

## Freight Elevators & Automobile Elevators



# Elevator



## HOW TO OPERATE FREIGHT ELEVATORS

### SINGLE AUTOMATIC OPERATION

The car doesn't respond to the calls of other floors during the operation, enabling independent operation.



▲ Hynix Semiconductor, Ichun, Korea



▲ Hall Buttons

▲ Car Operating Panel

#### 1. Press CALL button at the lobby.

- The car door opens right away if the car is at the lobby floor.
- The call will not be registered when "IN USE" lamp on the hall indicator is already turned on.

#### 2. Press car call button on car operating panel for the desired floor after getting on the car.

- After the door is closed, elevator moves up to the desired floor and the door opens automatically.

#### 3. Be sure to press CLOSE button on hall position indicator after getting out.

- If you forget pressing CLOSE button, the car doors will be closed automatically within 30 seconds.

#### 4. Use "D K O (Door Keep Open)" key switch when unloading heavy freight.

- Set "D K O (Door Keep Open)" key switch off after unloading all freight.

**Note)** The selective collective operating system is available.

## HOW TO OPERATE AUTOMOBILE ELEVATORS

### SINGLE AUTOMATIC OPERATION

The car doesn't respond to the calls of other floors during the operation, enabling independent operation.



▲ Bundang Soonae Plaza, Korea

#### 1. Press CALL button at the lobby.

- The call will not be registered when "IN USE" lamp on the hall indicator is already turned on.

#### 2. When door opens completely, drive your automobile slowly into the cage and stop/place it in the center. Press car call button on car operating panel for the desired floor after entry.

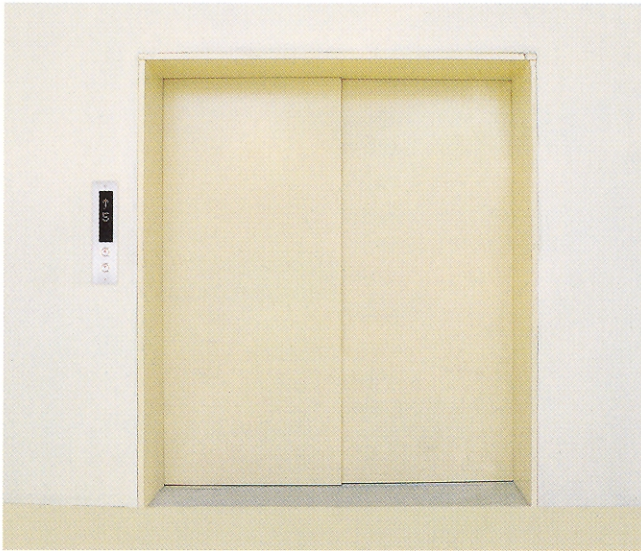
- After the door is closed, elevator moves up to the desired floor and the door opens automatically.

#### 3. Be sure to press CLOSE button on hall position indicator after getting out.

- If you forget pressing CLOSE button, the car doors will be closed automatically within 30 seconds.



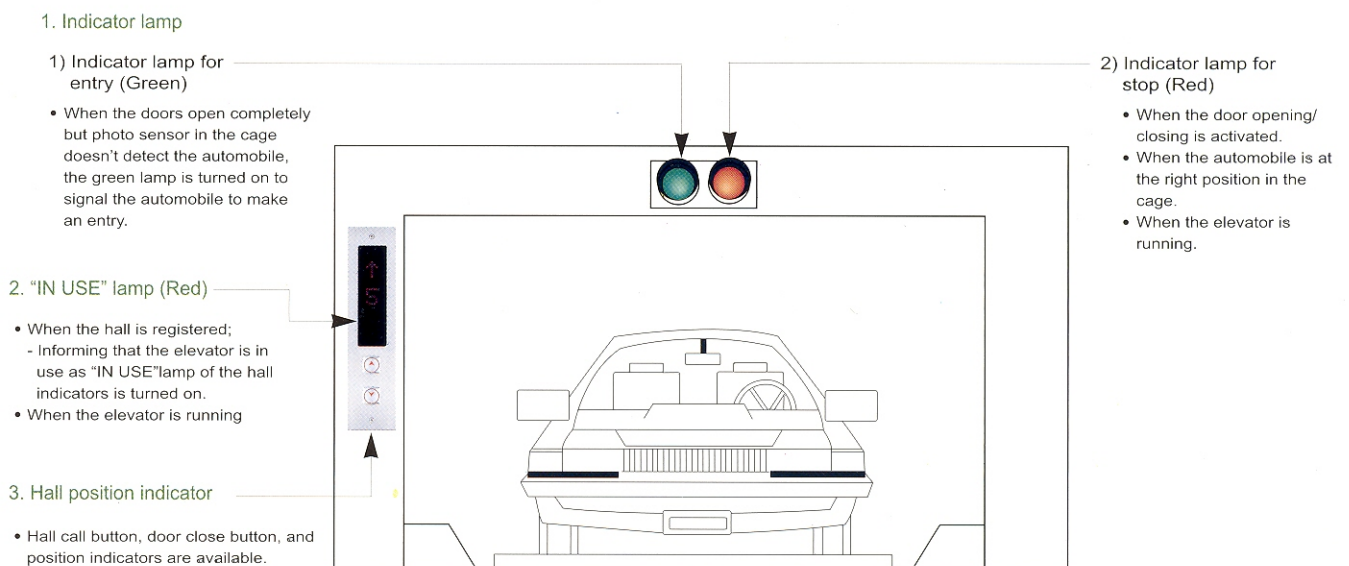
## ENTRANCE DESIGNS



### SPECIFICATIONS

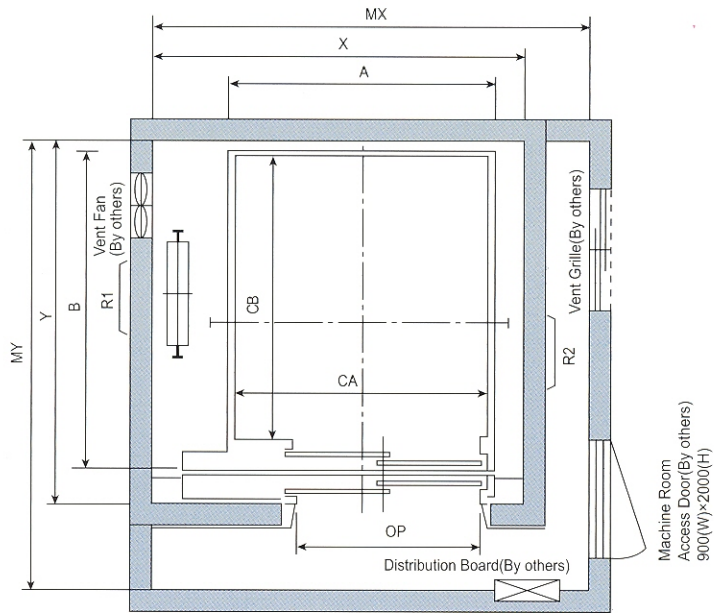
Entrance	Painted steel sheet
Jamb	Painted steel sheet
Hall Position Indicator	Square micro push button with position indicator (dot type)

## SIGNAL PROVISIONS (AUTOMOBILE ELEVATORS)



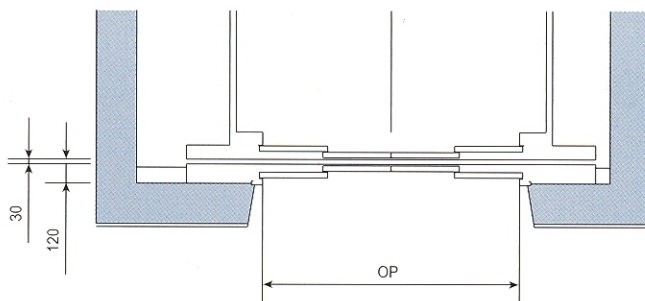
# FREIGHT ELEVATORS / GENERAL TYPE (2S, 2SCO, 2U)

Plan of Hoistway & Machine Room

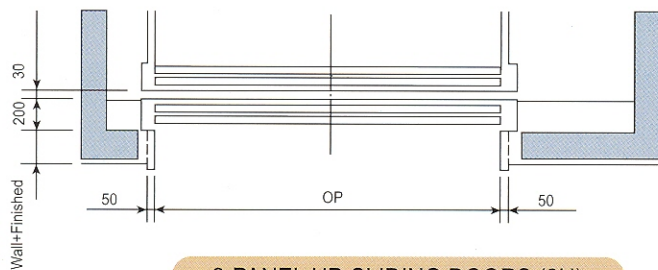


2-PANEL SIDE-OPENING DOORS (2S)

Note) Temperatures should be maintained below 40 °C with ventilating fan and/or air conditioner(if necessary) and humidity below 90%.



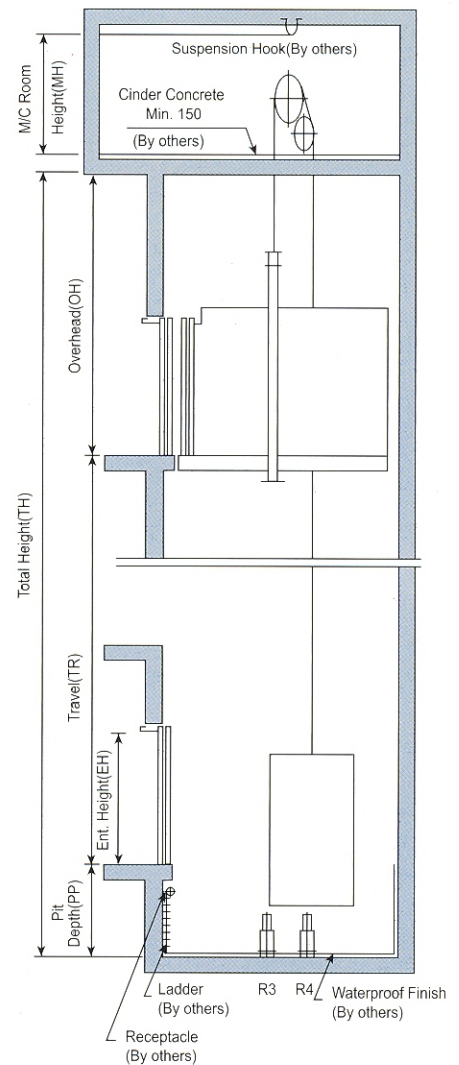
4-PANEL CENTER OPENING DOORS (2SCO)



2-PANEL UP-SLIDING DOORS (2U)

- Minimum floor height :  $\text{OpeningHeight} \times 3/2 + 450\text{mm}$
- Minimum entrance height : 2100mm

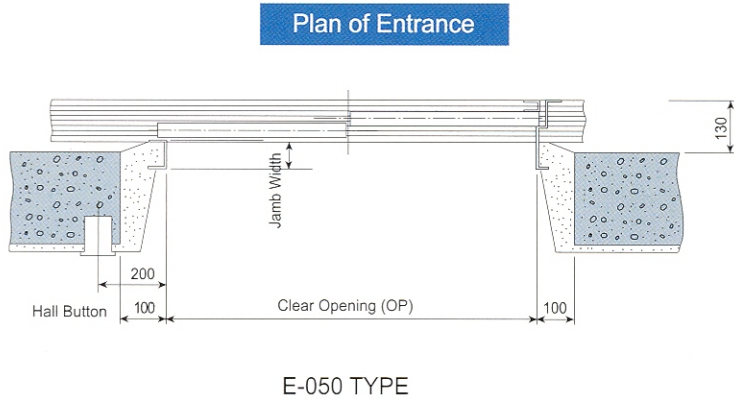
Section of Hoistway





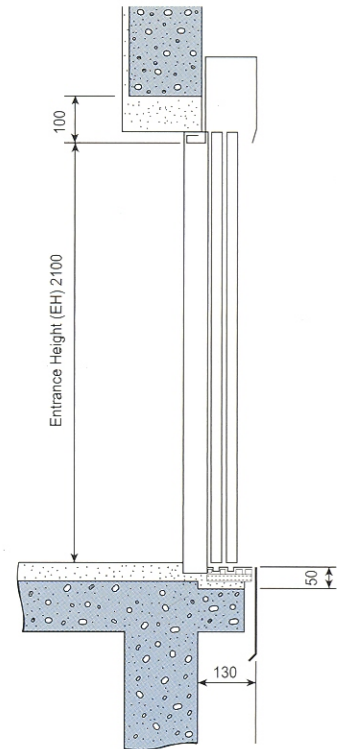
## TYPICAL ENTRANCE LAYOUTS

### <2-PANEL SIDE-OPENING DOORS (2S)>



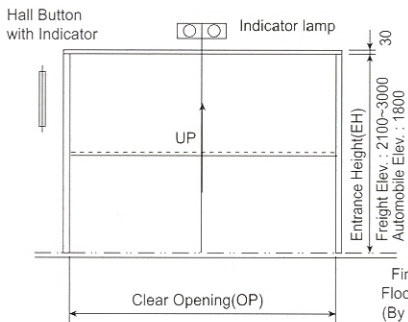
※ The above layout is for left side opening. Right side opening doors are available, if requested.

### Section Entrance

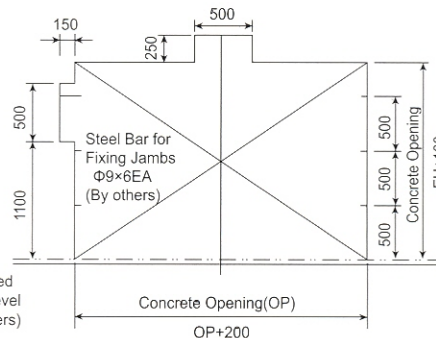


### <2-PANEL UP-SLIDING DOORS (2U)>

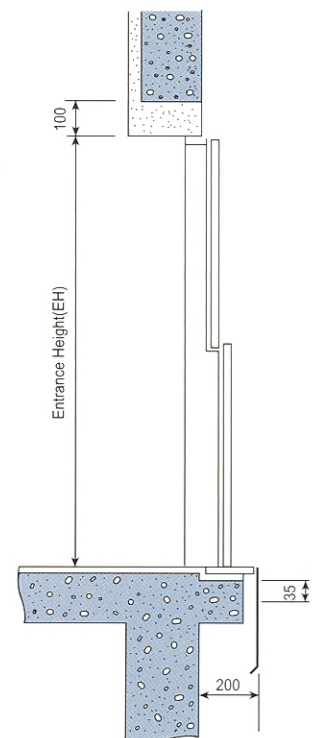
#### Entrance Design



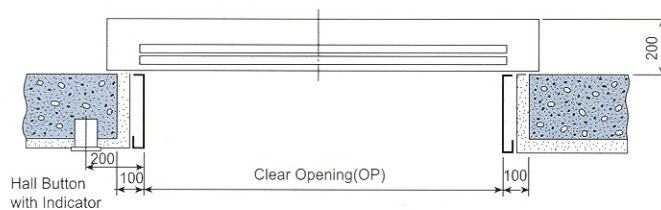
#### Structural Opening of Entrance



#### Section of Entrance



#### Plan of Entrance



Note) The standard location of Hall Button with Indicator for automobile elevators is on left wall but it is on the right wall for freight elevators.

(\* Minimum floor height : Opening Height  $\times 3/2 + 450\text{mm}$   
 \* Minimum entrance height : 1800mm )

## Standard Dimensions & Reactions

(Unit: mm)

Model	Speed (m/min)	Entrance			CAR		Hoistway		M/C Room (MX x MY)	M/C Room Reaction(kg)		Buffer Reaction	
		Door Opening	Width x Height	Entrance Type	Internal	External	X × Y	Overhead (OH)		R1	R2	R3	R4
					CA x C	A x B							
F1000-2S	30	2S	1200 × 2100	Standard	1400 × 1700	1480 × 1900	2300 × 2200	4800	3200 × 3500	8500	5700	7100	6100
	45			Double Entrance		1480 × 2020	2300 × 2320						
	60												
F1500-2S	30	2S	1500 × 2100	Standard	1800 × 1800	1860 × 2000	2700 × 2300	4800	3600 × 4000	10800	7100	9000	7500
	45			Double Entrance		1880 × 2120	2700 × 2430						
	60												
F2000-2SCO	30	2SCO	1600 × 2100	Standard	1900 × 2100	1980 × 2310	2950 × 2600	4800	3800 × 4200	13300	8800	11400	9400
	45			Double Entrance		1980 × 2440	2950 × 2740						
	60												
F2000-2U	30	2 U	1900 × 2100	Standard	1900 × 2100	1980 × 2298	2950 × 2700	4600	3800 × 4200	13300	8800	11400	9400
	45			Double Entrance		1980 × 2416	2950 × 2876						
	60												
F2500-2SCO	30	2S	1700 × 2100	Standard	2100 × 2300	2180 × 2510	3100 × 2800	4800	4000 × 4400	15100	10000	13200	10700
	45			Double Entrance		2180 × 2640	3100 × 2940						
	(60)												
F2500-2U	30	2 U	2100 × 2100	Standard	2100 × 2300	2180 × 2498	3100 × 2900	4600	4000 × 4400	15100	10000	13200	10700
	45			Double Entrance		2180 × 2616	3100 × 3076						
	(60)												
F3000-2SCO	30	2SCO	1800 × 2300	Standard	2300 × 2500	2380 × 2710	3300 × 3000	4800	4200 × 4800	15200	10100	13500	10500
	45			Double Entrance		2380 × 2840	3300 × 3140						
F3000-2U	30	2 U	2300 × 2100	Standard	2300 × 2500	2380 × 2698	3300 × 3100	5000	4300 × 5200	21700	14500	19000	15500
	45			Double Entrance		2380 × 2816	3300 × 3276						
F4000-2SCO	25	2SCO	2000 × 2100	Standard	2500 × 2900	2580 × 3110	3700 × 3400	5300	4500 × 5900	32500	21700	28700	23700
	30			Double Entrance		2580 × 3240	3700 × 3540						
F4000-2U	25	2 U	2500 × 2100	Standard	2500 × 2900	2580 × 3098	3700 × 3500	5500	4700 × 6400	36000	23000	31700	26700
	30			Double Entrance		2580 × 3216	3700 × 3676						

Notes) 1. The loading capacity should be over 250kg/m<sup>2</sup> minimally.

2. The actual reaction may slightly differ from above dimensions in line with machine beam position.

## Building Requirements

(Unit: mm)

Speed (m/min)	Pit (PP)	M/C Room Height (MH)
30, 45	1250	2400
60	1500	2600

Notes) 1. The above are minimum size.

2. Refer to standard dimensions & reactions for overhead height.



## ELECTRIC POWER REQUIREMENTS (BY OTHERS)

### • General Type

50/60Hz, AC 380V

Capacity(kg)	Motor (kW)	N.F.B. Rated Current (A)	Transformer Capacity (kVA)	Power Feeder (mm <sup>2</sup> )	Earth Wire (mm <sup>2</sup> )
1500~4000	5.5	30	12	5.5	5.5
	7.5	30	15	5.5	5.5
	11.0	50	20	8	5.5
	15.0	50	25	14	5.5
	18.5	75	31	22	5.5
	22.0	75	37	22	14
	30.0	100	50	30	14

- Notes) 1. The above power feeder sizes are based on its maximum length 50m. In case the feeder length from the transformer to the elevator machine room exceeds 50m, apply the following formular.
2. The feeder sizes are based on using copper conductors and metallic conduit.
3. For power requirements of 3 cars or more, consult Hyundai.
4. The heat emission and ventilation of machine room on above dimensions may vary slightly with the machine room size and peripheral environment.

$$\text{Feeder Size(mm}^2\text{)} = \frac{\text{Feeder Length(m)}}{50} \times \text{size shown above}$$

## WORKS TO BE DONE BY OTHERS

The following works are not included in the elevator contract, and shall be done by other contractors in accordance with the Hyundai Elevator's drawings and applicable codes and regulations.

### 1. Building Work

#### Hoistway

- Clear plumb hoistway with fire resistant hatch walls as required by the governing code.
- 75°C bevel guards on all projections, recesses or setbacks over 50mm except on side used for loading or unloading.
- Venting of the hoistway as required by the governing code or authority.
- Supports for rail brackets at each floor, roof, and machine room.  
Maximum allowable vertical spacing of rail supports without backing  
Divide beams 100mm between hoistway at each floor and roof for guide rail bracket supports.
- Recess supports and patching as required to accommodate hall button boxes, signal fixtures, etc.
- All barricades either outside elevator hoistways or between elevators inside hoistway as required.
- Dry pit reinforced to sustain normal vertical forces from rails and buffers.  
Consult Hyundai Elevator Company for rail forces and buffer impacts. Where there is space below the pit floor which can be occupied. Consult Hyundai Elevator Company for special requirements.  
Cylinder hole, casings under the pit as required and backfilling around the Cylinder casings when direct plunger type is to be installed.
- Where access to the pit is by means of the lowest hoistway entrance, vertical iron ladder extending 1060mm minimum above sill of access door.
- Entrance walls and finished floor are not to be constructed until after door frames and sills are in place.  
Door frames are to be anchored to walls and properly grouted in place to maintain legal fire rating.

- Sill supports 64mm minimum floor recesses full hoistway width for entrance sills with grouting after sills are set in place.
- For application as indoor or outdoor observation elevator, a minimum 3.6m high glass enclosure above bottom landing is recommended for safety.  
For application as outdoor observation elevator, full height glass enclosure is required.

#### Machine Room

- Enclosed and protected machine room.
- Access to the machine room and machinery space as required by the governing code or authority.
- Reinforce concrete machine room floor slab or grating as specified, which must not be placed over the hoistway until elevator machinery is set in position.
- Hoisting beams, trap doors and other means of access to machine room for maintenance and equipment removal purposes.
- Cable guards in the machine room or secondary level.
- Supports for machine and sheave beams and reactions including wall pockets and patching after beams are set in place.

### 2. Electrical Work

#### Hoistway

- Light outlet for each elevator in center of hoistway (or in machine room) as indicated by Hyundai Elevator Company.
- Convenience outlet and light fixture in pit with switch located adjacent to the access door.
- Wiring and piping work of emergency bell, interphone, etc. outside the hoistway and the machine room.

#### Machine Room

- Lighting, convenience outlets, ventilation, heating of machine room, and machinery space.
- Temperature should be maintained below 40 °C with ventilating fan and/or air conditioner. If necessary, and humidity below 90%.
- A fused disconnect switch or circuit breaker for each elevator and light switch located per the governing code and where practicable located adjacent to the door of the machine room.
- Feeder and branch wiring to the controller, including main-line switch and convenience outlets.
- Suitable power feeder and branch wiring circuits as required for elevators with power operated doors including disconnect switch or circuit breaker.

#### Emergency Provisions

- Elevator fireman's and other emergency services wiring and interconnections to automatic sprinkler systems or heat and smoke sensing devices furnished by others and installed to terminal points on the elevator controllers.
- When emergency power operation of elevators is required the electrical contractor should coordinate with Hyundai Elevator Company or local distributor for operation requirements.
- Elevator fireman's and other emergency service requirements may differ from each country. Consult Hyundai Elevator Company or local distributor for other local requirements.
- When provisions for earthquake protection are required, consult Hyundai Elevator Company for special requirements.

### HEAT EMISSION OF MACHINE ROOM

$$Q : (\text{kcal/H}) = W \times V \times F \times N$$

W: Capacity(kg)      N: Number of cars  
V: Speed(m/min)    F: 1/40~VVVF  
F: Factor



We reserve the right to change designs and specifications  
for the product development without prior notice.

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Freight Elevators & Automobile Elevators  
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