweight safety gear.

Maximum Allowable Stretcher Size (Deep Car):



Car Inside Size (a×b) (mm)	Maximum Stretcher Length L (mm)	Lift Landing Depth (mm)
1100×2100	2100	≥2100
1300×1900	1900	≥1900

Maximum Allowable Stretcher Size (Wide Car):



Car Inside Size (a×b) (mm)	Opening Width, OP (mm)	Maximum Stretcher Size (L×W) (mm)	Lift Landing Depth (mm)
2000×1200	1200	1900×550 Stretcher A	≥1500
2000×1200	1000	1900×550 Stretcher B	≥1500

Rated Load (kg)	Rated Speed (m/min)	Overhead Height, OH (mm)	Pit Depth, PIT (mm)
450	60	4550	1450
	90	4700	
	105	4750	
630	60	4350	1450
	90	4450	
	105	4550	
825	60	4350	1450
	90	4450	
	105	4550	
900	60	4350	1450
	90	4450	
	105	4550	
1050	60	4350	1450
	90	4450	
	105	4550	
1050 (Deep Car)	60	4350	1450
	90	4450	
	105	4550	
1050 (Wide Car)	60	4350	1450
	90	4450	
	105	4550	

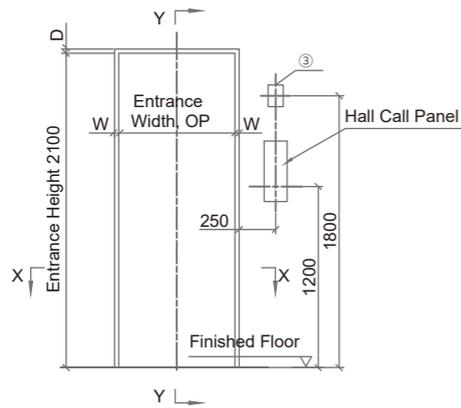
- Note:
- The above information are based on GB7588-2003 standards.
 - The overhead height, OH is based on bare ceiling height of 2350mm.
 - The pit depth, PIT is based on vinyl tile finish without recess.
 - Configuration is without counterweight safety gear.
 - Configuration is based on decoration weight provision up to 300kg.

Entrance Design

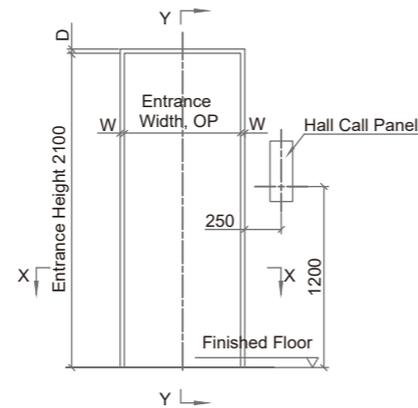
The followings shall be furnished by building contractors:

■ Wall and Floor Finishes

Elevation of Entrance

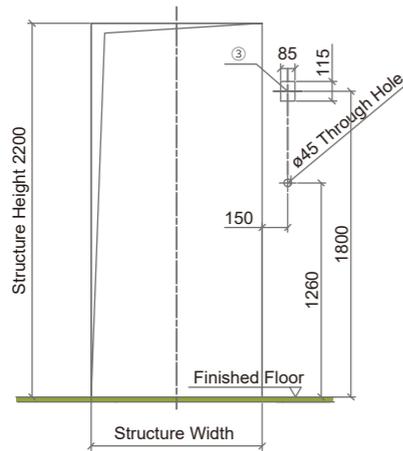


For Entrance With Fireman Switch

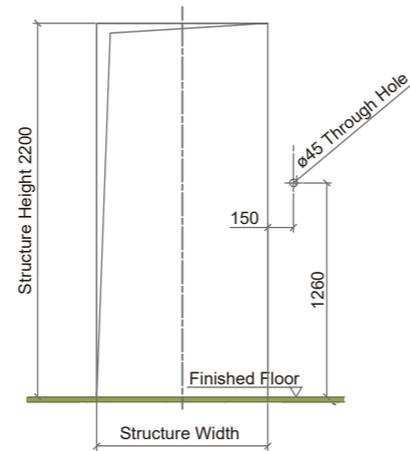


For Entrance Without Fireman Switch

Structure Opening of Entrance



For Entrance With Fireman Switch



For Entrance Without Fireman Switch

Type	AS-1X
W	10
D	10

Note:

- ① The above information are based on GB7588-2003 standards.
- ② Unit of dimension shall be in mm unless otherwise stated.
- ③ Applicable only when fireman operation with switch is located at lift landing.
- ④ Structure opening of entrance shall be furnished by building contractor.

Entrance Design

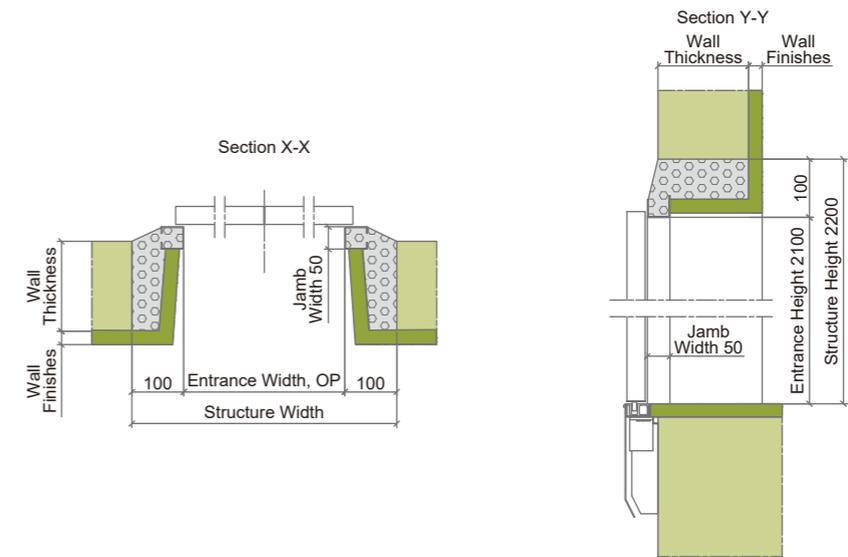
The followings shall be furnished by building contractors:

■ Building Structure

■ Wall and Floor Finishes

■ Grouting Work

Narrow Jamb (AS-1X)



Note:

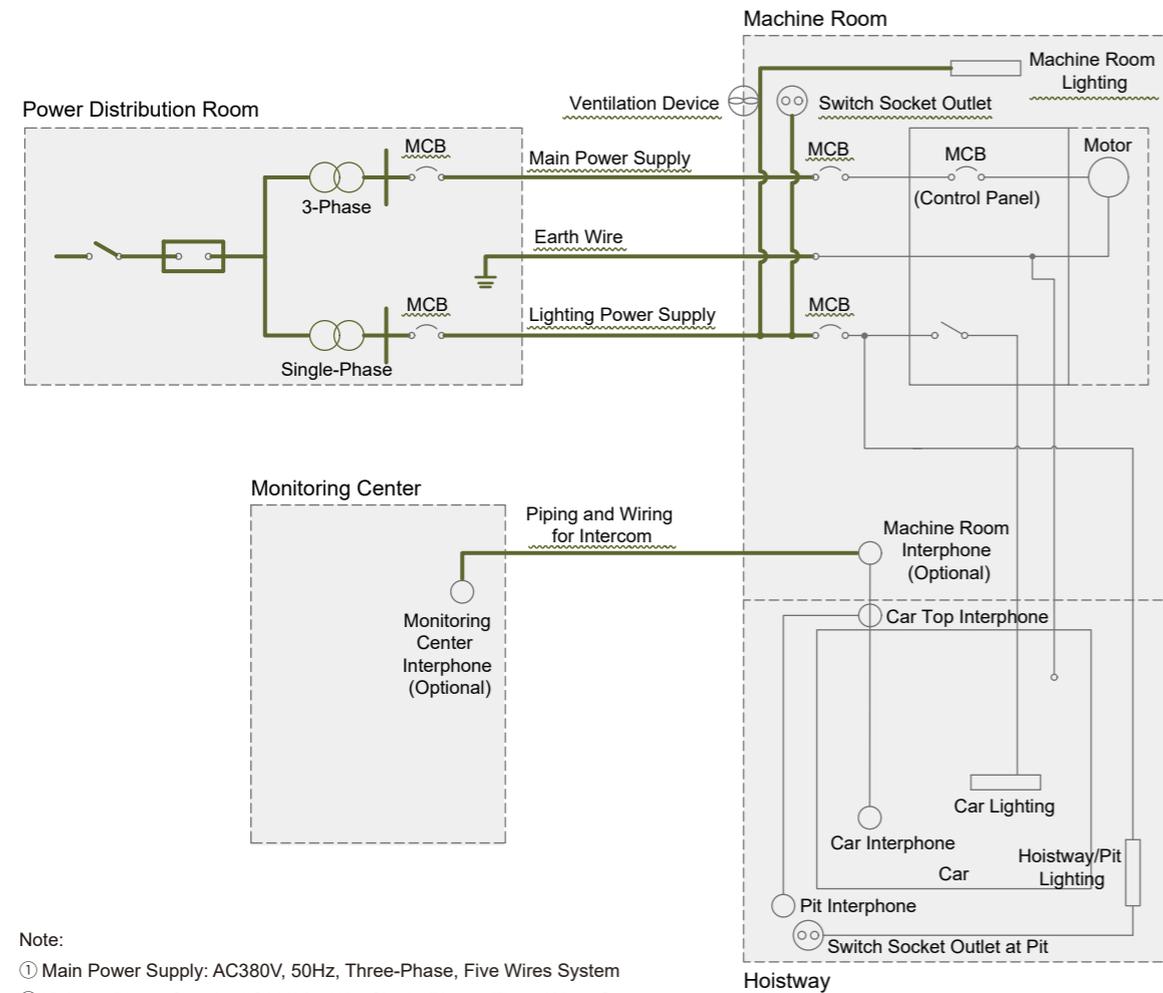
- ① Unit of dimension shall be in mm unless otherwise stated.

Electrical Information

The following shall be furnished by building contractors:

~~~~~ Electrical Equipment

— Cable



Note:

- ① Main Power Supply: AC380V, 50Hz, Three-Phase, Five Wires System
- ② Lighting Power Supply: AC220V, 50Hz, Single-Phase, Three Wires System

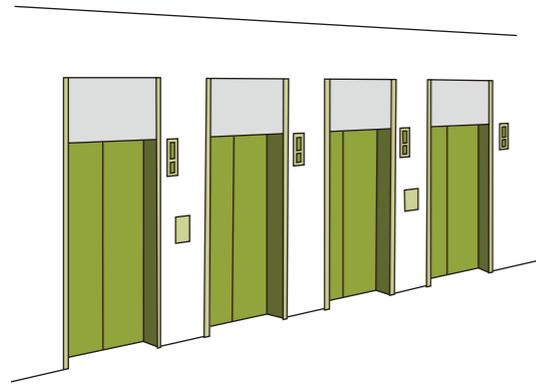
| Item                                           | Works to be provided by building contractor                                                                                                                          |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main Power Supply                              | To provide power supply switch around the entrance of machine room. To install facilities to ensure the power supply voltage fluctuation shall be within $\pm 7\%$ . |
| Lighting Power Supply                          | To provide lighting power supply for car lighting, fan and indicator.                                                                                                |
| Ventilation Device                             | To provide mechanical ventilation to the machine room to ensure that the temperature in the machine room is maintained at below 40°C.                                |
| Machine Room Lighting and Switch Socket Outlet | To provide single phase AC220V, 10A switch socket outlet and machine room lighting with switch around the entrance of machine room for maintenance purposes.         |

# Electrical Data

| No. | Rated Load (kg) | Rated Speed (m/min) | Supply Voltage                         | Circuit Breaker Capacity (A) |         | Transformer Capacity (KVA) |         | Main Power Wire Size (mm <sup>2</sup> ) |         | Earth Wire Size (mm <sup>2</sup> ) |         |
|-----|-----------------|---------------------|----------------------------------------|------------------------------|---------|----------------------------|---------|-----------------------------------------|---------|------------------------------------|---------|
|     |                 |                     |                                        | 1 unit                       | 2 units | 1 unit                     | 2 units | 1 unit                                  | 2 units | 1 unit                             | 2 units |
| 1   | 450             | 60                  | 3 $\Phi$ 380V<br>1 $\Phi$ 220V<br>50Hz | 40                           | 40      | 6                          | 10      | 6                                       | 8       | 6                                  | 8       |
|     |                 | 90                  |                                        | 40                           | 40      | 7                          | 12      | 6                                       | 8       | 6                                  | 8       |
|     |                 | 105                 |                                        | 40                           | 40      | 8                          | 13      | 6                                       | 10      | 6                                  | 10      |
| 2   | 630             | 60                  |                                        | 40                           | 40      | 7                          | 12      | 6                                       | 8       | 6                                  | 8       |
|     |                 | 90                  |                                        | 40                           | 50      | 9                          | 16      | 6                                       | 10      | 6                                  | 10      |
|     |                 | 105                 |                                        | 40                           | 50      | 10                         | 17      | 8                                       | 16      | 8                                  | 16      |
| 3   | 825             | 60                  |                                        | 40                           | 40      | 8                          | 14      | 6                                       | 8       | 6                                  | 8       |
|     |                 | 90                  |                                        | 40                           | 63      | 11                         | 18      | 8                                       | 16      | 8                                  | 16      |
|     |                 | 105                 |                                        | 40                           | 63      | 12                         | 20      | 8                                       | 16      | 8                                  | 16      |
| 4   | 900             | 60                  |                                        | 40                           | 50      | 9                          | 14      | 6                                       | 10      | 6                                  | 10      |
|     |                 | 90                  | 40                                     | 63                           | 11      | 19                         | 8       | 16                                      | 8       | 16                                 |         |
|     |                 | 105                 | 40                                     | 63                           | 13      | 21                         | 8       | 16                                      | 8       | 16                                 |         |
| 5   | 1050            | 60                  | 40                                     | 50                           | 9       | 16                         | 6       | 10                                      | 6       | 10                                 |         |
|     |                 | 90                  | 40                                     | 63                           | 13      | 21                         | 8       | 16                                      | 8       | 16                                 |         |
|     |                 | 105                 | 40                                     | 80                           | 14      | 23                         | 8       | 16                                      | 8       | 16                                 |         |

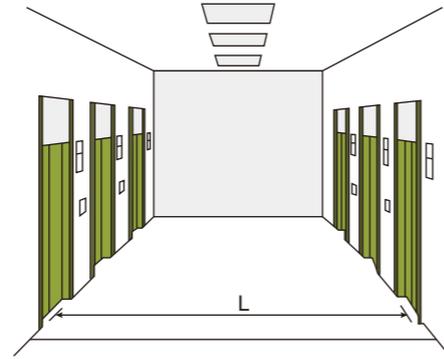
Note:

- ① The above information are based on GB7588-2003 standards.
- ② The above information on the Supply Voltage, Circuit Breaker Capacity (A), Transformer Capacity (KVA), Main Power Wire Size (mm<sup>2</sup>) and Earth Wire Size (mm<sup>2</sup>) are the requirements at building side.
- ③ The main power wire size specified above is applicable for wire length less than 150m. For main power wire length more than 150m, please calculate using the following formula:  
Main power wire size (mm<sup>2</sup>) = [Actual wire length / 150] x [Wire size in above table].
- ④ The calorific value (kcal/hr) for one elevator is calculated using the following formula:  
Calorific Value (kcal/hr) = Rated Load (kg) x Rated Speed (m/min) x [1/45].

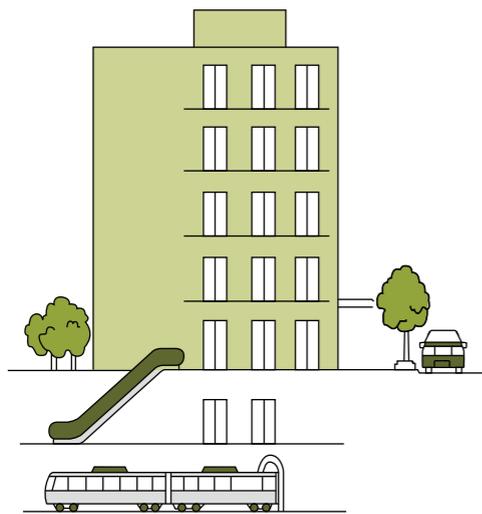


- Maximum in-line arrangement is 4 elevators.
- Elevators not in the same groups should not be set in the same line.
- Avoid placing the elevators entrance near pillars.

- Elevators in the same group with face-to-face arrangement, the distance of facing elevators (L) should be 3.5~4.5m.
- Elevators not in the same group with face-to-face arrangement, the distance of facing elevators (L) should be more than 6m.



- Elevators in the same group is recommended to have the same service floors.
- Elevators in the same group is recommended to have one base floor instead of having multiple access floors.



## Working environment of the elevator shall be as follow:

1. Machine room ambient temperature shall be between 5°C to 40°C.
2. Maximum relative humidity is 90%, and the monthly mean minimum temperature should be below 25°C.
3. Supply voltage fluctuation shall be within  $\pm 7\%$ .
4. Surrounding environment shall be free from explosive and corrosive hazard, anti-insulation and conductive particles atmosphere.

## About hoistway and machine room:

1. Hoistway and machine room shall not be used for purposes other than those connected with the elevators.
2. Hoistway walls (including reinforced concrete ring beams) should be vertical, and the allowable deviation for the hoistway verticality is 0 ~ +30mm.
3. Hoistway and machine room walls, floors and roofs should be able to absorb a large amount of elevator operation noise.
4. Hoistway and machine room should not be located directly adjacent to bedrooms, classrooms, wards, library or any other places where low noise is required. Where such arrangements need to be imposed, the building contractors must be responsible for taking measures of sound insulation and cushioning.
5. Hoistway walls shall be 200mm concrete walls.
6. If elevator hoistway is steel structure construction, please contact us.
7. Elevator hoistway is preferably not located in the space above accessible area. If the actual situation cannot meet the regulations, please contact us.

## Work to be done by Building Contractors:

The preparatory work for elevator installation outlined below should be undertaken by building contractors in accordance with Hitachi drawing and applicable national or local codes and regulation.

1. Prepare hoistway with proper framing and enclosure, suitable pit of proper depth with drains and waterproofing if required, properly lighted and ventilated machine room of adequate size with concrete floor, access door, ladder and guards as required.
2. Provide and/or cut all necessary holes, chases, and openings and finish after equipment installation.
3. Supply and secure all supports, reinforced concrete slabs, etc., necessary for installation of the machinery, doors, buffers, etc.
4. Furnish all necessary cement and/or concrete for grouting-in of brackets, bolts, machine beams etc.
5. Suspension hook in the machine room with required loading as shown in this catalogue.
6. Furnish main for three-phase electric power and single-phase lighting supply to machine room, following the instructions of the elevator contractors on outlet position and wire size.
7. Supply electric power for lighting of work area, installation work, elevator testing and spray painting.
8. Provide, free of charge, a suitable theft-proof storage area for materials and tools during erection work.
9. Prepare and erect suitable scaffolding and protective measures for the works in progress.