Elevate your Thinking...

Smart technology and state-of-the-art safety systems are changing the concept for elevator. Green technology, considering of the global environment, protects the future of Earth. A world-class, exquisite design increases building value. The i-XEL redefines and raises your standards of elevators.

Contents

Core tech
Smart Technology 04
Green Technology 08
Confidence in Safety 10
Emotional Design 12

Products
Entrance & Car Design 16
Ceilings & Signal Fixtures 22

Specifications
Group Control Operating System 26
Installation Layout Plan & Standard Dimensions 28
Typical Entrance Layouts 30
Since its founding in 1984, Hyundai Elevator has been an industry leader in Korea with innovative technology and a pioneering mindset. The company is becoming a global leader in the elevator industry by taking action in many areas to offer advanced technology, design, safety, and environment-friendliness.

The i·XEL, a high-speed elevator, is an uncommon product of state-of-the-art technology. It increases the value of high-rise buildings beyond your imagination.
We offer optimal performance and efficiency, in addition to maximum use of space, to our customers, and ensure an optimal level of comfort and the best riding experience to passengers. Enjoy the most advanced, distinctive high-speed elevator technologies of the i-XEL by Hyundai Elevator.

01

Distinctive technologies available nowhere else make the i-XEL suitable for VIPs.

First-class riding comfort  The permanent magnetic gearless traction machine was developed by Hyundai Elevator. There is no vibration from the mechanism of gears. You will enjoy a comfortable, smooth riding experience as if you were riding first class.

The best technology for the best building  We have adopted an electric regenerative converter and high-precision control inverter drive system that optimally controls the speed of the electric motor by simultaneously and continually changing the voltage and frequency. This has resulted in the smoothest ride ever and substantially improves energy efficiency, thus enhancing the value of a building.

Advanced technology that considers even the building space  Since the traction machine used for the i-XEL allows for multiple arrangements, it is about 50% smaller and lighter compared to the previous induction motor. The machine occupies little space, thus allowing more space available for renting and other usage.

Smart system that considers both passengers and managers  More convenient services are offered based on state-of-the-art IT convergence technologies, such as the Destination Selecting System(destination floor reservation system), which reduces both wait time and unnecessary elevator operation; an artificial intelligence-based group control system that forecasts use for more efficient operation; and a computer monitoring and remote monitoring system that efficiently controls elevator operation.

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The i·XEL ensures a clean environment and unvaried performance and efficiency.

A green elevator that has substantially lower electricity consumption enabled by energy reduction technologies. The application of a gearless traction machine that uses a permanent magnet ensures 25% lower energy consumption compared to induction motors. Highly energy-efficient lighting fixtures, such as indoor LED lighting, are used, lowering total energy consumption by around 30%.

Green technology of the i·XEL that reuses electricity. Precise, quick motor control technologies enable precise speed control for the smoothest possible riding experience. Using regenerative Hyundai drive, it actually captures energy and feeds it back to the building's power grid. So energy efficiency can be increased by more than 77.5%.

Green process where development and production take place in an environment-friendly setting. By introducing a design and development process and materials that reduce environmental pollution, Hyundai Elevator is developing environment-friendly elevators that satisfy customers in every way. In line with the ‘well-being’ needs of customers, we are reducing the amount of materials used throughout the development and production process, thus taking the lead in environment-friendly technology.
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Unrivaled advantages of the double deck system of Hyundai Elevator

Floor Distance Adjustable Device
There is no restriction on floor distance.

Aerodynamic Capsule
The aerodynamic capsule minimizes air resistance.

Use of lightweight materials allows a smooth riding experience with low noise and vibration.

Refer to the bottom of Page 10 for a detailed explanation of the double deck system.

CONFIDENCE in SAFETY

Comfort is based on safety. The i·XEL features state-of-the-art safety systems including the self-diagnosis system, dual brake system, and door breakaway prevention system to prevent breakdowns.

Furthermore, we are thoroughly researching and verifying product safety and reliability at the test tower, which is equipped with the world’s very best systems.

The test tower, with the world’s best systems, ensures the safety of the i·XEL.

Enhanced safety by a self-diagnosis system
Further improvements were made to the overall system’s reliability by adopting an ultra high-speed microprocessor that controls speed and operation. Multi-protection monitoring functions, including the self-diagnosis function, promise safety 365 days a year.

Dual brake system and multi-safety circuits
We adopted a dual brake system that ensures that when one brake fails, the other brake activates. The fail-safe decess and circuits make the i·XEL safe. It even satisfies EN81, an European elevator standard, to ensure the world’s highest safety.

Safety and durability enabled by the door breakaway prevention system
The door breakaway prevention system that is installed on the top and bottom of the door prevents passengers from falling outside the elevator or into the elevator shaft as a result of breakaway of the door. Safety and reliability have been certified through an impact test by a government-recognized organization. It has been applied in all Hyundai products starting in September 2008.

A double deck system that boosts transport efficiency around two times based on a new dimension of flexibility
Two elevators connected vertically are simultaneously run to offer 1.8 times greater transport capability. Fewer hoistways mean lower construction costs and more available floor space. An extremely strong chain operation system prevents slipperiness. Hyundai double deck system with the floor distance adjusting device provides customers a revolutionary solution to accommodate varying floor height.
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The design of the i-XEL with cutting-edge technology, environment-friendliness, and class, does not involve designing only the limited space of the elevator. The design further upgrades the image of the entire building by adopting an outstanding spatial design that considers the building’s image and functions as well as a superior sense of interior décor.

04

The classiest space in this building is the i-XEL.

High-class design

Entrance design The elevator entrance is an important space that determines one’s impression of a building. The extremely refined design of the i-XEL embodies the sophisticated and modern image of a high-rise building. The design keeps passengers interested while waiting for the elevator and is an uncommon touch of class to the entire building.

Car interior design The interior creates a pleasant feel and is of a spatial design that makes the inside look much more spacious than it actually is. It provides an enjoyable, emotional experience even during the short time passengers are inside.

Detailed design of the ceiling and panel Each and every detail of the interior of the elevator ensures a distinctive sense of satisfaction, ranging from the detailed ceiling design that enables passengers to feel a sense of openness as soon as they enter the elevator to the panel design that ensures easy understanding of information and the buttons that offer a good sense of touch.
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Elevate your Thinking about Products

The i-XEL is more than a simple elevator. It enhances the value of a building. It is an extremely special space that moves the hearts of passengers. The greatest riding comfort that can be offered by a high-speed elevator, energy reduction effects, optimal services, and a high-class design...

The i-XEL will satisfy you beyond your expectations.
ENTRANCE

Landing Door
Bonded Metal (Delta/Bronze)
Ti-Bronze 25 Vibration
High Glossy Coating

Jamb
200 TYPE, Down Light
Ti-Bronze 25 Vibration
High Glossy Coating

Hall Button
Destination Selecting System (Box Type)

Hall Lantern
STS Bead Blast
Hall Mirror Acryl
LED Lighting

CAR DESIGN

Ceiling
Ti-Bronze Bead Blast
LED Indirect Lighting

Car Wall
Marble (BROWN TINO)
3 Form Bear Grass (NIA)
LED Lighting

Car Door
3 Form Bear Grass (NIA)
Ti-Bronze Bead Blast

Operating Swing Panel
Panel
Micro Push Button

Handrail
Ti-Bronze Hairline 1 Pipe

Flooring
Marble (NOTTINGN, BROWN TINO)
ENTRANCE

- Landing Door: STS Bead Blast
- Jamb: Flush Type; STS Bead Blast, LED Lighting (Arrival Announcement System)
- Hall Button: Destination Selecting System (Box Type)
- Hall Lantern: HLS-750, STS Bead Blast, Acryl Lens, LED Lighting

CAR DESIGN

- Ceiling: Barrisol, LED Lighting, STS Mirror 3S Vibration
- Car Wall: Marble (THASSOS), 3 Form Bear Grass (SEA WEED/19T), LED Lighting System, STS Mirror 3S Vibration
- Car Door: STS Mirror 3S Vibration
- Operating Panel: Swing Panel, Micro Push Button
- Handrail: STS Bead Blast, LED Lighting
- Flooring: Marble (THASSOS), STS Hairline (3T)
**ENTRANCE**

- **Landing Door**: Inco-Black Mirror Etching
- **Jamb**: Flush Type, Inco-Black Mirror
- **Hall Button**: 1010 Type Button, Inco-Black Mirror
- **Hall Lantern**: HLS-640
  - Inco-Black Mirror
  - Acrylic Lens, LED Lighting
- **Indicator**: Deluxe Type

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**CAR DESIGN**

- **Ceiling**: Inco-Black Mirror, Wood
  - Barrisol LED Lighting
- **Car Wall**: Wood, Brass Hairline
  - Brass Hairline Trim
- **Car Door**: Inco-Black Mirror Etching (10T)
- **Operating Swing Panel**: Inco-Black Mirror Etching
  - Handwriting Operation Panel
- **Handrail**: Wood Pipe, Ti-Bronze Hairline 1 Pipe
- **Flooring**: Marble (BOTTICINO)
CEILINGS & SIGNAL FIXTURES

Ceiling

1. STS Bead Blast, LED Lighting, Architecture Metal (DALLAS)
2. Ti-Bronze Bead Blast, Ti-Bronze Mirror, Sheet, LED Indirect Lighting
3. Inco-Black Mirror, Wood, Barrisol LED Lighting
4. STS Bead Blast, LED Lighting

Operating Panel

Touch Screen Operating Panel
* The design may change depending on the building.
SIGNAL FIXTURES

Hall Lantern

![Hall Lantern](image)

HLS-640  HLS-720  HLS-750  HLS-760  HLS-770  HLS-780

Hall Button

![Hall Button](image)

HPB-342  HPB-252  HPB-640  HPB-D640  HPB-041  HPB-D041

Indicator

![Indicator](image)

PI-1000  PI-0600  PI-0400

Information Display System

![Information Display System](image)

IDS-01  IDS-02

Button

![Button](image)

40 TYPE  41 TYPE  60 TYPE  80 TYPE

SPECIFICATIONS

Group Control Operating System
Installation Layout Plan & Standard Dimensions
Typical Entrance Layouts
Work to be done by Other Contractors

HPB-342, HPB-252, HPB-640, HPB-D640, HPB-041, HPB-D041: 50 type, 90 type buttons cannot be applied.
GROUP CONTROL OPERATING SYSTEM

The group control operating system is designed to optimize elevator operational efficiency by operating, distributing, and controlling such operation information as location, speed, number of passengers, and registered call numbers for each of the elevators when a hall call occurs. This improves the overall efficiency of elevator operation.

### Basic Functions of Group Control

| Feature | Description | Office | Hotel | Multipurpose
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Artificial Intelligence</td>
<td>Artificial intelligence applying fuzzy logic automatically controls ambiguous changes in complex traffic patterns and always provides the best service.</td>
<td>☑</td>
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</tr>
<tr>
<td>Learning Function</td>
<td>The function informs the elevator usage by day and time and sets operational parameters automatically to improve group control operational performance.</td>
<td>☑</td>
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<td>☑</td>
</tr>
<tr>
<td>Forecast Allocation Method</td>
<td>Optimal car usage is determined by forecasting traffic and evaluating elevator suitability for the car.</td>
<td>☑</td>
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</tr>
<tr>
<td>Minimizing Waiting Time</td>
<td>Calls are allocated to minimize the average waiting time of passengers.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Minimizing Number of Long-Waiting Passengers</td>
<td>When traffic demand is high, this control function minimizes the number of passengers waiting more than 60 seconds.</td>
<td>☑</td>
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</tr>
<tr>
<td>Minimizing Energy Consumption</td>
<td>When there is little traffic, the number of floors the elevator moves to and the number of times the elevator stops can be minimized to reduce energy consumption as much as possible.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Overall Evaluation</td>
<td>The performance of the overall system is improved by evaluating all of the previously registered hall calls as well as the newly registered calls in terms of call allocation.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Multi-purpose Control</td>
<td>Optimal group control is available at all times, since details such as weather and location of the basic control target, traffic density of passengers, and importance of energy consumption are determined automatically depending on traffic status, allowing flexible response to the traffic stream.</td>
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### Operation Functions

| Feature | Description | Office | Hotel | Multipurpose
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<tbody>
<tr>
<td>Rush Hour Service (Up)</td>
<td>During rush hour, elevators under group control will return to the base floor during heavy service.</td>
<td>☑</td>
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</tr>
<tr>
<td>Rush Hour Service (Down)</td>
<td>To minimize the waiting times of passengers going down during rush hour, the down calls are allocated to the nearest elevators.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Peak Traffic Control</td>
<td>Considering other floor services, elevators are allocated to the floors with peak traffic.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Disturbance/Walking/Passenger</td>
<td>Elevators are distributed to other floors with higher demand.</td>
<td>☑</td>
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</tr>
<tr>
<td>Allocation in Priority</td>
<td>Elevators with calls for a certain floor are allocated to that floor as a priority.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Automatic Bypass</td>
<td>A call-into-service bypass will bypass all calls in order to maintain maximum operating efficiency.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Automatic Separation of ascent-descent Elevator</td>
<td>An out-of-order elevator is separated from group control automatically to isolate its effect.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>No Service for Certain Floors</td>
<td>Certain service floors are designated as closed, and elevators do not service such floors.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Drop Call Including (Up/Down)</td>
<td>Elevators for the handicapped are included in group control.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Cut Service</td>
<td>Elevators are cut off from group control and transferred to independent operation by the cut service hall button.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Service Reservation Indication</td>
<td>When you press the hall button, the reserved Service hall lantern turns on to indicate that the service is reserved.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Car Arrival Lantern</td>
<td>The lantern begins flashing 4 or 5 seconds prior to car arrival to alert passengers to the arriving elevator.</td>
<td>☑</td>
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### Services

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<tr>
<td>Independent Operation</td>
<td>Care can be separated from group control and transferred to independent operation by a call.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Program Control Door</td>
<td>Timing can be set to automatic opening/closing of doors according to the call registered.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Repeating Door Operation</td>
<td>The door will remain open and close a specified number of times.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Door Request by Hall Button</td>
<td>When the hall button in the moving direction of the car is pressed when the door is closing, the door will reopen.</td>
<td>☑</td>
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<td>☑</td>
</tr>
<tr>
<td>Parking</td>
<td>The car can be parked at a specified floor at night or on holidays.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Each Floor Stop</td>
<td>The car can be made to stop at each floor up to its arrival at a specified floor for the purpose of crime prevention during the night or on holidays.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Safety Shoe</td>
<td>If the door cannot fully close because of obstructions on the door track, it will repeatedly open and close until the object has been removed.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Call Reserving/Destin Call</td>
<td>Call registration in the reverse direction can be cancelled.</td>
<td>☑</td>
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</tr>
<tr>
<td>Anti-Bounce</td>
<td>Determine the number of people in the car and compare that data to the number of people registered. If the number of calls exceeds the number of people in the car, the car call exceeding the number of passengers is not registered.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Car Call Cancel</td>
<td>When the registered call button is pressed, the car call is cancelled.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Light, Fan Shut-Off</td>
<td>The light and fan in the car are automatically shut off if there is no call registered for a predetermined period of time.</td>
<td>☑</td>
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</tr>
<tr>
<td>Auxillary Car Operating Panel</td>
<td>Even when the car is crowded, calls can be registered easily.</td>
<td>☑</td>
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</tr>
<tr>
<td>Multi-Beam Door Protection</td>
<td>The multi-beam sensor installed in the door senses any obstruction caught in the door causing the door to reopen, or stays open before the door closes such obstruction.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Photo Eye Door Protection</td>
<td>If the safety ray from the beam sensor in the door is interrupted, the door remains in the open position.</td>
<td>☑</td>
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<td>Voice Guidance System</td>
<td>A synthesized voice instructs passengers on current status, including floor number.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Touch Button</td>
<td>Hall or car calls can be registered/held by touching.</td>
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<td>☑</td>
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<td>Information Display System</td>
<td>Information display installed on each floor and/or inside the car shows traffic information and other necessary information.</td>
<td>☑</td>
<td>☑</td>
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</tr>
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<td>EDS (Electronic Display System)</td>
<td>An electronic display shows the elevator number and its status.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Reserving System for Target Floor</td>
<td>The purpose of registration is to automatically select the best service sequence of the elevator car within the system. and the passenger does not need to click the car operating button in the car. It manages the elevator more effectively.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>LCD Touch Screen</td>
<td>The passenger has an LCD touch screen that gives it a refined, modern style.</td>
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### Supervisory Operation

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<td>Performance Monitoring</td>
<td>The operation and performance of the elevator can be monitored in the machine room.</td>
<td>☑</td>
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</tr>
<tr>
<td>Earthquake Service - S wave</td>
<td>When the seismic sensor detects an earthquake, all cars stop at the nearest floors to prevent damage.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Earthquake Service - P wave</td>
<td>When the seismic sensor detects a delicate tremor (P wave) before an earthquake, all cars stop at the nearest floors to prevent damage.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Fire Emergency Service</td>
<td>When a fire breaks out, all cars are immediately called to the specified rescue floor for service.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Firefighting Operation</td>
<td>Elevators can be used by key switches for firefighting.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>Emergency Power</td>
<td>Emergency power is automatically supplied by emergency power to the elevator.</td>
<td>☑</td>
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</tr>
<tr>
<td>Computer Monitoring System (HELMON)</td>
<td>Monitors operation of all elevators in the building and within the apartment complex.</td>
<td>☑</td>
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<td>☑</td>
</tr>
<tr>
<td>Remote Monitoring System (RMS)</td>
<td>Monitors operation of elevators with RMS remotely by telephone line and computer.</td>
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</tbody>
</table>
Standard Dimensions & Reactions (mm; mm)

<table>
<thead>
<tr>
<th>Speed (M/Min)</th>
<th>Overhead (3X)</th>
<th>Top Clearance (TC)</th>
<th>Ph (P99)</th>
<th>N/C Room Height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>180</td>
<td>6000</td>
<td>2300</td>
<td>2700</td>
<td>2500</td>
</tr>
<tr>
<td>210</td>
<td>6000</td>
<td>2700</td>
<td>3200</td>
<td>2600</td>
</tr>
<tr>
<td>240</td>
<td>7100</td>
<td>3350</td>
<td>3850</td>
<td>2800</td>
</tr>
<tr>
<td>300</td>
<td>8000</td>
<td>4000</td>
<td>4200</td>
<td>3000</td>
</tr>
</tbody>
</table>

1. The above table shows minimum figures. Therefore, some allowances should be made considering errors that may occur during construction.
2. Above dimensions are applied in case car height is over 2800 mm. In case car height is over 2800 mm, overhead should be applied above dimension plus additional height.
TYPICAL ENTRANCE LAYOUTS

JP050 Type (Basic)

JP100 Type (Optional)

JP200 Type (Optional)

WORK TO BE DONE BY OTHER CONTRACTORS

(CONDITIONS FOR ESTIMATE)

The following works are not included in the elevator contract, and shall be done by other contractors in accordance with Hyundai Elevator’s drawings and the applicable codes and regulations. The reference rules shown are from Code ANSI.

**Building Work**

- **Hoistway**
  1. Clear, planed back wall with fire-resistant hatch work as required by the applicable code. (Rule 100.1)
  2. 75% level grouts at all projections, recesses, or setbacks over 25mm direct or indirect, and sealed by a qualified concrete contractor as required by the applicable code or responsible authority. (Rule 100.4)
  3. Supportive reinforcing of lintels, lintel and machine room wall. (Rule 100.8)
  4. Supportive reinforcing of lintels, lintel, and machine room wall. (Rule 100.8)
  5. Maximum allowable vertical spacing of rail supports not exceeding 2500mm. (Rule 106.4) Diverter boxes 75mm between hoistway at each floor and for the rail bracket supports. (Rule 106.4, 107, and 301.1)
  6. Recess supports and patching as required to accommodate hall button box, signal fixtures, etc.
  7. All hall buttons either outside elevator hoistways or between inside hoistways as required.
  8. All structural supports for machine and sheave beams and reactions including wall pockets and patching after beams are set in place. (Rule 105.1 to 105.5)

- **Machine Room**
  1. Recesses supports and patching as required to accommodate hall button box, signal fixtures, etc.
  2. 75° bevel guards on all projections, recesses, or setbacks over 75mm. (Rule 301.1)
  3. Venting of the hoistway as required by the applicable code or responsible authority. (Rule 101.3)
  4. Supports for rail brackets at each floor, roof, and machine room. (Rule 200.9)
  5. 150mm encased in floor or grating, as specified, including for maintenance and equipment removal purposes. (Rule 200.6 and 301.2)
  6. Vertical iron ladder extending 1060mm minimum above sill of access door. (Rule 106.1d)
  7. Entrance wall unframed floor are not be constructed until after door frames and sill are in place. Door frames are to be anchored to and properly secured in place so as to maintain legal fire rating. (Rule 106.1d)
  8. For application as indoor or outdoor observation elevator, a glass enclosure of at least 3.5m in height at the bottom landing is recommended for safety. For use as an outdoor observation elevator, a full-height glass enclosure is required. (Rule 200.6 and 301.2)
  9. A fused disconnect switch or circuit breaker for each elevator and light switch located adjacent to the door of the machine room. (Rule 210.5 and 301.4)
  10. For application as indoor or outdoor observation elevator, a full-height glass enclosure is required. (Rule 210.5 and 301.4)
  11. Elevator fireman’s and other emergency service requirements may differ from each country. Consult Hyundai Elevator Company or local distributor for other local requirements.
  12. When provisions for earthquake protection are required, consult Hyundai Elevator Company for special requirements. (Rule 210.5 and 301.4)

- **Hoistway**
  1. Light outlet for each elevator, in center of hoistway far in machine room far as indicated by Hyundai Elevator Company.
  2. Convenience outlet and light fixture in pit with switch located adjacent to the access door. (Rule 106.4)
  3. Generator, control panel, etc. that may be required by the applicable code or responsible authority. (Rule 106.4)
  4. A fused disconnect switch or circuit breaker for each elevator and light switch located adjacent to the door of the machine room. (Rule 210.5 and 301.4)
  5. Machine Room
     - Lighting, convenience outlets, ventilation, heating of machine room, and machinery space. (Rule 101.5)
     - Temperature should be maintained between 40°C by a ventilation fan and/or air conditioner. (For Reference only).
  6. A fused disconnect switch or circuit breaker for each elevator and light switch located adjacent to the door of the machine room. (Rule 210.5 and 301.4)
  7. Feeder and branch wiring to the controller, including main-line switch and convenience outlets.
  8. Suitable power feeder and branch wiring circuits as required for elevators with power-operated doors, including disconnect switch or circuit breaker.

- **Emergency Provisions**
  1. Elevator fireman’s and other emergency services wiring and interconnections to automatic sprinkler systems for heat and smoke warning devices furnished by others and installed at motor room outlets.
  2. A fused disconnect switch or circuit breaker for each elevator and light switch located adjacent to the door of the machine room. (Rule 210.5 and 301.4)

**HEAT EMISSION OF MACHINE ROOM**

- Q: Heat emission of machine room.
- P: Power consumption of motor.
- F: Factor
- V: Speed
- (For Hydraulic Elevator)

<table>
<thead>
<tr>
<th>Power (kW)</th>
<th>Q (kW/m²)</th>
<th>P (kW)</th>
<th>F</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>180</td>
<td>210</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>100</td>
<td>220</td>
<td>220</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>150</td>
<td>230</td>
<td>230</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
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<tr>
<td>250</td>
<td>250</td>
<td>250</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>300</td>
<td>250</td>
<td>250</td>
<td>1.5</td>
<td>1</td>
</tr>
</tbody>
</table>

**Electric Power Requirements (By others)**

<table>
<thead>
<tr>
<th>Power Source</th>
<th>Transformer Capacity (kVA)</th>
<th>Number of Elevators</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>150</td>
<td>150</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
<td>200</td>
<td>1</td>
</tr>
<tr>
<td>250</td>
<td>250</td>
<td>1</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>1</td>
</tr>
</tbody>
</table>

1. The above power sizes are for lengths of electric wire up to 50 meters from the elevator machine room to the transformer.
2. For lengths of 51 meters or more, the following formula should be applied:
   Power feeder (kW) = (Power Source (kVA) / Transformer Capacity (kVA)) x 50
3. A 1.5 factor is applied to the above formula.
4. For AC-Driven elevators, consult Hyundai Elevator.
5. For AC-Driven elevators, consult Hyundai Elevator.
6. Consult Hyundai if you need electric power requirements for 220V.
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