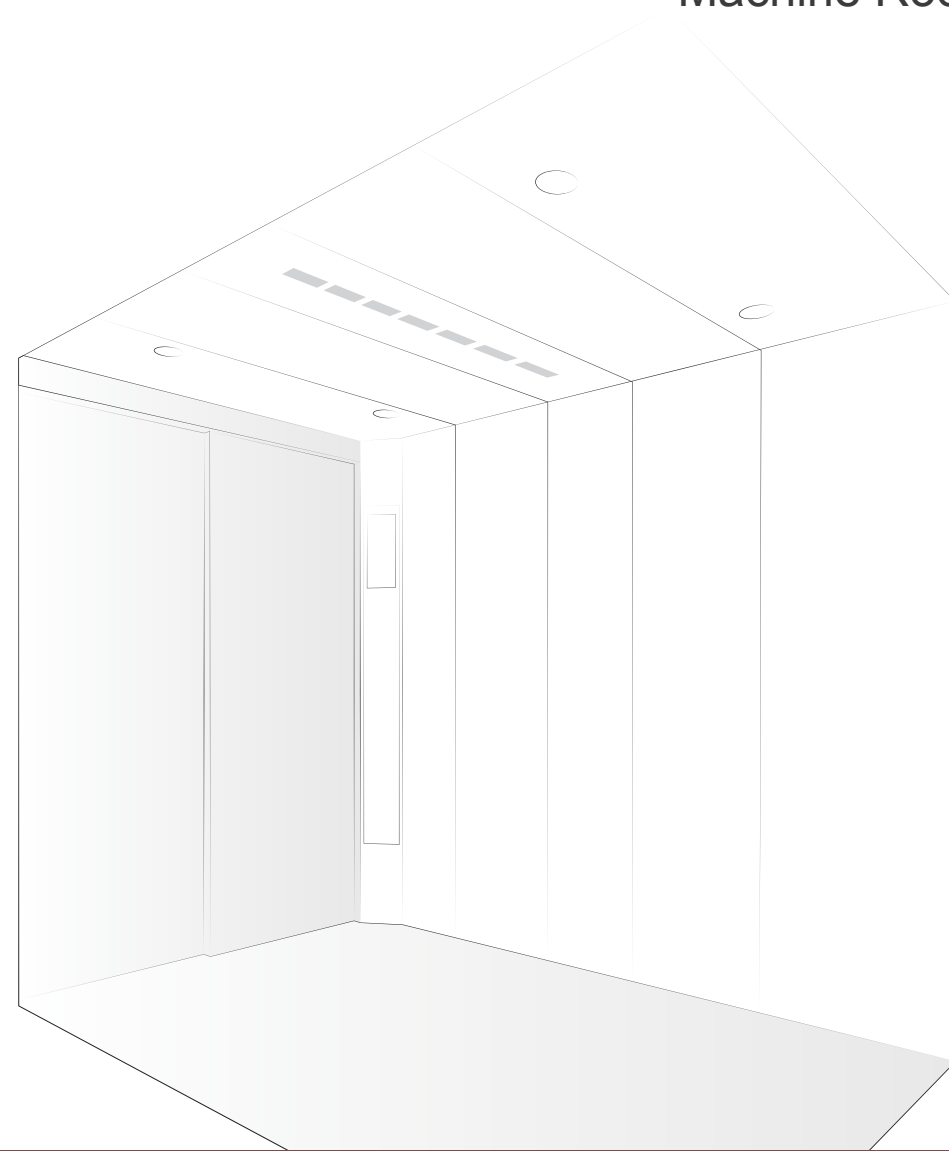


LF-MRL

Machine Room-Less 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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Civil Works Matters

| Rated Load (kg) | Rated Speed (m/min) | Maximum One Time Loading ^[#1] (kg) | Maximum Number of Stops | Maximum Travel (m) | Minimum Floor Height (mm) |
|--------------------|------------------------|---|----------------------------|-----------------------|---------------------------------|
| 1600 | 30 | 960 | 8 | 30 | 2800 |
| | 60 | | 16 | 60 | |
| 2000 | 30 | 1200 | 8 | 30 | |
| | 60 | | 16 | 60 | |
| 3000 | 30 | 1800 | 8 | 30 | |
| | 60 | | 16 | 60 | |

Notes:
[#1] Maximum one time loading refers to the maximum weight (Includes loading equipment, goods and handler) per loading.
[#2] The above information are based on GB7588-2003 standards.

1600kg

2000kg

Option

3000kg

Option



| | |
|--------------------|---------------------------------|
| Car Ceiling | Painted Steel_CP30 (Light Cyan) |
| | LED Lighting |
| Car Ceiling Height | 2200mm |
| Entrance Height | 2100mm |
| Car Door | Painted Steel_CP30 (Light Cyan) |
| Car Walls | Painted Steel_CP30 (Light Cyan) |
| Car Floor | Checkered Steel Plate |

| | |
|---------------------------|------------------------------------|
| Car Ceiling | Stainless Steel Hairline |
| | LED Lighting |
| Car Ceiling Height | 2200mm |
| Entrance Height | 2100mm |
| Car Door | Stainless Steel Hairline |
| Car Walls | Stainless Steel Hairline |
| Anti-Collision Protection | Stainless Steel Hairline (3 Sides) |
| Car Floor | Checkered Steel Plate |



| | |
|--------------------|---------------------------------|
| Car Ceiling | Painted Steel_CP30 (Light Cyan) |
| | LED Lighting |
| Car Ceiling Height | 2200mm |
| Entrance Height | 2100mm |
| Car Door | Painted Steel_CP30 (Light Cyan) |
| Car Walls | Painted Steel_CP30 (Light Cyan) |
| Car Floor | Checkered Steel Plate |

| | |
|---------------------------|------------------------------------|
| Car Ceiling | Stainless Steel Hairline |
| | LED Lighting |
| Car Ceiling Height | 2200mm |
| Entrance Height | 2100mm |
| Car Door | Stainless Steel Hairline |
| Car Walls | Stainless Steel Hairline |
| Anti-Collision Protection | Stainless Steel Hairline (3 Sides) |
| Car Floor | Checkered Steel Plate |

Operating Panel

Option



GOP-196
Monochrome LCD

GOP-195
Dot Matrix



VIB-668
Monochrome
LCD

VIB-668W
Monochrome
LCD

VIB-658
Dot Matrix

VIB-658W
Dot Matrix

Button

Option

GL-MW

- Dimension:42×37mm
- Material:Rim in stainless steel, Faceplate in stainless steel hairline
- Illumination:Symbol and periphery lighted up in white
- Button with braille is available as option for maximum 2 digits.

"Door Open" Button (Without Illumination) "Door Close" Button (Without Illumination) "Prolong" Button (Without Illumination)



"Floor" Button (Without Illumination) "Floor" Button (With Illumination)



GL-MOA

- Dimension:42×37mm
- Material:Rim in stainless steel, faceplate in stainless steel hairline
- Illumination:Symbol and periphery lighted up in orange
- Button with braille is available as option for maximum 2 digits.

"Door Open" Button (Without Illumination) "Door Close" Button (Without Illumination) "Prolong" Button (Without Illumination)



"Floor" Button (Without Illumination) "Floor" Button (With Illumination)



Landing Door / Jamb

Option



Landing Door: Painted Steel_CP30 (Light Cyan)
Landing Jamb: Painted Steel_CP30 (Light Cyan)
Door Type: Side Opening, 2S-2P



Landing Door: Painted Steel_CP30 (Light Cyan)
Landing Jamb: Painted Steel_CP30 (Light Cyan)
Door Type: 4 Panels Center Opening, 4P-CO



Landing Door: Stainless Steel Hairline
Landing Jamb: Stainless Steel Hairline
Door Type: Side Opening, 2S-2P



Landing Door: Stainless Steel Hairline
Landing Jamb: Stainless Steel Hairline
Door Type: 4 Panels Center Opening, 4P-CO

Elevator Function

Standard Functions

| Control System | | | |
|--------------------|---|------|---|
| SA1 | Selective Collective Control | SA2 | Floor Height Self Measurement |
| SA3 | On-Cage (Car Top) Maintenance Operation | SA4 | In-Cage Slow Speed Operation |
| System Protection | | | |
| SB1 | Overspeed Electrical Protection | SB2 | Overspeed Mechanical Protection |
| SB3 | Rope Slipping Running Protection | SB4 | Motor Overload (Thermal) Protection |
| SB5 | Standby Regular Auto-Check | SB6 | Automatic Fault Detection |
| SB7 | Automatic Fault Recording | SB8 | Nearest Landing Operation |
| SB9 | Lift-Position Abnormity Auto-Correction Function | SB10 | Double Brake-Safety Check Operation |
| SB11 | Anti-Electromagnetic Interference | SB12 | Intelligent Auxiliary Brake Function |
| SB13 | Synchronous Motor Magnetic Pole Test | SB14 | Unintended Car Movement Protection, UCMP Function ① |
| 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 | Full Load Bypass Operation |
| SD3 | Overload Detection System | SD4 | Overload Alarm |
| SD5 | Next Drive (Door Open Abnormity) | SD6 | Door Opening/Closing Time Abnormity Protection |
| SD7 | Automatic Door Dwell Time Control | SD8 | Automatic Door Dwell Time Adjustment |
| SD9 | Number Of Runs Indicator | SD10 | Multi-Beam Protection |
| SD11 | Maintenance Indication At Hall Indicator | SD12 | Overload Indicator (In Car) |
| Emergency Solution | | | |
| SE1 | Out Of Door-Open Zone Alarm | SE2 | Car Emergency Lighting |
| SE3 | Fire Emergency Operation (Automatic) | SE4 | Emergency Electric Operation |
| Design for Comfort | | | |
| SF1 | Parking Operation | SF2 | Automatic Return Function |
| SF3 | Start Torque Auto-Adjustment | SF4 | Door-Stop Function (Maintenance) |
| SF5 | Micro Levelling (Travel ≥ 20m) | SF6 | Opposite Direction Car Call Cancellation |
| SF7 | Car Light Auto Turn-Off | SF8 | Car Fan Auto Turn-Off |
| SF9 | Abnormal Duration Hall Call Detection | SF10 | Step-Less Speed Control |
| SF11 | Door Bypass Detection | SF12 | Door Opening Prolong Button |
| SF13 | Independent Operation | SF14 | Door Opening Prolong Function (Hall) |

Note:
① For details, please contact us.

Elevator Function

Optional Functions

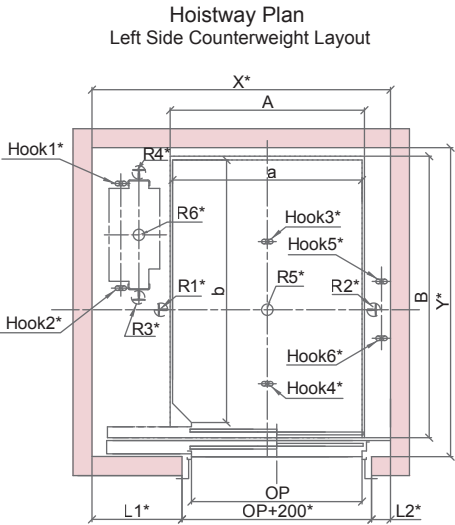
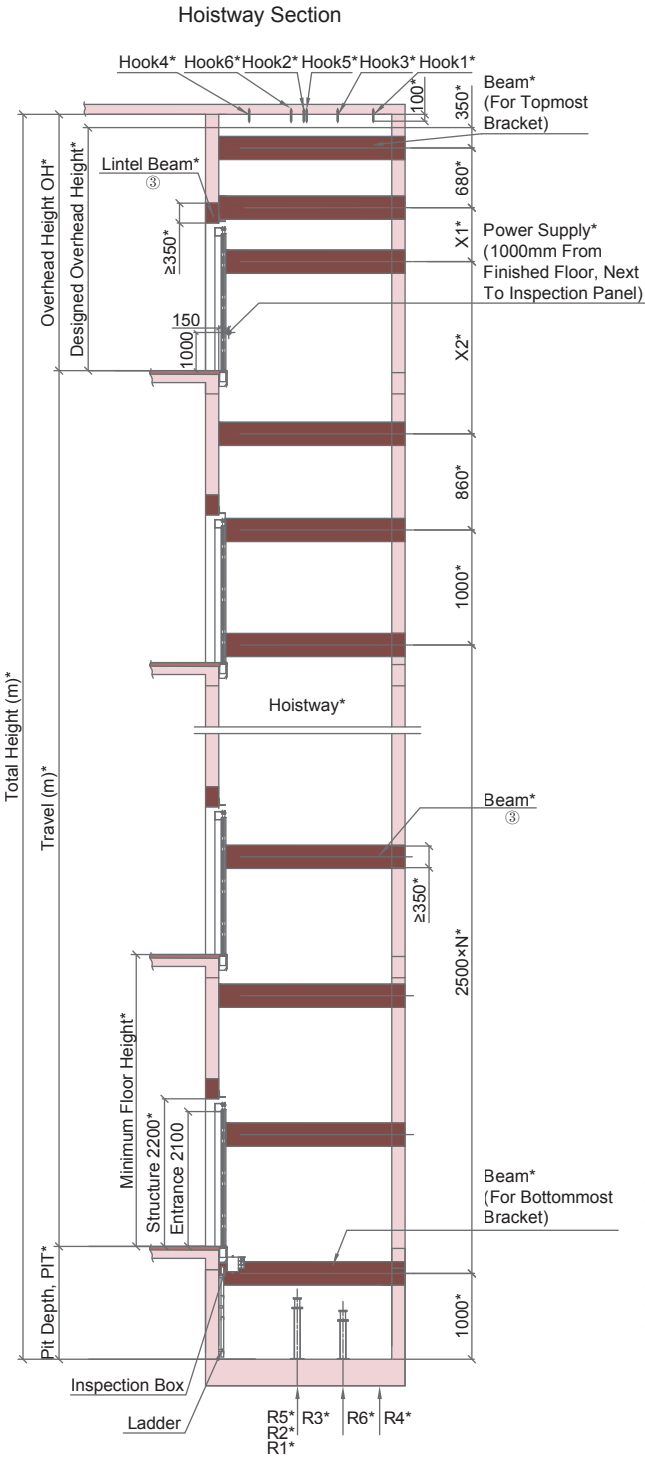
| Control System | | | |
|--------------------|--|------|---|
| OA1 | Down Collective Control | OA2 | Duplex Collective Control |
| OA3 | Independent Automatic Operation (For Duplex Control) ① | | |
| Safe Communication | | | |
| OB1 | Interphone System (5 Ways) (5 Ways: Monitoring Center, Inspection Panel, In Car, Car Top & Pit) | | |
| Safe Riding | | | |
| OC1 | IC Card Security System (In Car) (Not applicable with OC2 or OE4) | OC2 | IC Card Security System (Hall) (Not applicable with OC1 or OE4) |
| OC3 | Multi-Beam + Safety Edge Protection | OC4 | Twisted Pair Cable (1 Pair) For CCTV Interface |
| OC5 | Twisted Pair Cable (1 Pair) For BGM Interface | 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) | | |
| Emergency Solution | | | |
| OD1 | Fireman Operation | OD2 | Automatic Rescue Device (ARD) (Maximum travel distance between landings ≤ 30m) |
| OD3 | Emergency Operation For Power Failure (Manual) | OD4 | Emergency Operation For Power Failure (Auto) |
| OD5 | Earthquake Emergency Operation | OD6 | Pit Flood Operation |
| Design for Comfort | | | |
| OE1 | Attendant Operation | OE2 | Voice Synthesizer |
| OE3 | Arrival Chime (Car Top & Bottom) | OE4 | Floor Lockout Operation (Not applicable with OC1 or OC2) |
| OE5 | Electromagnetic Compatibility (EMC) Function | OE6 | Sub Car Operating Panel |
| OE7 | Double Opening Function | OE8 | Car Floor Button Flashing |
| OE9 | Operation Status Indication At Hall Indicator | OE10 | Car Call Deselect Function |
| OE11 | Micro Levelling (Travel < 20m) | OE12 | Advance Door Opening |
| OE13 | Manual Re-Levelling Function (Only applicable with either SF5 or OE11) | OE14 | Robotics System Interface ① |

Note:
① For details, please contact us.

Hoistway (Side Opening)

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 The hoistway construction shall be reinforced concrete ring beam with strength C25 or whole hoistway of reinforce concrete wall. For other situations, please contact us.
- ④ For hoistway details, please contact us.
- ⑤ Unit of dimension shall be in mm unless otherwise stated.
- ⑥ The suspension hooks capacity shall be as follows:

| Rated Load (kg) | Rated Speed (m/min) | Hook1 (Tons) | Hook2 (Tons) | Hook3 (Tons) | Hook4 (Tons) | Hook5 (Tons) | Hook6 (Tons) |
|-----------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1600 | 30/60 | 2 | 2 | 3 | 3 | 1 | 1 |
| 2000 | 30/60 | 2 | 2 | 4 | 4 | 1 | 1 |
| 3000 | 30/60 | 2 | 2 | 5 | 5 | 1 | 1 |

Hoistway (Side Opening)

| Rated Load (kg) | Rated Speed (m/min) | Car Size (mm) | | Door Opening (mm) | | Front Wall Arrangement (mm) | | Hoistway Size (mm) | Pit Reaction Force (KN) | | | | | |
|-----------------------|---------------------|--------------------|---------------------|-------------------|----------|-----------------------------|-----|--------------------|-------------------------|-----|-----|-----|-----|-----|
| | | Car Inside (a × b) | Car Outside (A × B) | Type | Width OP | L1 | L2 | | R1 | R2 | R3 | R4 | R5 | R6 |
| 1600 (Single Opening) | 30 | 1600×2100 | 1650×2290 | 2S-2P | 1500 | 800 | 200 | 2700×2590 | 145 | 85 | 130 | 70 | 180 | 150 |
| | 60 | | | | | | | | | | | | | |
| 2000 (Single Opening) | 30 | 1600×2500 | 1650×2690 | 2S-2P | 1500 | 800 | 200 | 2700×2990 | 160 | 95 | 140 | 75 | 200 | 170 |
| | 60 | | | | | | | | | | | | | |
| 3000 (Single Opening) | 30 | 2000×2770 | 2050×2960 | 2S-2P | 1800 | 950 | 200 | 3150×3260 | 225 | 125 | 205 | 100 | 300 | 230 |
| | 60 | | | | | | | | | | | | | |

| Rated Load (kg) | Rated Speed (m/min) | Overhead Height, OH (mm) | Pit Depth, PIT (mm) |
|-----------------|---------------------|--------------------------|---------------------|
| 1600 | 30 | 4000 | 1450 |
| | 60 | 4050 | 1450 |
| 2000 | 30 | 4000 | 1450 |
| | 60 | 4050 | 1450 |
| 3000 | 30 | 4000 | 1800 |
| | 60 | 4050 | 1800 |

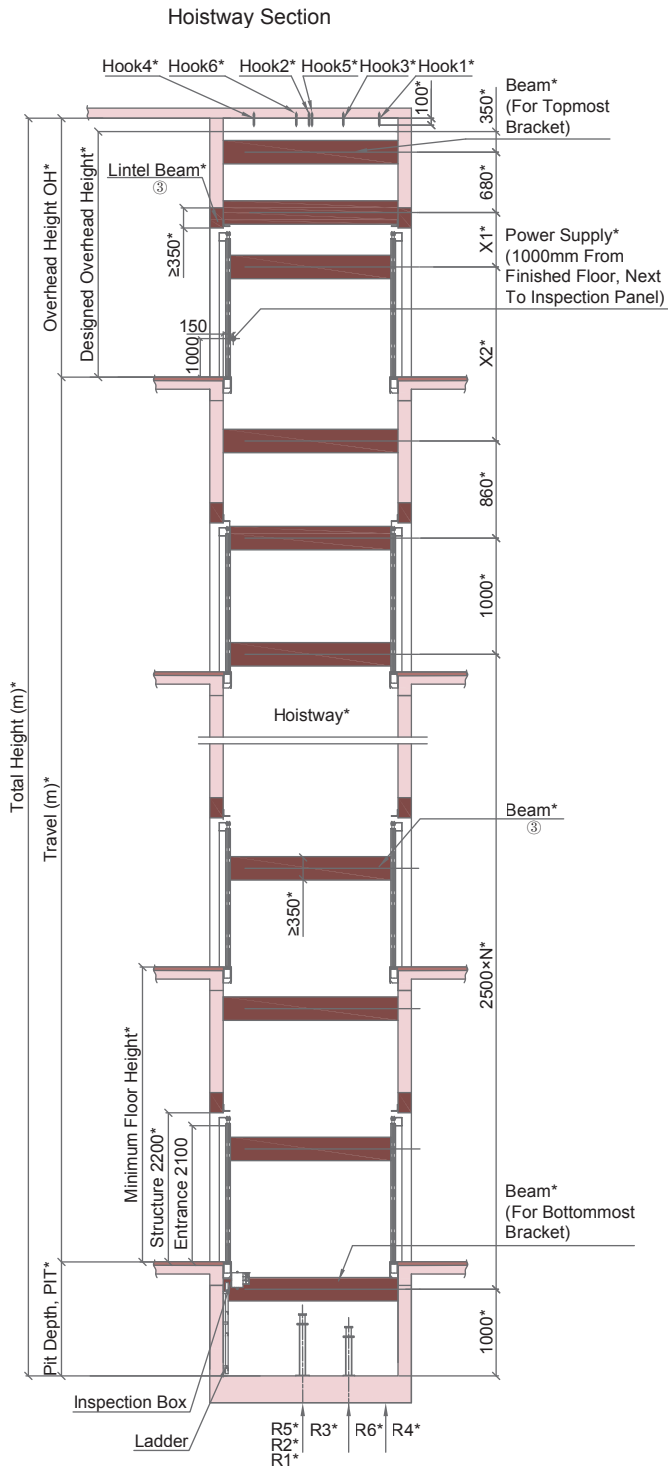
Note:

- ① The above information are based on GB7588-2003 standards.
- ② Configuration is without counterweight safety gear.
- ③ The front wall arrangement "L1" and "L2" are based on left side counterweight layout.
- ④ Configuration is based on decoration weight provision up to 300kg.
- ⑤ The overhead height, OH is based on bare ceiling height of 2200mm.
- ⑥ The pit depth, PIT is based on standard checkered steel plate finish without floor recess.

Hoistway (Side Opening)

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 The hoistway construction shall be reinforced concrete ring beam with strength C25 or whole hoistway of reinforce concrete wall. For other situations, please contact us.
- ④ For hoistway details, please contact us.
- ⑤ Unit of dimension shall be in mm unless otherwise stated.
- ⑥ The suspension hooks capacity shall be as follows:

| Rated Load (kg) | Rated Speed (m/min) | Hook1 (Tons) | Hook2 (Tons) | Hook3 (Tons) | Hook4 (Tons) | Hook5 (Tons) | Hook6 (Tons) |
|-----------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1600 | 30/60 | 2 | 2 | 3 | 3 | 1 | 1 |
| 2000 | 30/60 | 2 | 2 | 4 | 4 | 1 | 1 |
| 3000 | 30/60 | 2 | 2 | 5 | 5 | 1 | 1 |

Hoistway (Side Opening)

| Rated Load (kg) | Rated Speed (m/min) | Car Size (mm) | | Door Opening (mm) | | Front Wall Arrangement (mm) | | Hoistway Size (mm) | Pit Reaction Force (kN) | | | | | |
|-----------------------|---------------------|--------------------|---------------------|-------------------|----------|-----------------------------|-----|--------------------|-------------------------|-----|-----|-----|-----|-----|
| | | Car Inside (a × b) | Car Outside (A × B) | Type | Width OP | L1 | L2 | | R1 | R2 | R3 | R4 | R5 | R6 |
| 1600 (Double Opening) | 30 | 1600×2200 | 1650×2520 | 2S-2P | 1500 | 850 | 200 | 2750×2940 | 170 | 100 | 140 | 75 | 220 | 170 |
| | 60 | | | | | | | | | | | | | |
| 2000 (Double Opening) | 30 | 1600×2600 | 1650×2920 | 2S-2P | 1500 | 850 | 200 | 2750×3340 | 170 | 100 | 140 | 75 | 220 | 170 |
| | 60 | | | | | | | | | | | | | |
| 3000 (Double Opening) | 30 | 2000×2870 | 2050×3190 | 2S-2P | 1800 | 1000 | 200 | 3200×3610 | 230 | 130 | 205 | 100 | 300 | 230 |
| | 60 | | | | | | | | | | | | | |

| Rated Load (kg) | Rated Speed (m/min) | Overhead Height, OH (mm) | Pit Depth, PIT ⑦ (mm) | |
|-----------------|---------------------|--------------------------|-----------------------|------|
| | | | P1 | P2 |
| 1600 | 30 | 4000 | 1450 | 1820 |
| | 60 | 4050 | 1450 | 1820 |
| 2000 | 30 | 4000 | 1450 | 1820 |
| | 60 | 4050 | 1450 | 1820 |
| 3000 | 30 | 4000 | 1800 | 2170 |
| | 60 | 4050 | 1800 | 2170 |

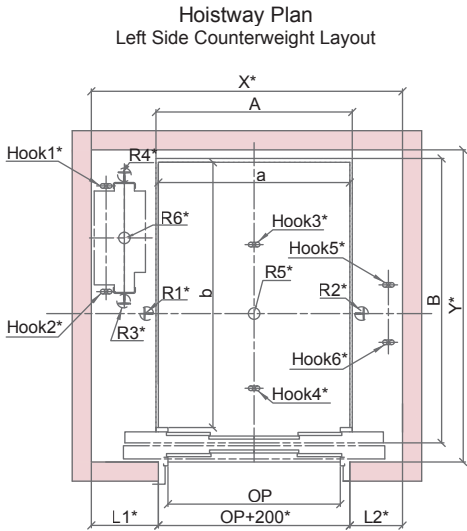
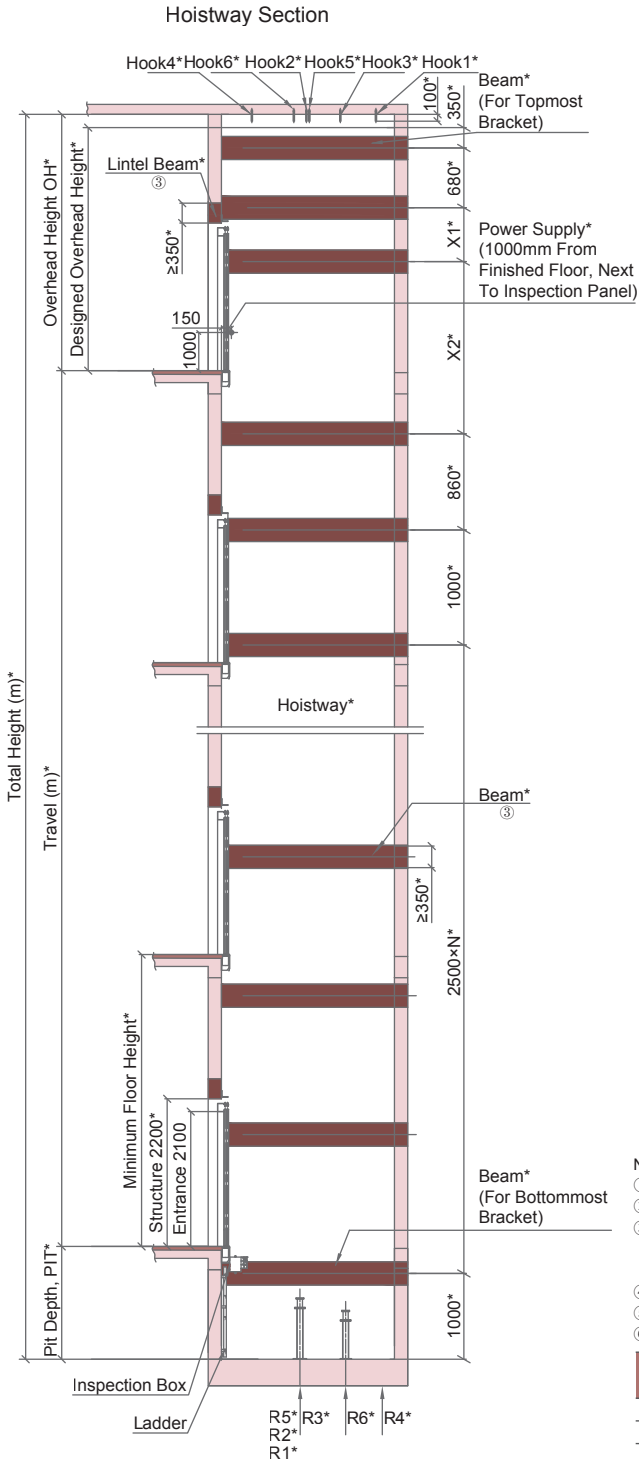
Note:

- ① The above information are based on GB7588-2003 standards.
- ② Configuration is without counterweight safety gear.
- ③ The front wall arrangement "L1" and "L2" are based on left side counterweight layout.
- ④ Configuration is based on decoration weight provision up to 300kg.
- ⑤ The overhead height, OH is based on bare ceiling height of 2200mm.
- ⑥ The pit depth, PIT is based on standard checkered steel plate finish without floor recess.
- ⑦ When there is front/rear entrance on the lowest floor and there is no openings on the same side at other floors, pit depth shall be P2. Otherwise, pit depth shall be P1.

Hoistway (4 Panels Center Opening)

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 The hoistway construction shall be reinforced concrete ring beam with strength C25 or whole hoistway of reinforce concrete wall. For other situations, please contact us.
- ④ For hoistway details, please contact us.
- ⑤ Unit of dimension shall be in mm unless otherwise stated.
- ⑥ The suspension hooks capacity shall be as follows:

| Rated Load (kg) | Rated Speed (m/min) | Hook1 (Tons) | Hook2 (Tons) | Hook3 (Tons) | Hook4 (Tons) | Hook5 (Tons) | Hook6 (Tons) |
|-----------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1600 | 30/60 | 2 | 2 | 3 | 3 | 1 | 1 |
| 2000 | 30/60 | 2 | 2 | 4 | 4 | 1 | 1 |
| 3000 | 30/60 | 2 | 2 | 5 | 5 | 1 | 1 |

Hoistway (4 Panels Center Opening)

| Rated Load (kg) | Rated Speed (m/min) | Car Size (mm) | | Door Opening (mm) | | Front Wall Arrangement (mm) | | Hoistway Size (mm) | Pit Reaction Force (KN) | | | | | |
|-----------------------|---------------------|--------------------|---------------------|-------------------|----------|-----------------------------|-----|--------------------|-------------------------|-----|-----|-----|-----|-----|
| | | Car Inside (a × b) | Car Outside (A × B) | Type | Width OP | L1 | L2 | | R1 | R2 | R3 | R4 | R5 | R6 |
| 1600 (Single Opening) | 30 | 1600×2100 | 1650×2290 | 4P-CO | 1500 | 550 | 450 | 2700×2590 | 145 | 85 | 130 | 70 | 180 | 150 |
| | 60 | | | | | | | | | | | | | |
| 2000 (Single Opening) | 30 | 1600×2500 | 1650×2690 | 4P-CO | 1500 | 550 | 450 | 2700×2990 | 160 | 95 | 140 | 75 | 200 | 170 |
| | 60 | | | | | | | | | | | | | |
| 3000 (Single Opening) | 30 | 2000×2770 | 2050×2960 | 4P-CO | 1800 | 700 | 450 | 3150×3260 | 225 | 125 | 205 | 100 | 300 | 230 |
| | 60 | | | | | | | | | | | | | |

| Rated Load (kg) | Rated Speed (m/min) | Overhead Height, OH (mm) | Pit Depth, PIT (mm) |
|-----------------|---------------------|--------------------------|---------------------|
| 1600 | 30 | 4000 | 1450 |
| | 60 | 4050 | 1450 |
| 2000 | 30 | 4000 | 1450 |
| | 60 | 4050 | 1450 |
| 3000 | 30 | 4000 | 1800 |
| | 60 | 4050 | 1800 |

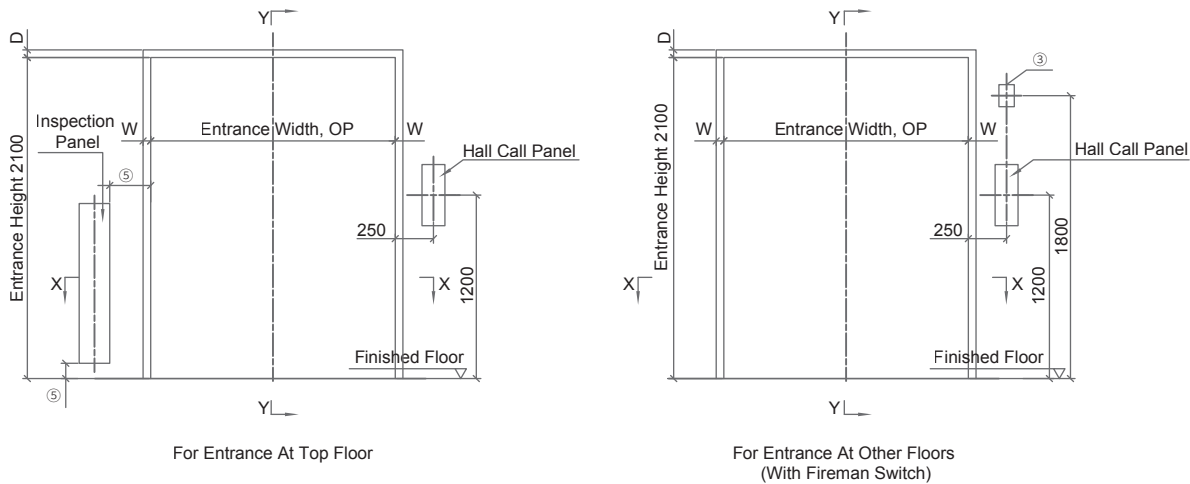
- Note:
- ① The above information are based on GB7588-2003 standards.
 - ② Configuration is without counterweight safety gear.
 - ③ The front wall arrangement "L1" and "L2" are based on left side counterweight layout.
 - ④ Configuration is based on decoration weight provision up to 300kg.
 - ⑤ The overhead height, OH is based on bare ceiling height of 2200mm.
 - ⑥ The pit depth, PIT is based on standard checkered steel plate finish without floor recess.

Entrance Design (Side Opening)

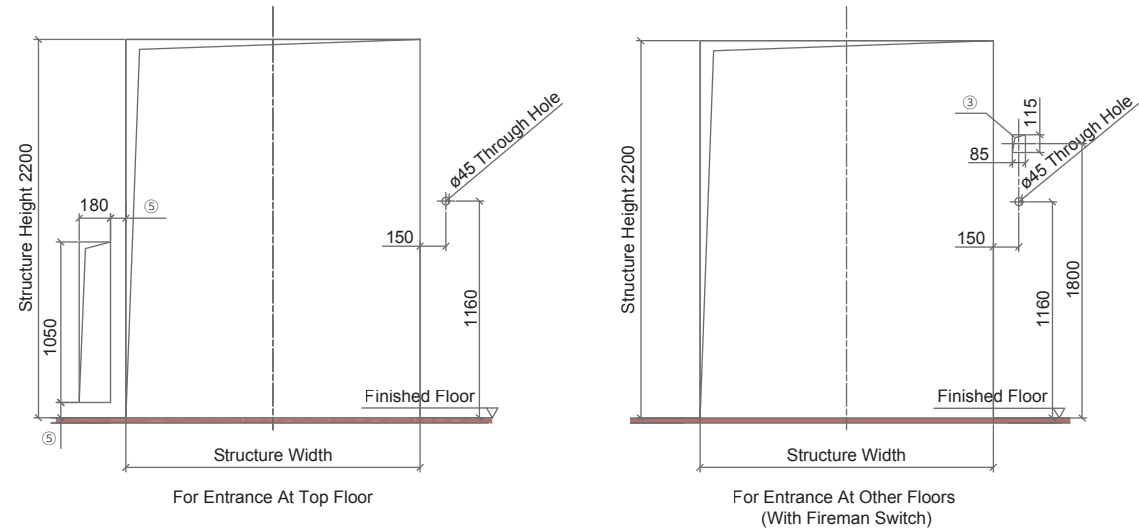
The followings shall be furnished by building contractors:

Wall And Floor Finishes

Elevation Of Entrance



Structure Opening Of Entrance



[Table A]

| Type | AS-1X | SS-1X |
|------|-------|-------|
| W | 10 | 30 |
| D | 10 | 50 |

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.
⑤ Dimension shall be determined on site.

Entrance Design (Side Opening)

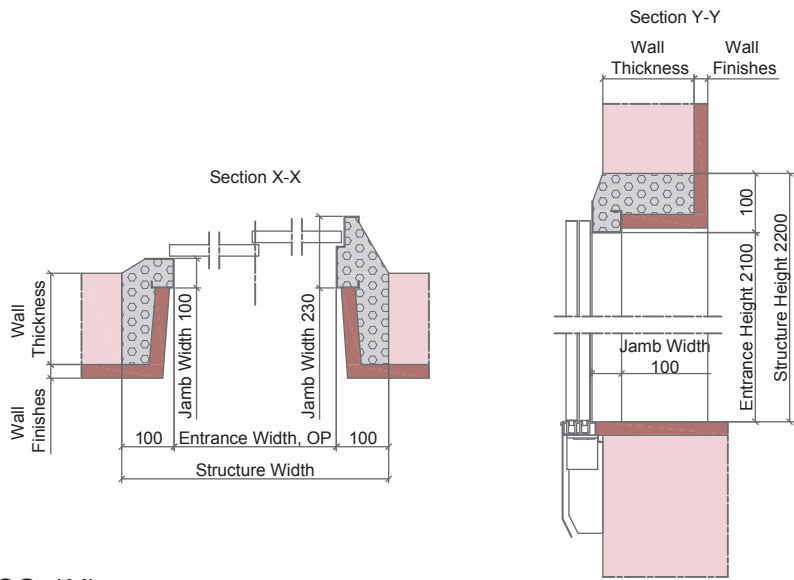
The followings shall be furnished by building contractors:

Building Structure

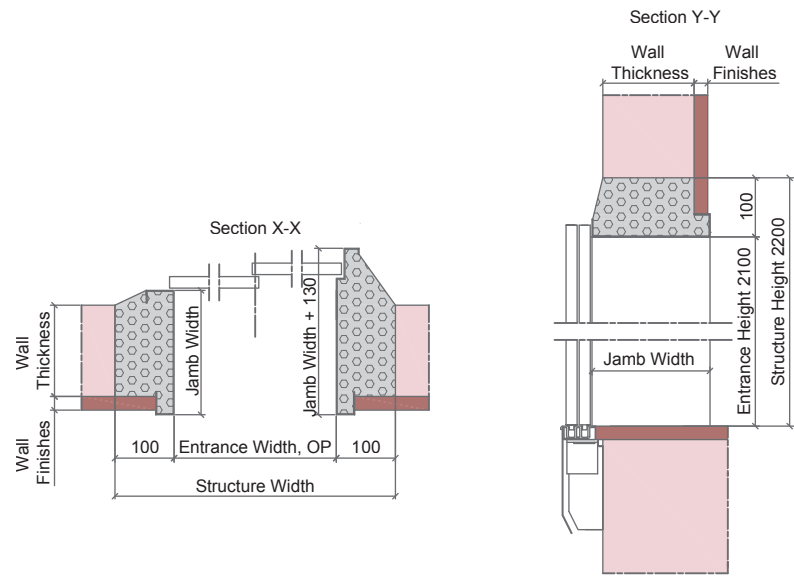
Wall And Floor Finishes

Grouting Work

Narrow Jamb (AS-1X)



Wide Jamb (SS-1X)



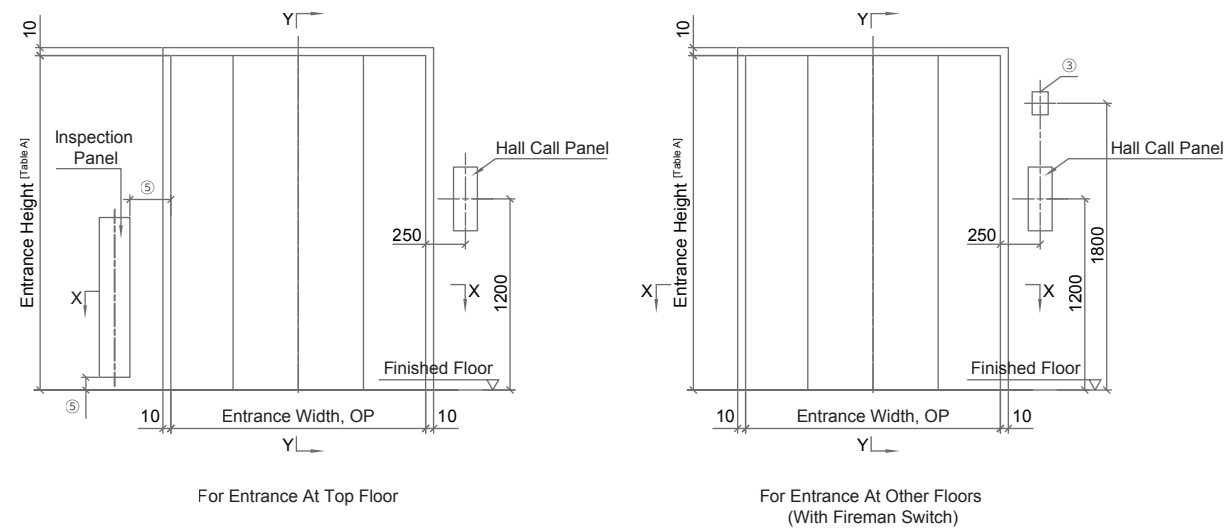
Note:
① Unit of dimension shall be in mm unless otherwise stated.

Entrance Design (4 Panels Center Opening)

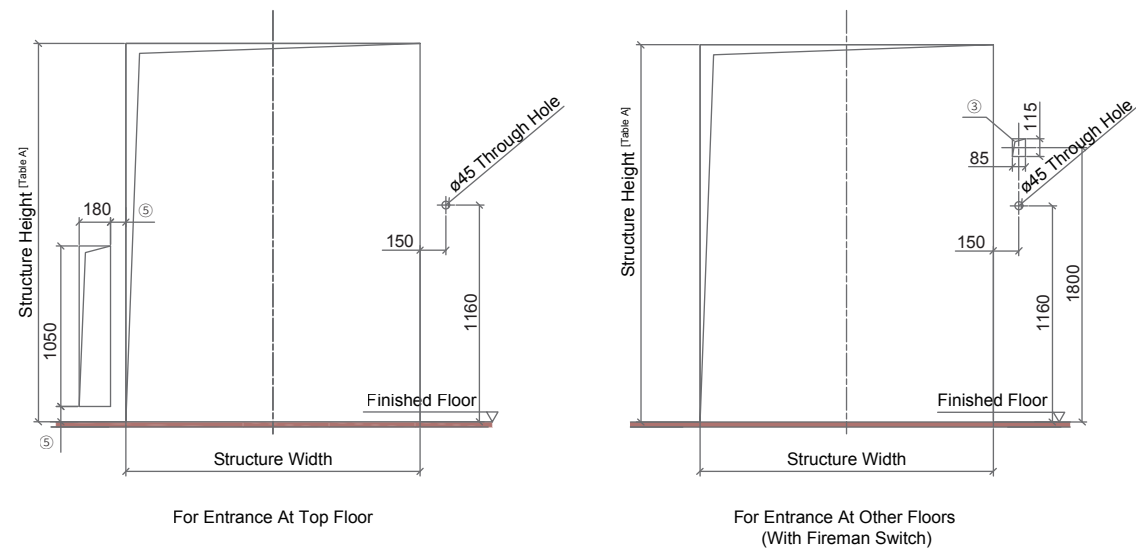
The followings shall be furnished by building contractors:

- Wall And Floor Finishes

Elevation Of Entrance



Structure Opening Of Entrance



[Table A]

| Rated Load (kg) | Entrance Height | Structure Height |
|-----------------|-----------------|------------------|
| 1600/2000/3000 | 2100 | 2200 |

Note:

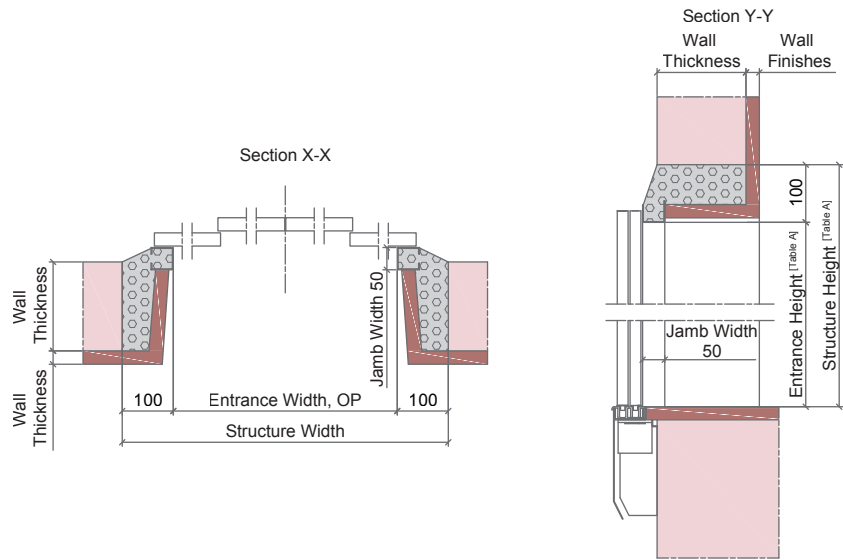
- ① The above information are based on GB7588-2003 standards.
- ② Unit of dimension shall be in mm unless otherwise stated.
- ③ Applicable only when fireman operation with switch is located at lift landing.
- ④ Structure opening of entrance shall be furnished by building contractor.
- ⑤ Dimension shall be determined on site.

Entrance Design (4 Panels Center Opening)

The followings shall be furnished by building contractors:

- Building Structure
- Wall And Floor Finishes
- Grouting Work

Narrow Jamb (AS-1X)



[Table A]

| Rated Load (kg) | Entrance Height | Structure Height |
|-----------------|-----------------|------------------|
| 1600/2000/3000 | 2100 | 2200 |

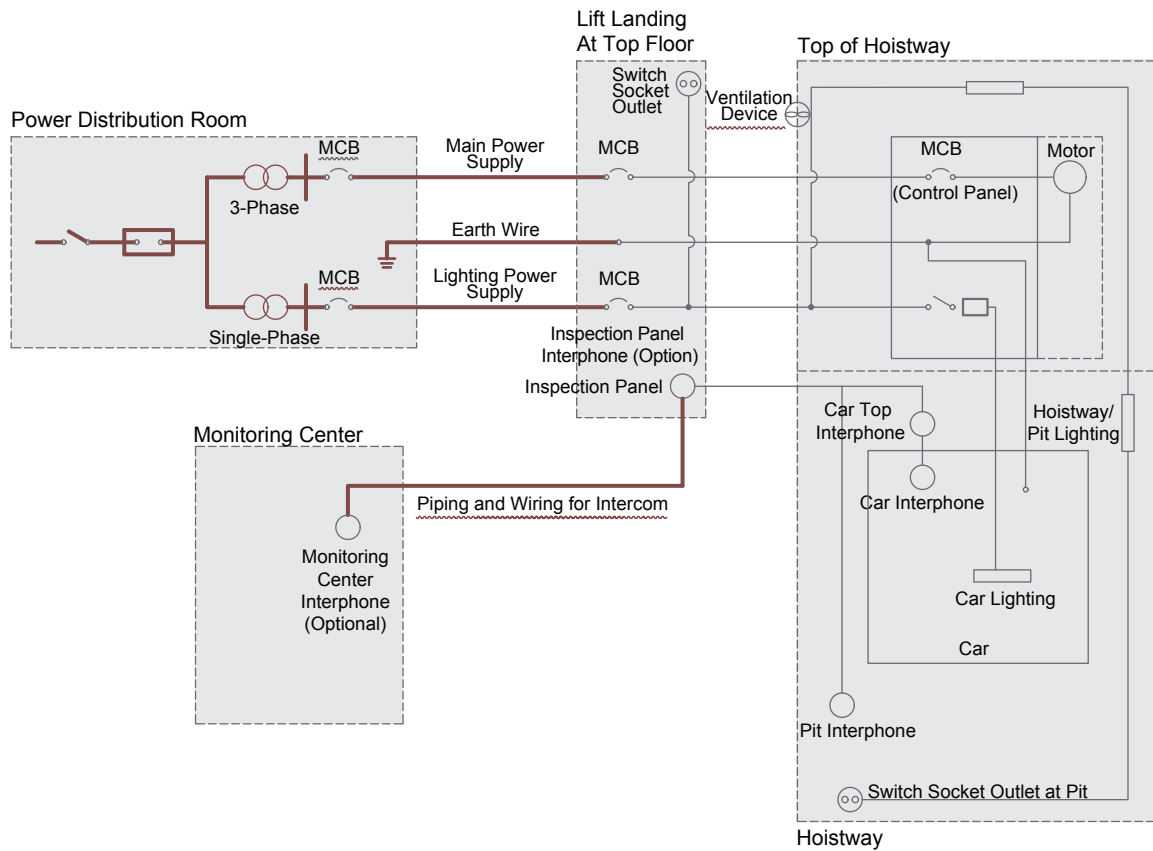
Note:

- 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, 3-Phase, 5 Wires System
 - ② Lighting Power Supply: AC220V, 50Hz, Single-Phase, 3 Wires System

| Item | Works to be provided by building contractor |
|-----------------------|--|
| Main Power Supply | To provide power supply switch around the entrance of top floor. To install facilities to ensure the power supply voltage fluctuation shall be within ±7%. |
| Lighting Power Supply | To provide lighting power supply for car lighting, fan and indicator. |
| Ventilation Device | To provide mechanical ventilation to the hoistway to ensure the temperature in the hoistway is maintained at below 40°C. |

Electrical Data

| No. | Rated Load (kg) | Rated Speed (m/min) | Supply Voltage | Circuit Breaker Capacity (A) | | Transformer Capacity (kVA) | | Main Power Wire Size (mm²) | | Earth Wire Size (mm²) | |
|-----|-----------------|---------------------|--------------------------|------------------------------|---------|----------------------------|---------|----------------------------|---------|-----------------------|---------|
| | | | | 1 unit | 2 units | 1 unit | 2 units | 1 unit | 2 units | 1 unit | 2 units |
| 1 | 1600 | 30 | 3Φ380V 1Φ220V 50Hz | 20 | 30 | 8 | 12.5 | 8 | 10 | 8 | 10 |
| | | 60 | | 40 | 50 | 12.5 | 20 | 16 | 25 | 16 | 16 |
| 2 | 2000 | 30 | | 30 | 40 | 8 | 16 | 8 | 16 | 8 | 16 |
| | | 60 | | 50 | 60 | 16 | 25 | 16 | 30 | 16 | 16 |
| 3 | 3000 | 30 | | 40 | 50 | 12.5 | 20 | 10 | 25 | 10 | 16 |
| | | 60 | | 60 | 100 | 25 | 40 | 25 | 35 | 16 | 16 |

- Notes:
- 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 (mm²) and Earth Wire Size (mm²) 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 (mm²) = [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]

Working environment of the elevator shall be as follow:

1. Hoistway 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:

1. Hoistway 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 walls, floors and roofs should be able to absorb a large amount of elevator operation noise.
4. Hoistway 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 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 hooks at top of hoistway with required loading as shown in this catalogue.
6. Furnish main for three-phase electric power and single-phase lighting supply to hoistway, 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.

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