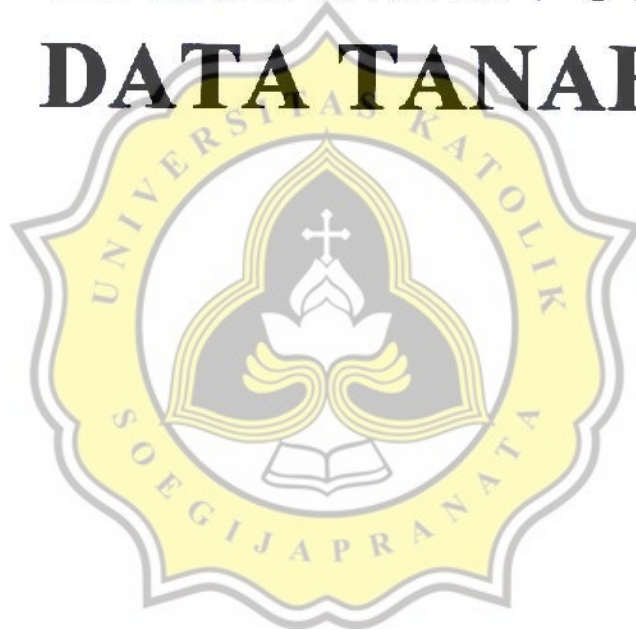


# LAMPIRAN 01

# DATA TANAH



# CONE PENETRATION TEST

Project : RUKO

Location : JL. DR CIPTO 198 - SEMARANG

Test Point : 1

X-coord : 0.000 m

Capacity : 2.5 t

G.W.L : 0.00 m

Test Date : 5 JUNI 2013

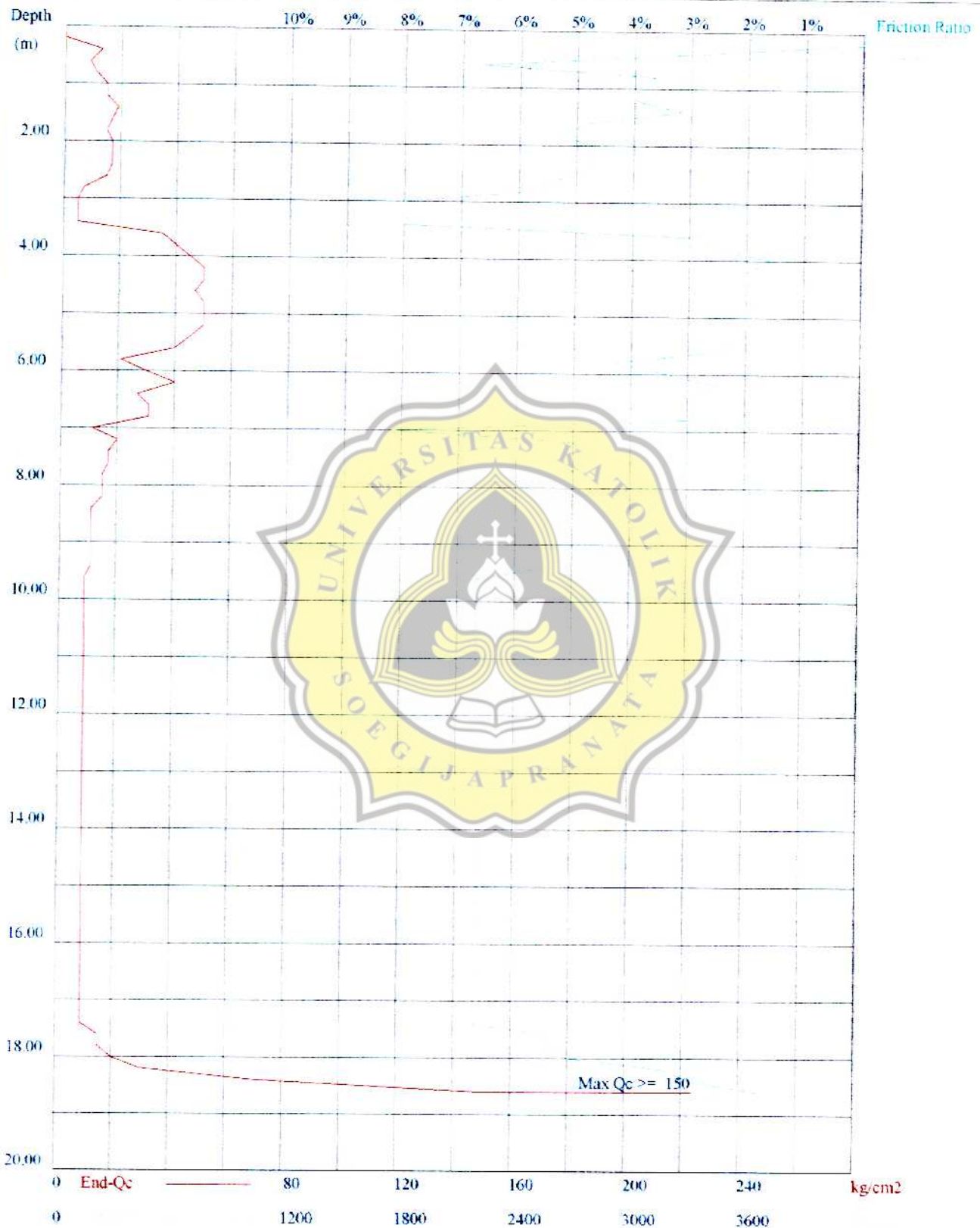
Y-coord : 0.000 m

Depth-H : 18.60 m

Test By : Andi

Z-coord : 0.000 m

Final-Qc : 150.00 kg/cm<sup>2</sup>



CPT V.2.0

Cone Penetration Test

Project : RUKO

Location : JL. DR CIPTO 198 - SEMARANG

Job No : 1

Point : 1

Test No : 1

Test By : Andi

Test Date : 5 JUNI 2013

No.	Depth (m)	R1	R2	LF	LFF	TF	FR
0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
1	0.2	0.00	0.00	0.00	0.00	0.00	0.00
2	0.4	13.00	17.00	0.40	8.00	8.00	3.08
3	0.6	9.00	15.00	0.60	12.00	20.00	6.67
4	0.8	11.00	15.00	0.40	8.00	28.00	3.64
5	1.0	15.00	21.00	0.60	12.00	40.00	4.00
6	1.2	15.00	21.00	0.60	12.00	52.00	4.00
7	1.4	19.00	25.00	0.60	12.00	64.00	3.16
8	1.6	17.00	25.00	0.80	16.00	80.00	4.71
9	1.8	15.00	23.00	0.80	16.00	96.00	5.33
10	2.0	17.00	25.00	0.80	16.00	112.00	4.71
11	2.2	17.00	25.00	0.80	16.00	128.00	4.71
12	2.4	17.00	25.00	0.80	16.00	144.00	4.71
13	2.6	15.00	23.00	0.80	16.00	160.00	5.33
14	2.8	7.00	11.00	0.40	8.00	168.00	5.71
15	3.0	5.00	9.00	0.40	8.00	176.00	8.00
16	3.2	5.00	9.00	0.40	8.00	184.00	8.00
17	3.4	5.00	9.00	0.40	8.00	192.00	8.00
18	3.6	35.00	45.00	1.00	20.00	212.00	2.86
19	3.8	40.00	50.00	1.00	20.00	232.00	2.50
20	4.0	45.00	52.00	0.70	14.00	248.00	1.56
21	4.2	50.00	60.00	1.00	20.00	266.00	2.00
22	4.4	50.00	60.00	1.00	20.00	286.00	2.00
23	4.6	47.00	55.00	0.80	16.00	302.00	1.70
24	4.8	50.00	60.00	1.00	20.00	322.00	2.00
25	5.0	50.00	60.00	1.00	20.00	342.00	2.00
26	5.2	50.00	60.00	1.00	20.00	362.00	2.00
27	5.4	45.00	55.00	1.00	20.00	382.00	2.22
28	5.6	40.00	50.00	1.00	20.00	402.00	2.50
29	5.8	21.00	30.00	0.90	18.00	420.00	4.29
30	6.0	30.00	40.00	1.00	20.00	440.00	3.33
31	6.2	40.00	50.00	1.00	20.00	460.00	2.50
32	6.4	27.00	35.00	0.80	16.00	476.00	2.96
33	6.6	31.00	40.00	0.90	18.00	494.00	2.90
34	6.8	31.00	40.00	0.90	18.00	512.00	2.90
35	7.0	11.00	20.00	0.90	18.00	530.00	8.18
36	7.2	20.00	30.00	1.00	20.00	550.00	5.00
37	7.4	17.00	25.00	0.80	16.00	566.00	4.71
38	7.6	17.00	25.00	0.80	16.00	582.00	4.71
39	7.8	15.00	23.00	0.80	16.00	598.00	5.33
40	8.0	15.00	23.00	0.80	16.00	614.00	5.33
41	8.2	15.00	23.00	0.80	16.00	630.00	5.33
42	8.4	11.00	17.00	0.60	12.00	642.00	5.45

43	8.6	11.00	17.00	0.60	12.00	654.00	5.45
44	8.8	11.00	17.00	0.60	12.00	666.00	5.45
45	9.0	11.00	17.00	0.60	12.00	678.00	5.45
46	9.2	11.00	17.00	0.60	12.00	690.00	5.45
47	9.4	11.00	17.00	0.60	12.00	702.00	5.45
48	9.6	9.00	15.00	0.60	12.00	714.00	6.67
49	9.8	9.00	15.00	0.60	12.00	726.00	6.67
50	10.0	9.00	15.00	0.60	12.00	738.00	6.67
51	10.2	9.00	15.00	0.60	12.00	750.00	6.67
52	10.4	9.00	15.00	0.60	12.00	762.00	6.67
53	10.6	9.00	15.00	0.60	12.00	774.00	6.67
54	10.8	9.00	15.00	0.60	12.00	786.00	6.67
55	11.0	9.00	15.00	0.60	12.00	798.00	6.67
56	11.2	9.00	15.00	0.60	12.00	810.00	6.67
57	11.4	9.00	15.00	0.60	12.00	822.00	6.67
58	11.6	9.00	15.00	0.60	12.00	834.00	6.67
59	11.8	9.00	15.00	0.60	12.00	846.00	6.67
60	12.0	9.00	15.00	0.60	12.00	858.00	6.67
61	12.2	9.00	15.00	0.60	12.00	870.00	6.67
62	12.4	9.00	15.00	0.60	12.00	882.00	6.67
63	12.6	9.00	15.00	0.60	12.00	894.00	6.67
64	12.8	9.00	15.00	0.60	12.00	906.00	6.67
65	13.0	9.00	15.00	0.60	12.00	918.00	6.67
66	13.2	9.00	15.00	0.60	12.00	930.00	6.67
67	13.4	9.00	15.00	0.60	12.00	942.00	6.67
68	13.6	9.00	15.00	0.60	12.00	954.00	6.67
69	13.8	9.00	15.00	0.60	12.00	966.00	6.67
70	14.0	9.00	15.00	0.60	12.00	978.00	6.67
71	14.2	9.00	15.00	0.60	12.00	990.00	6.67
72	14.4	9.00	15.00	0.60	12.00	1002.00	6.67
73	14.6	9.00	15.00	0.60	12.00	1014.00	6.67
74	14.8	9.00	15.00	0.60	12.00	1026.00	6.67
75	15.0	9.00	15.00	0.60	12.00	1038.00	6.67
76	15.2	9.00	15.00	0.60	12.00	1050.00	6.67
77	15.4	9.00	15.00	0.60	12.00	1062.00	6.67
78	15.6	9.00	15.00	0.60	12.00	1074.00	6.67
79	15.8	9.00	15.00	0.60	12.00	1086.00	6.67
80	16.0	9.00	15.00	0.60	12.00	1098.00	6.67
81	16.2	9.00	15.00	0.60	12.00	1110.00	6.67
82	16.4	9.00	15.00	0.60	12.00	1122.00	6.67
83	16.6	9.00	15.00	0.60	12.00	1134.00	6.67
84	16.8	9.00	15.00	0.60	12.00	1146.00	6.67
85	17.0	9.00	15.00	0.60	12.00	1158.00	6.67
86	17.2	9.00	15.00	0.60	12.00	1170.00	6.67
87	17.4	9.00	15.00	0.60	12.00	1182.00	6.67
88	17.6	15.00	23.00	0.80	16.00	1198.00	5.33
89	17.8	15.00	23.00	0.80	16.00	1214.00	5.33
90	18.0	20.00	30.00	1.00	20.00	1234.00	5.00
91	18.2	30.00	40.00	1.00	20.00	1254.00	3.33
92	18.4	70.00	90.00	2.00	40.00	1294.00	2.86
93	18.6	150.00	175.00	2.50	50.00	1344.00	1.67

## Laporan Penyelidikan Tanah

### **RUKO**

### **JL. DR CIPTO NO 198 - SEMARANG**

#### **A. Pendahuluan**

Penyelidikan tanah merupakan langkah awal dalam merencanakan suatu konstruksi bangunan. Pondasi merupakan konstruksi bangunan yang berfungsi untuk menopang beban – beban bangunan di atasnya.

#### **B. Lingkup Penyelidikan Tanah**

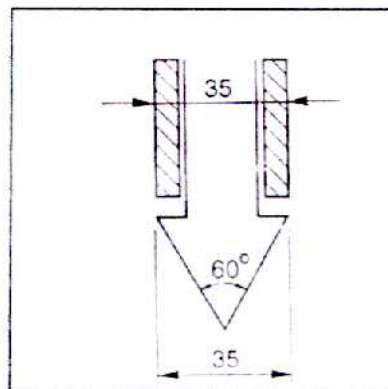
Lingkup penyelidikan tanah yang kami lakukan dengan menggunakan :

- a. CPT (Cone Penetration Test) atau dikenal dengan Sondir dengan kapasitas 2.5 ton, dengan jumlah titik sondir yang kami selidiki berjumlah 3 titik .
- b. Pengamatan ketinggian muka air tanah

#### **C. Prosedure Penyelidikan Tanah**

CPT/sondir pertama kali dipakai 1917 oleh dan dipopulerkan pada tahun 1932 di Nederland. CPT disebut pula DCP = Dutch Cone Penetration Test. Diperkenalkan secara luas oleh Sanglerat (1972), dan Broms – Flodin (1932).

Uji sondir, pengujian sondir termasuk in situ testing. Insitu Testing= Uji Langsung/investigasi di lapangan dan mendapatkan hasil uji saat itu juga. Rangkaian pipa yang ujungnya terdapat conus. Rangkaian pipa dengan rod baja didalamnya yang menekan conus ke dalam tanah yang dibaca sebagai bacaan tahan ujung conus / conus resistance ( $q_c$ ) dan gerakan selimut pipa baja dibaca sebagai tahanan selimut / sleeve friction ( $f_s$ ).



Gambar 1 : Potongan Pipa dan Rod Sondir

**D. Tujuan Penyelidikan Tanah**

Penyelidikan tanah yang kami lakukan ini merupakan bagian dari perencanaan RUKO.

**E. Lokasi Pengujian**

JL DR CIPTO 198 - SEMARANG.

Denah titik uji sondir dapat dilihat pada printout grafik sondir .

**F. Kondisi Lapangan**

Lokasi penyelidikan tanah adalah datar, ada bangunan lama .

Bagian depan adalah JL. DR CIPTO, bagian belakang berbatasan bangunan sarana olah raga bulutangkis , Bagian kanan adalah Bangunan gedung bulutangkis dan rumah tinggal.dan sebelah kiri merupakan bangunan rumah tinggal

### G. Hasil Penyelidikan Tanah di Lapangan Dengan Sondir

Asumsi permukaan tanah tiap titik sondir adalah  $\pm 0.00$  m,

Dari 3 titik sondir, 1 titik sondir hingga kedalaman  $\pm 20$  m tidak terdapat tanah keras dan 2 titik dapat mencapai tanah keras, daya dukung tanah ke 3 titik sondir dapat kami gambarkan sebagai berikut :

Kedalaman  $\pm 0,00$  hingga  $- 1.00$  m mempunyai  $q_c = 11$  kg/cm.

Kedalaman  $- 1.00$  hingga  $-4,00$  m mempunyai  $q_c = 15$ kg/cm. .

Kedalaman  $-4.00$  m hingga  $- 7.00$  m mempunyai  $q_c = 40$  kg/cm.

Kedalaman  $-7.00$  m hingga  $10.00$  m mempunyai  $q_c = 15$  kg/cm.

Kedalaman  $-10.00$  m hingga  $18.00$  m mempunyai  $q_c = 9$ kg/cm

Setelah  $- 18.,00$  m hingga  $- 20,00$  m nilai  $q_c$  rata-rata =  $30$  kg/cm.

### H. Rekomendasi

Setelah mempertimbangkan lokasi dan kondisi tanah, maka kami merekomendasikan pondasi dangkal :

#### Alternatif 1 :

Pondasi mini pile ukuran  $\Delta 28 \times 28 \times 28$  dengan kedalaman 18 meter, dengan beban ijin ( $P_{ijin}$ ) berkisar 20 ton

Atau Mini pile ukuran  $\Delta 32 \times 32 \times 32$  dengan kedalaman 18 meter, dengan beban ijin ( $P_{ijin}$ ) berkisar  $\pm 25$  ton

#### Alternatif 2 :

Untuk beban-beban yang lebih besar dari 50 ton perlu dipertimbangkan dengan tiang pancang  $\phi 30$  atau  $\phi 40$  dengan kedalaman lebih dari 18 m.

#### Alternatif 3 :

Pondasi dangkal dengan kedalaman berkisar  $-2.00$  meter.

**Alternatif 2 :**

Untuk beban-beban yang lebih besar dari 50 ton perlu dipertimbangkan dengan tiang pancang  $\phi$  30 atau  $\phi$  40 dengan kedalaman lebih dari 18 m.

**Alternatif 3 :**

Pondasi dangkal dengan kedalaman berkisar -2.00 meter.

Pondasi telapak atau pondasi lanjur ukuran (2 m x 2 m) , *bearing capacity ultimate* (daya dukung ultimate =  $q_u$ ) yang disarankan berkisar = 0,7 kg/cm<sup>2</sup> atau beban ijin ( $Q_a$ ) = 7 ton

Untuk safety factor (SF) = 2

**I. Penutup**

Demikianlah laporan hasil penyelidikan tanah untuk bangunan RUKO 4 LANTAI JL. DR CIPTO NO 198 - Semarang. Semoga laporan ini dapat bermanfaat dalam mendirikan bangunan, dan bila ada alternatif jenis pondasi lain yang akan digunakan, data hasil penyelidikan tanah ini dapat dipakai dalam perencanaan.

Atas kepercayaan yang telah diberikan dan kerjasamanya ,kami mengucapkan terima kasih.

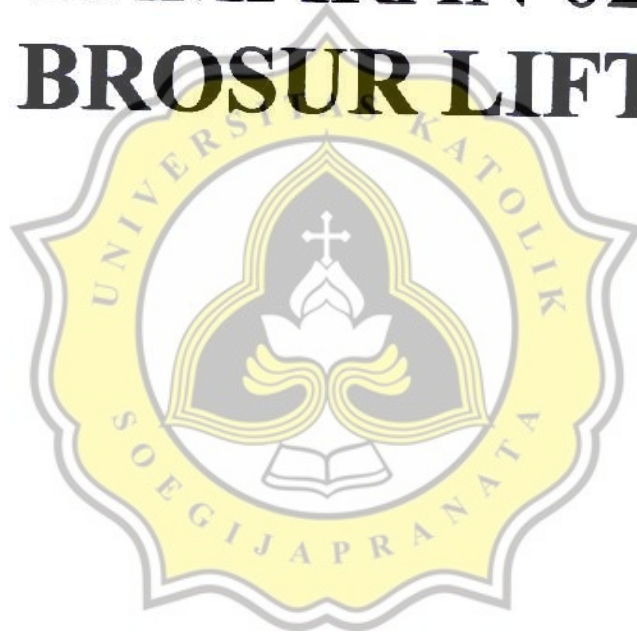
Semarang, 10 JUNI 2013

IR. Budi Setiyadi , MT  
Ka. Lab. Mekanika Tanah



# LAMPIRAN 02

# **BROSUR LIFT**





## HYUNDAI ELEVATOR CO., LTD.

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[www.hyundaielevator.com](http://www.hyundaielevator.com)

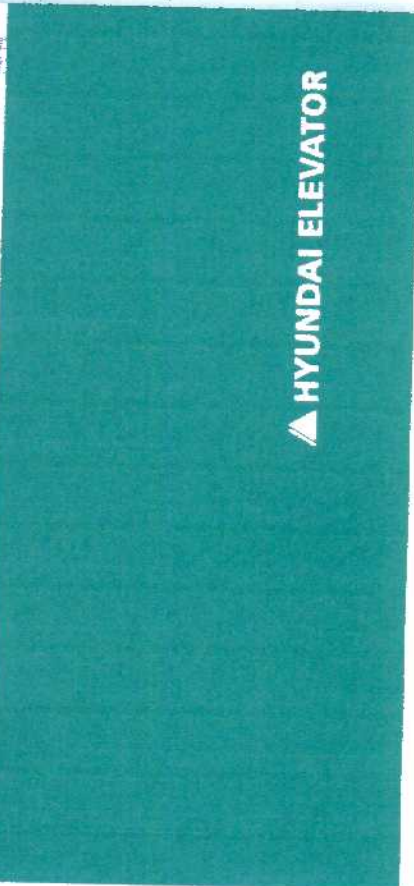
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Branch	Tel.	Fax	Branch	Tel.	Fax	Branch	Tel.	Fax
Algeria	21 23 91 85 13 13	21 23 11 86 50 50	China	91 91 51 25 15 33 33	91 91 51 25 15 33 33	France	33 1 1 44 74 80 80	33 1 1 44 74 80 80
Andhra Pradesh	91 91 51 25 15 33 33	91 91 51 25 15 33 33	Germany	49 30 23 28 30 00	49 30 23 28 30 00	India	91 91 51 25 15 33 33	91 91 51 25 15 33 33
Antwerp	32 3 32 32 32 32	32 3 32 32 32 32	Italy	39 02 93 32 32 32	39 02 93 32 32 32	Indonesia	62 21 42 42 42	62 21 42 42 42
Armenia	374 10 52 52 52	374 10 52 52 52	Japan	81 3 3 3 3 3	81 3 3 3 3 3	Iran	98 21 42 42 42	98 21 42 42 42
Australia	61 8 8 8 8 8	61 8 8 8 8 8	Kenya	254 20 20 20 20	254 20 20 20 20	Korea	82 2 2 2 2 2	82 2 2 2 2 2
Austria	43 1 1 1 1 1	43 1 1 1 1 1	Malaysia	60 3 3 3 3 3	60 3 3 3 3 3	Latvia	371 7 7 7 7 7	371 7 7 7 7 7
Bahrain	973 3 3 3 3 3	973 3 3 3 3 3	Mexico	52 5 5 5 5 5	52 5 5 5 5 5	Lithuania	370 7 7 7 7 7	370 7 7 7 7 7
Bangladesh	880 2 2 2 2 2	880 2 2 2 2 2	Netherlands	31 20 20 20 20	31 20 20 20 20	Luxembourg	352 2 2 2 2 2	352 2 2 2 2 2
Barbados	1 246 246 246	1 246 246 246	Nigeria	234 1 1 1 1 1	234 1 1 1 1 1	Maldives	960 7 7 7 7 7	960 7 7 7 7 7
Belgium	32 2 2 2 2 2	32 2 2 2 2 2	Poland	48 22 22 22 22	48 22 22 22 22	Moldova	373 2 2 2 2 2	373 2 2 2 2 2
Brazil	55 11 11 11 11	55 11 11 11 11	Romania	40 21 21 21 21	40 21 21 21 21	Monaco	377 3 3 3 3 3	377 3 3 3 3 3
Bulgaria	359 2 2 2 2 2	359 2 2 2 2 2	Russia	7 495 495 495	7 495 495 495	Norway	47 22 22 22 22	47 22 22 22 22
Canada	1 416 416 416	1 416 416 416	Saudi Arabia	966 1 1 1 1 1	966 1 1 1 1 1	Poland	48 22 22 22 22	48 22 22 22 22
Chile	56 2 2 2 2 2	56 2 2 2 2 2	Senegal	221 1 1 1 1 1	221 1 1 1 1 1	Portugal	351 21 21 21 21	351 21 21 21 21
China	86 10 10 10 10	86 10 10 10 10	Singapore	65 65 65 65 65	65 65 65 65 65	Romania	40 21 21 21 21	40 21 21 21 21
Colombia	57 3 3 3 3 3	57 3 3 3 3 3	Slovakia	421 2 2 2 2 2	421 2 2 2 2 2	Russia	7 495 495 495	7 495 495 495
Czech Republic	420 2 2 2 2 2	420 2 2 2 2 2	Slovenia	386 1 1 1 1 1	386 1 1 1 1 1	Saudi Arabia	966 1 1 1 1 1	966 1 1 1 1 1
Denmark	45 33 33 33 33	45 33 33 33 33	Spain	34 91 91 91 91	34 91 91 91 91	Serbia	381 11 11 11 11	381 11 11 11 11
Egypt	20 2 2 2 2 2	20 2 2 2 2 2	Sweden	46 8 8 8 8 8	46 8 8 8 8 8	Sri Lanka	94 11 11 11 11	94 11 11 11 11
France	33 1 1 1 1 1	33 1 1 1 1 1	Switzerland	41 41 41 41 41	41 41 41 41 41	Sudan	249 1 1 1 1 1	249 1 1 1 1 1
Germany	49 30 30 30 30	49 30 30 30 30	Taiwan	886 2 2 2 2 2	886 2 2 2 2 2	Switzerland	41 41 41 41 41	41 41 41 41 41
Ghana	233 30 30 30 30	233 30 30 30 30	Thailand	66 2 2 2 2 2	66 2 2 2 2 2	Turkey	90 31 31 31 31	90 31 31 31 31
Greece	30 21 21 21 21	30 21 21 21 21	Tanzania	255 22 22 22 22	255 22 22 22 22	Ukraine	380 9 9 9 9 9	380 9 9 9 9 9
Hong Kong	852 2 2 2 2 2	852 2 2 2 2 2	Togo	228 1 1 1 1 1	228 1 1 1 1 1	USA	1 800 800 800	1 800 800 800
India	91 91 51 25 15 33 33	91 91 51 25 15 33 33	Turkey	90 31 31 31 31	90 31 31 31 31	Vietnam	84 24 24 24 24	84 24 24 24 24
Indonesia	62 21 42 42 42	62 21 42 42 42	Ukraine	380 9 9 9 9 9	380 9 9 9 9 9	Zimbabwe	263 4 4 4 4 4	263 4 4 4 4 4
Italy	39 02 93 32 32 32	39 02 93 32 32 32						

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### Trusted quality

We export products to 50 countries like Japan, Europe, East / West Asia, the Middle East and are recognized for excellence in quality.

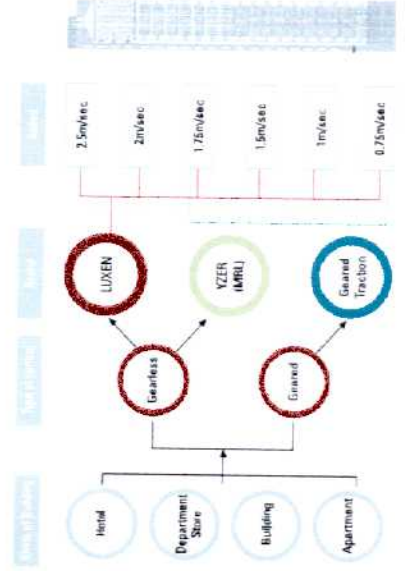
### Refined design

Refined design to give consideration to health and the environment adds new value to the elevator.

### Selection of passenger elevator system?

The selection of elevators should be made in consideration of the building type/scale, tenant characteristics, elevator usage and the average passenger carrying capacity at the building's traffic peak time.

Hyundai elevators are available from geared traction elevator to gearless traction elevators, covering the full range of vertical transportation requirements.



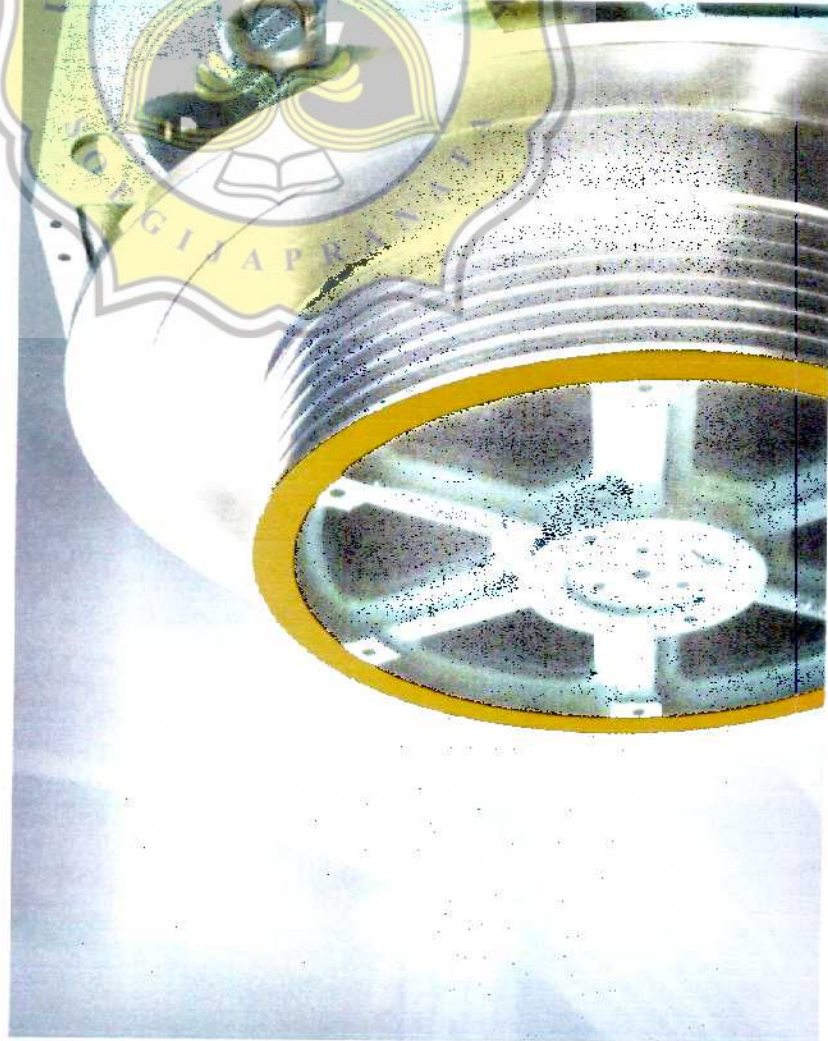
### Contents

- 05 Advanced Technology for the Traction Facility - / Use of Proprietary Dynamic Bearing - / The Use of Triplicated Systems -
- 07 The Single Brand / ISO 9001 - / ISO 14001 - / Green Building - /
- 08 Energy Car Drives - / Geared Drives - / Gearless Drives - / Motorless Drives - / Eco-friendly Drives - / Eco-friendly Drives - /
- 09 Support for - / Global Business - / Global Business - / Global Business - / Global Business - / Global Business - /



## Gearless Traction Machine

With the use of gearless traction machine, smoother ride, improved energy-saving, and environment-friendly features are enhanced.



### Improved energy savings

Gearless traction machine with permanent magnet synchronous motor provides up to 25% energy savings compared with geared traction machine with induction motors.

### Comfortable riding

Noise and vibration level have been decreased dramatically and car ride is improved thanks to the use of gearless traction machine with permanent magnet synchronous motor without toothing, gear and rope swing.

### Environment-friendly components

It is environmentally friendly because gear oil is not required.

### Reduced installation space

It can save the building space as it needs smaller machine room space than the conventional.

### Easy installation and maintenance

The installation and maintenance is less complicated as the implementation is the same 1:1 roping for induction motor.

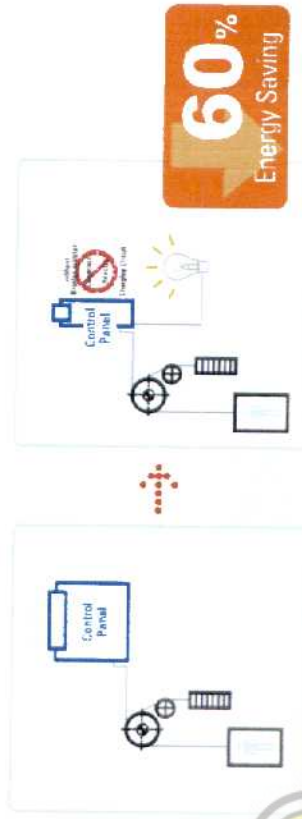
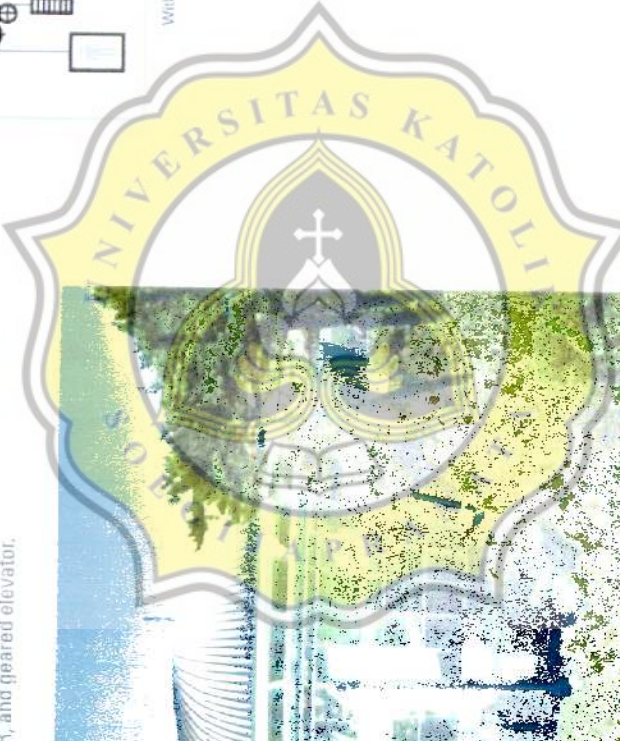




## LOWATT (Energy Regenerative Elevator Inverter)

Lejap, Juli-03-33.com/kyar\*

LOWATT, next generation elevator inverter system, minimizes energy consumption by regenerating wasted kinetic energy with newly designed power circuit. It is applicable for low-medium speed gearless elevator LUXEN, machine roomless elevator YZER, and geared elevator.



### + Up to 60% energy savings

The energy generated by the motion of the car is recycled back to the inverter, resulting a 60% total energy consumption.

### + Reduced heat emission

The heat emission of the motor has been drastically reduced as the energy generated from operating the elevator is recycled.

### + Easy maintenance

The inverter doesn't have condensers, reactors, resistant parts so it is easy to maintain and repair.

LOWATT Energy Regenerative Elevator Inverter (LOWATT) is optional.  
 \* In Dec. 2012, the Ministry of Science and Technology certified the M-Drive Excellent Technology for the cable-driven traction control drive inverter.



1. HELIAS (Destination Selecting System)

## HELIAS (Destination Selecting System)

The purpose of registration is to automatically select the best service of the elevator car within the system and the passenger does not need to click the car operating button in car. HELIAS (Destination Selecting System) manages elevator more effectively.



### Shorter waiting time

It saves calling time and riding time as it selects the proper elevator for effective service.

### Improving efficiency in energy usage

By grouping passengers having the same target floor to the same elevator, it will save energy and increase system efficiency.

### Security and Convenience

Use of Building Access Cards to work with the elevator call button and the user ID in the Building Access Cards will automatically register a call to provide convenience to residents, as well as preventing any non-authorized outsider gain access to the building.

### A variety of contents in real time

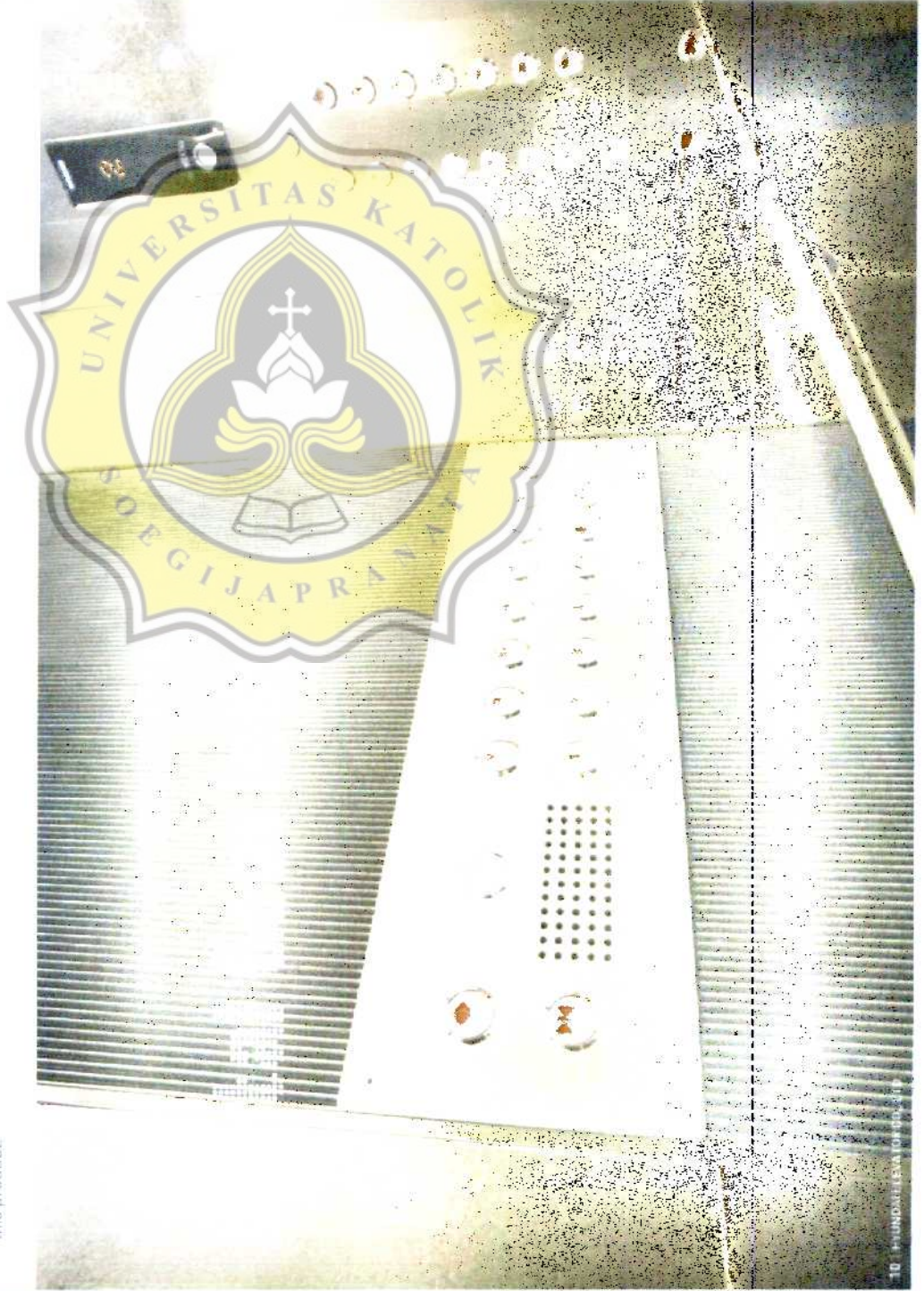
This system can be applied to existing systems and this feature will provide a touch screen and LCD display inside the car, so passengers can get internet-based information such as car operation, weather, stock price, index trends, and real-time heading news.



ELEVATOR

## LUXEN (Medium speed gearless traction elevators)

A high-tech gearless traction machine which was used mainly in high-speed elevator is used for this product.



### LUXEN

#### Excellent car ride

The LUXEN, using the gearless machine, provides a smooth and noiseless ride.

#### Increased energy efficiency

Gearless traction machine with permanent magnet synchronous motor application and energy recycling Inverters(LOWATT) will increase energy efficiency.

#### Spacious car interior

The car is more spacious and more comfortable compared with existing product design which has low ceiling height.

#### Eco-friendly product

This is an environment-friendly products. It does not need to replace the gear oil regularly.



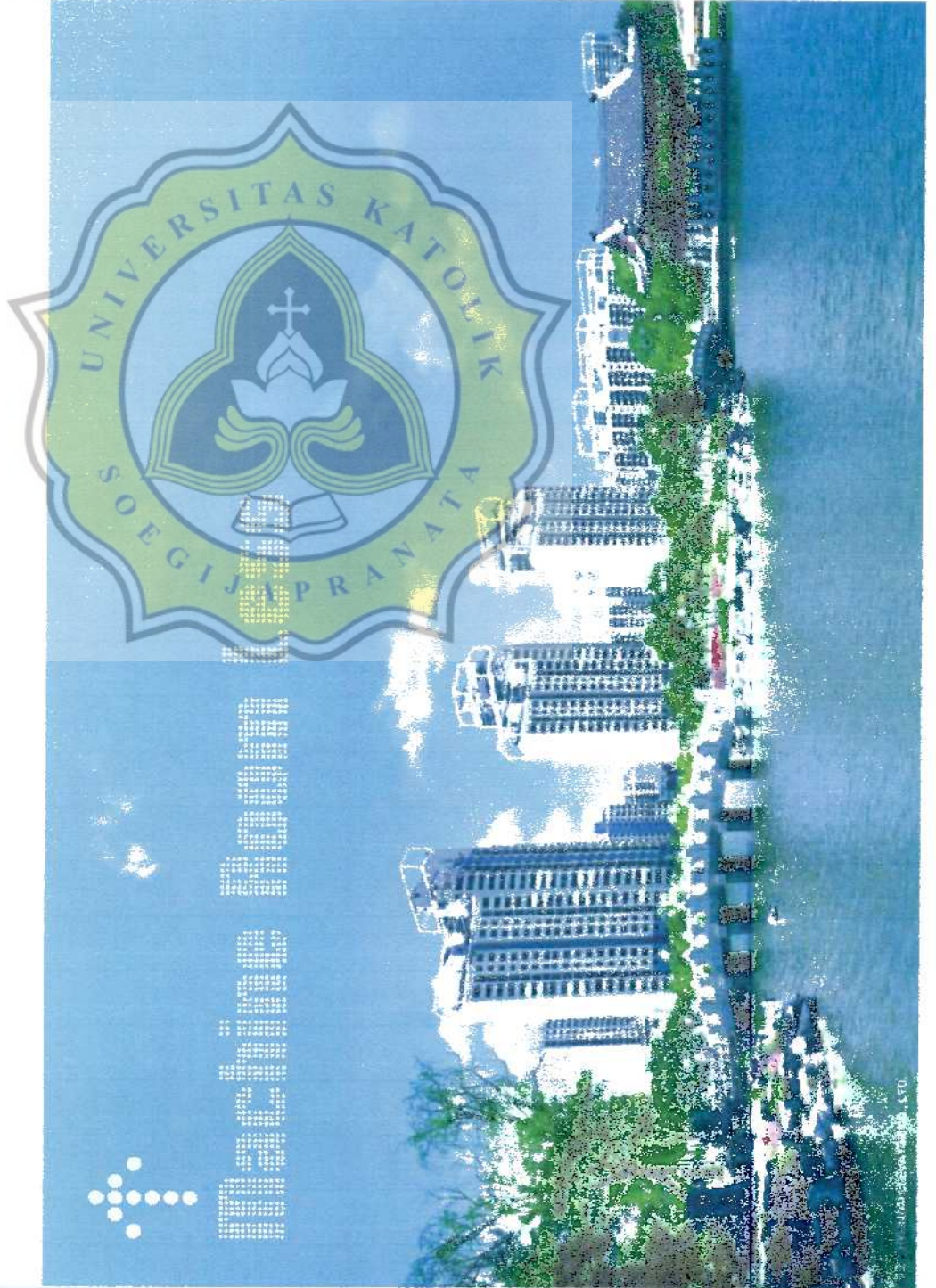


## YZER (Machine-room-less elevators)

An innovative elevator which does not require a separate machine room.



# Machine Room



# YZER

### High space efficiency

The thinner control panel and compact gearless traction machine eliminate the need for a separate machine room because the system is so compact it can be located at any floor or on hoistway wall.

### More flexible architectural design

The building roof line can be enhanced due to the elimination of the conventional penthouse type machine room. It enables a free layout of hoistway position as the machine room is not necessary.

### Reduction of building cost

Expenses for the construction of machine room as well as the completion time of building work can be reduced as the machine room is not necessary.

### Compact gearless traction machine

By using gearless traction machine with permanent magnet synchronous motor, it provides smoother ride, improved energy-saving, and environment friendly features.





## Geared Traction Elevators

The highest efficiency is achieved through the optimal combination of voltage and frequency, the latest and most advanced VVVF technology of electric power supply to the induction motor.



**Extremely smooth riding comfort & accurate landing**  
 Using computer control for acceleration and deceleration the riding comfort is improved

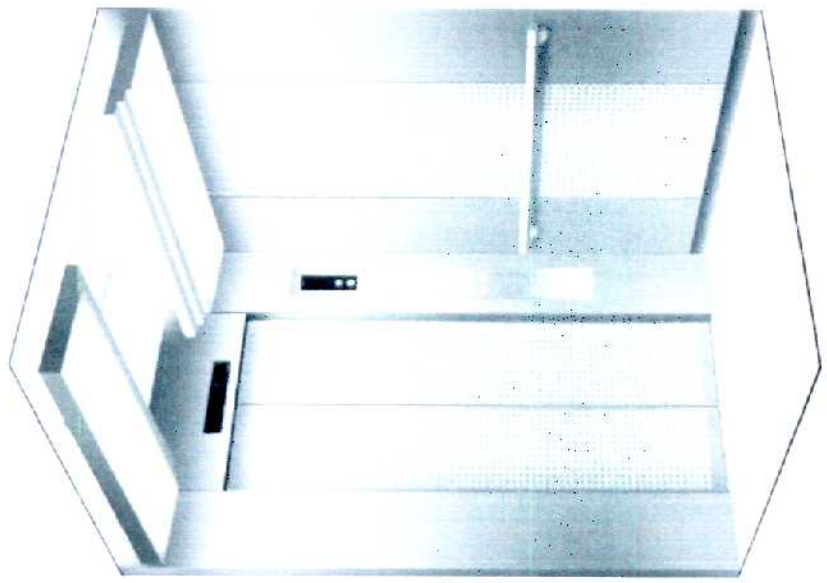
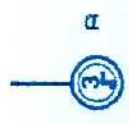
**Enhanced safety**

The self-checking system as part of the software/hardware design built-in the elevator and drive control system greatly improve safety of the elevator operation.

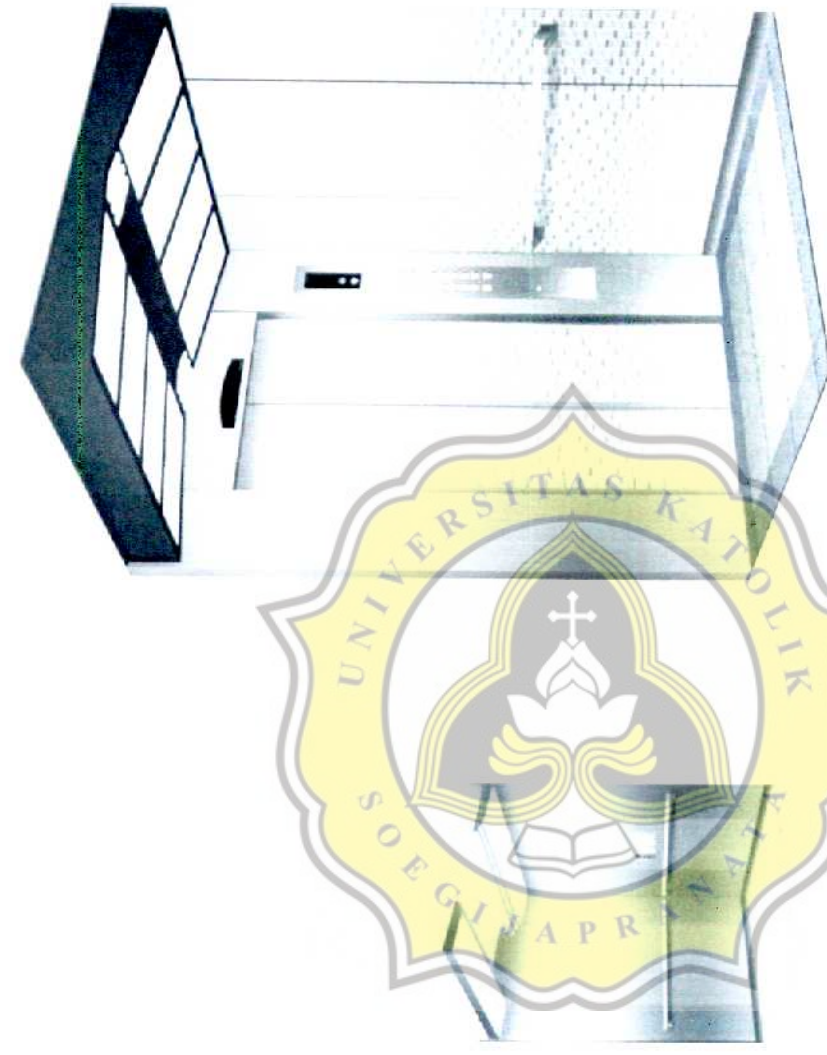
**Compact design**

Minimized control panel enables to reduce installation costs.





| FRONT VIEW |



| REAR VIEW |



| FRONT VIEW |



| REAR VIEW |



| CAGE DESIGN |

<b>Ceiling</b>	CD58/A, Painted Steel (P021), Skylite 10T, Indirect Lighting
<b>Wall</b>	Hardline-Finished Stainless Steel, Hardline Etched Stainless Steel (SE1172)
<b>Car Doors</b>	Hardline Etched Stainless Steel (SE1172)
<b>Operating Panel</b>	OPP-NZ31B/OPP-NZ41W (Hardline-Finished Stainless Steel)
<b>Indicator</b>	PI-D11D
<b>Handrail</b>	Stainless Steel 1 Pipe / Polished (1B)
<b>Flooring</b>	Sense Tile (TM/402C)

**Note**

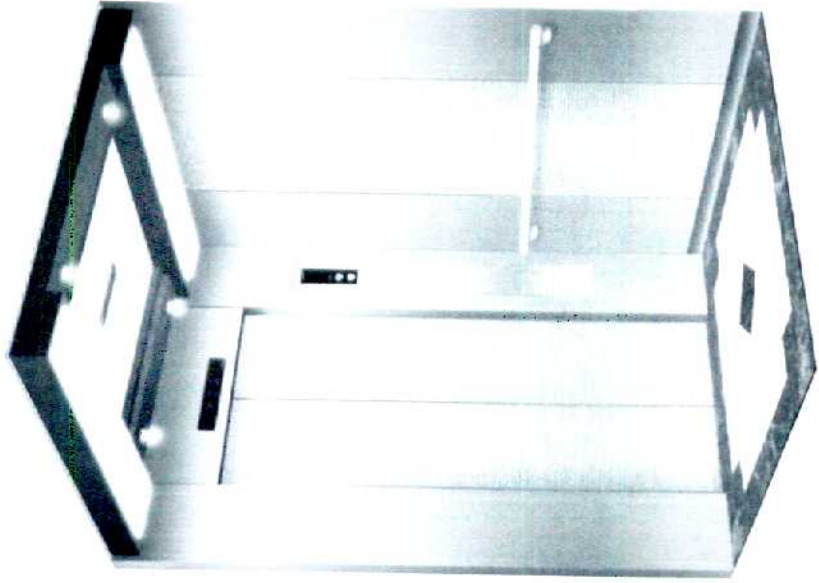
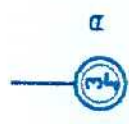
1. Etched finishes may vary slightly from these prints.
2. The price will vary depending on the customer's specifications.
3. The light may vary depending on the capacity.

| CAGE DESIGN |

<b>Ceiling</b>	CD451B, Acryl, Acryl Lense, Painted Steel (P022)
<b>Wall</b>	Hardline Etched Stainless Steel (SE1109)
<b>Car Doors</b>	Hardline Etched Stainless Steel (SE1189)
<b>Operating Panel</b>	OPP-NZ42B
<b>Indicator</b>	PI-D600
<b>Handrail</b>	Stainless Steel 1 Pipe (1A)
<b>Flooring</b>	Polyvinyl Tile (TN/401C, TN/405C)

**Note**

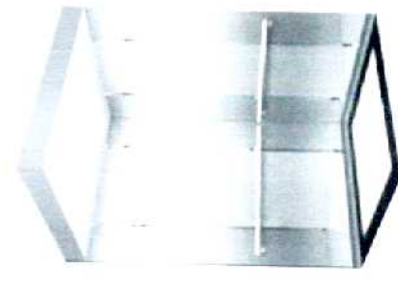
1. Etched finishes may vary slightly from these prints.
2. The price will vary depending on the customer's specifications.
3. The light may vary depending on the capacity.



| FRONT VIEW |



| FRONT VIEW |



| REAR VIEW |



| CAGE DESIGN |

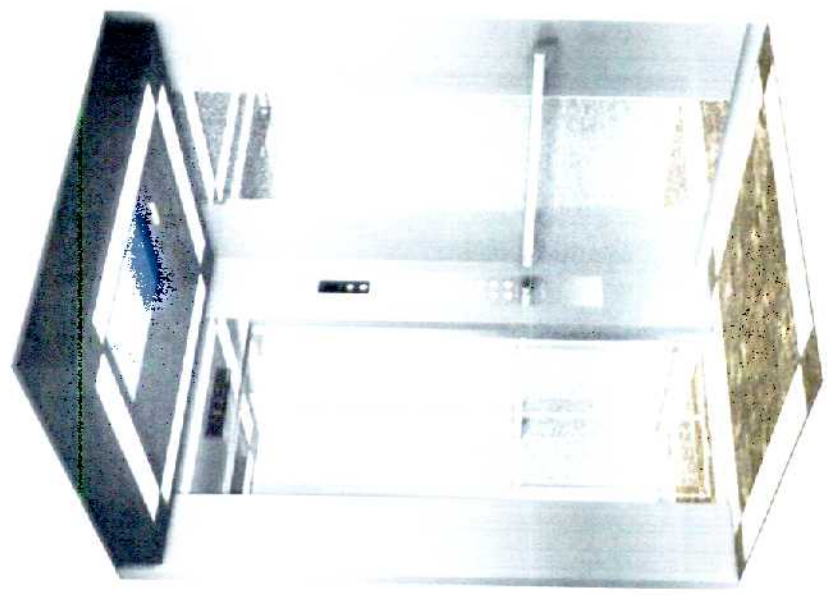
<b>Ceiling</b>	CI255/A Painted Steel (PO21, PO22), Skyline 101 LED Down Light
<b>Wall</b>	Hairline Etched Stainless Steel (SE1108), Hairline-Finished Stainless Steel
<b>Car Doors</b>	Hairline Etched Stainless Steel (SE1108)
<b>Operating Panel</b>	OPP-NZ40B / OPP-NZ40W (Hairline-Finished Stainless Steel)
<b>Indicator</b>	PI D110
<b>Handrail</b>	Stainless Steel 1 Pipe x Coated Chrome Bracket (1B)
<b>Flooring</b>	Polymer Tile (DTE224, DTE224S)

- Note:
1. Finished product may vary slightly from the image.
  2. The price will vary depending on the customer's specification.
  3. The color may vary depending on the factory.

| CAGE DESIGN |

<b>Ceiling</b>	CD291C, Acryl Painted Steel (PO21)
<b>Wall</b>	Mirror-Tinted Stainless Steel, Hairline Etched Stainless Steel (SE1673)
<b>Car Doors</b>	Hairline Etched Stainless Steel (SE1673)
<b>Operating Panel</b>	DPP-NZ41B
<b>Indicator</b>	PI D110
<b>Handrail</b>	Stainless Steel 1 Pipe x Coated Chrome Bracket (1B)
<b>Flooring</b>	Polymer Tile (IN2422C, TN2601C)

- Note:
1. Finished product may vary slightly from the image.
  2. The price will vary depending on the customer's specification.
  3. The color may vary depending on the factory.



| FRONT VIEW |

| REAR VIEW |

| CAGE DESIGN |

Ceiling	CD251A, Painted Steel (P022), Acryl, Convective Air Sterilization System
Wall	Hairline-Finished Stainless Steel, Mirror-Enched Stainless Steel (SF1184)
Car Doors	Mirror Etched Stainless Steel (FE008)
Operating Panel	0PP-AZ41B (Mirror-Finished Stainless Steel)
Indicator	PI-D110 (Dot Type)
Handrail	Stainless Steel 1 Pipe + Aluminum die-casting (1A)
Flooring	Marble

- Notes:
1. Front and back temporary display from the car wash.
  2. The price will vary depending on the customer's specifications.
  3. The lighting will depend on the capacity.



CD251A  
(P022) Acryl / Convective Air Sterilization System



CD253A  
(P021, P022) Mirror / LED Down Light



CD451B  
(P022)



CD516B  
(Indirect Lighting / Convective Air Sterilization System)



CD519D  
(Indirect Lighting / Aluminum Silver / Convective Air Sterilization System)



CD597A  
(P007, Luminous White / Mirror / LED / Indirect Lighting)



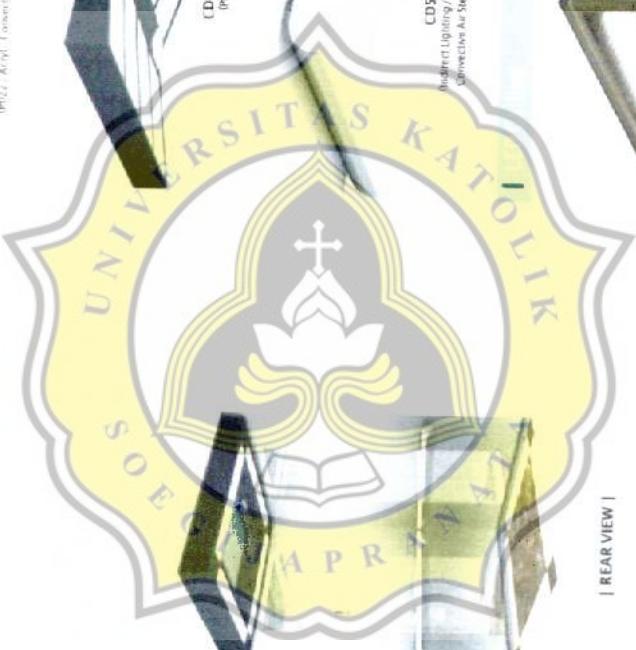
CD299B  
(P023 / LED lighting/ Indirect / LED Down Light / Mirror / Acrylic Air Channe)



CD569A  
(Aluminum / Acryl / Sheet / LED Lighting/ Indirect / Acrylic Air Channe)

Sectional View

Sectional View



- Notes:
1. Front and back temporary display from the car wash.
  2. The price will vary depending on the customer's specifications.
  3. The lighting will depend on the capacity.



HIP-D240B  
(Business Type)



HIP-D240  
(Business Type)



HIP-D640  
(Business Type)



HPB-841  
(Business Type)



HPB-640  
(Business Type)



HPB-240  
(Business Type)



HPB-342  
(Business Type)



HPB-344  
(Business Type)

1. If this product is used separately from these parts, the main 'Open' type button cannot be applied.  
 2. If this product is used as a handset, please select the type with both a call button and a key system.  
 3. If this product is used as a handset, please select the type with both a call button and a key system.



90 Type  
(Teacher's Room)  
Note: 90 Type is optional



80 Type



70 Type



60 Type



60 Type



41 Type



40 Type



OPP-N280A



OPP-N280A



OPP-N270A



OPP-N260A



OPP-D241B



OPP-N240B



PI-S 100 (not Matrix Type)



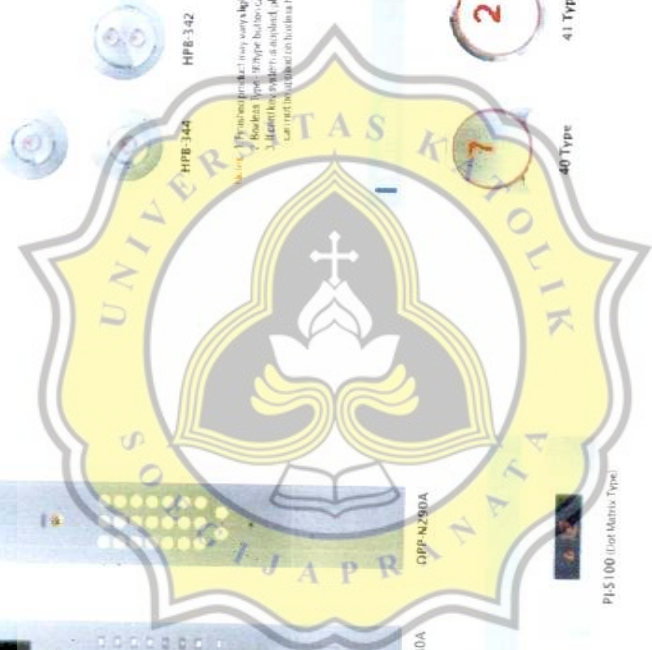
PI-D600 (not Matrix Type)



PI-D400 (not Matrix Type)



PI-D110 (not Matrix Type)



IDW (Antenna / Pipe, Ivory)



IDW (Antenna / Pipe, Wood Shard)



1C (1 Pipe Stainless Handline, Chrome Bracket)



2B (2 Pipe Stainless Polished)



1R (1 Pipe Stainless Polished)



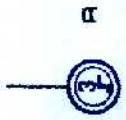
1R (1 Pipe Stainless Polished)

To minimize waiting time at a special floor, a special car calling button can be installed in an office (e.g. Secretary for a CEO office) or a penthouse (e.g. Penthouse for Executives or Government Officials or Special Guests) or in a high-rise apartment.

HH-64A  
(Business Type)

HH-12T  
(Box Type)

Notes: 1. \* means optional feature. 2. \* applies for any way of plug from these parts. 3. If any of the above is optional, it is supplied for the standard installation. If not, it is not available.



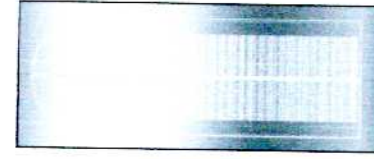
**1** *Pattern*



EE001  
(SE492)



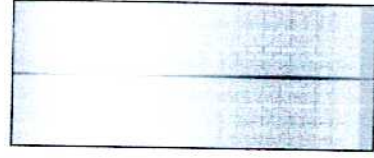
EE002  
(SE892)



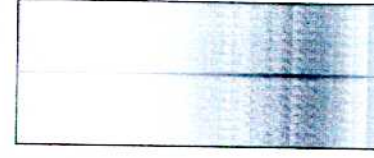
EE003  
(SE871)



EE005  
(SE614)



EE006  
(SE743)



EE007  
(SE1766)



EE008  
(SE1171)



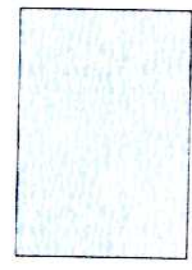
EE009  
(SE1172)

4. Dotted patterns shown are available for cushions and indoor use.
5. For entrance opening, EE07, EE02, EE06 are not applied.

1. If different from size
2. Embroidered
3. If the color requirements are applied for the production
4. Minimum 5% margin for the color. Consult Prinsipal



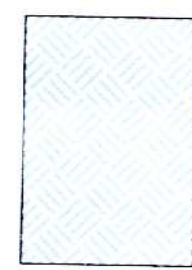
SE424



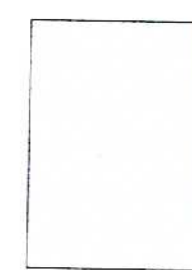
SE839



SE1169



SE1589



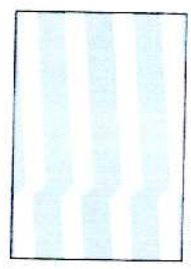
SE1673



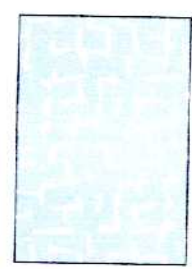
SE409



SE785



SE1168



SE1184



SE1591 (1mm line by 8mm space)



SE403



SE439



SE928



SE1172



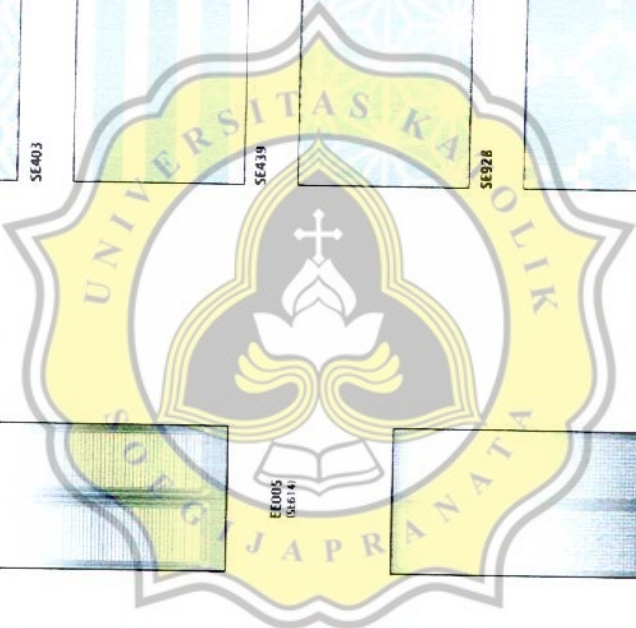
SE1590

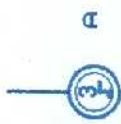
1. If a different from actual size
2. Embroidered

Indigo pattern

**2** *Color*

**3** *Material*

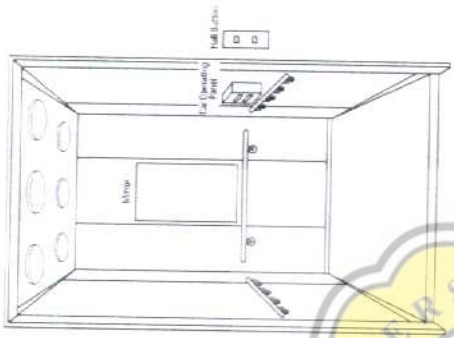




**Color and Material Selection**

<b>PO195 (R.7.2.51)</b>	<b>PO05 (R.5.8.7.12.3)</b>	<b>PO09 (A.5.8.7.4/2.0)</b>
<b>PO11 (R.4.3.1/2.8)</b>	<b>PO16 (R.5.8.7.12.3)</b>	<b>PO17 (R.7.8.7/2.0)</b>
<b>PO19 (S.1.9.7.5/1.1)</b>	<b>PO20 (Metallic Gold)</b>	<b>PO21 (Metallic Silver)</b>

*Note: Finished product may vary slightly from these prints.*



OPP-N2-40W

*Note: Finished product may vary slightly from these prints.*



**Handicap Buttons**

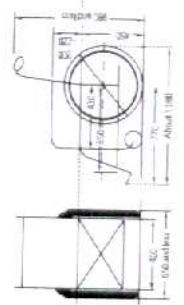
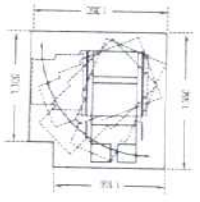
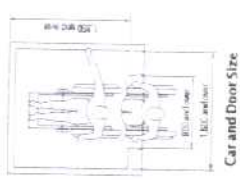
<b>HIP-D240</b> (day Type)	<b>HIP-D641</b> (Bookless Type)	<b>HPB-240</b> (day Type)	<b>HPB-641</b> (Bookless Type)



**Decorative Glass (Optional)**

<b>DTE2109</b>	<b>DTE2115</b>	<b>DTE2126</b>	<b>DTE2241</b>
<b>DTE2246</b>	<b>DTE2402</b>	<b>DTE2412</b>	<b>DTE2417</b>
<b>TN2230C</b>	<b>TN2601C</b>	<b>TN2604C</b>	

*Note: Finished product may vary slightly from these prints.*



Required Space (If rotated 90-degrees)

Rear/Side View

## Standard & Optional Features

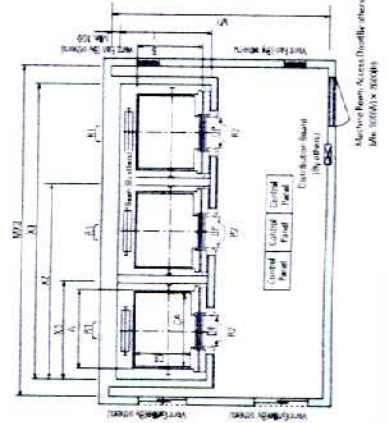
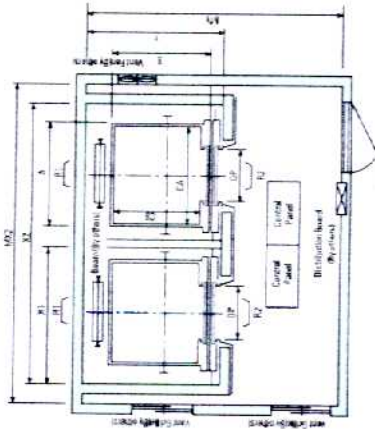
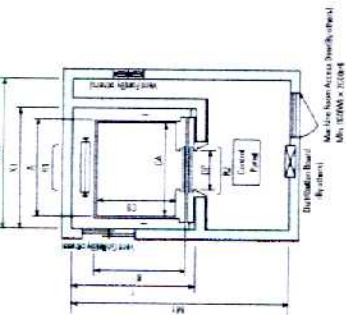
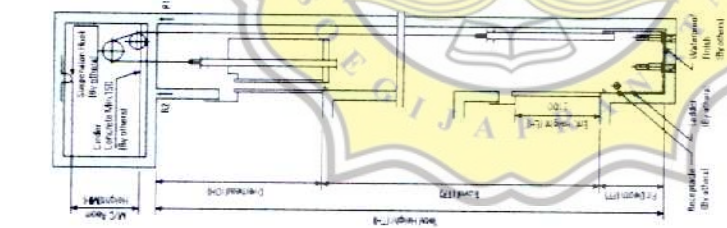
Items	Descriptions	Marks	Items	Descriptions	Marks
1) Selective collective	The first call determines the direction of the elevator. All calls opposing the respective direction are serviced after carrying out by the calls of the respective direction.	○	12) Safety drive	During the operation if the car stops between floors, and safety device doesn't work, the car automatically moves to the nearest floor with the low speed. Then, it opens the door to allow the passengers to exit off.	○
2) Duplex selective collective	2 units of elevator provide the effective service for the common hall calls.	★	13) Multi-beam door protection	Multi-beam from the top to the bottom of the door senses any obstruction caught in the door. It makes the door reopen and stay open until the obstruction is removed.	★
3) Automatic bypass	When a car is 80% loaded, it will automatically bypass all hall calls as the bypass load weighing device is activated.	○	14) Fire emergency service	When a fire breaks out, all cars activated by the switch or fire detector are immediately called to a specified rescue floor for the passenger's safety.	★
4) Arrival Voice	It provides an audible indication in the car that an elevator is about to arrive.	○	15) Anti-noisance	Evaluates the number of people on the car and compares that value to the number of the car calls registered. If the number of car calls exceeds the number of people in the car by the load sensor, the car call exceeding the number of passengers will be cancelled after service nearest call only.	★
5) Signal fixtures	Dot matrix (up/down direction) Hall lantern	○	16) Voice synthesizer	A voice synthesizer with microprocessor makes announcements to inform passengers of various conditions, including landing floor and operation direction, etc.	○
6) Single-side safety edge of door	Contact with a passenger or inanimate object causes the doors to stop and reopen automatically. The elevator doesn't start if the door is not completely closed.	★	17) Fireman's emergency service	When the fireman's switch located at the main floor lobby and operating panel on the car is activated during a fire or other emergency, a designated car can be called back to a specified floor for fire fighting service.	★
7) Ventilation fan	Car ventilation is smooth with ventilation fan built in the ceiling.	○	18) HELMON (Hyundai Elevator Computer Monitoring) System	This system has various functions, like elevator monitoring and control by a personal computer and modem.	★
8) Emergency car lighting	In case of a power failure, it automatically turns on the emergency light in the car.	○	19) Attendant service	It is activated when the attendant turns on the ATT switch in the car operating panel to "ON" position.	★
9) Automatic interruption of light and ventilation fan	The lights and ventilation fan are automatically turned off to save energy if there is no call registered for a period of time. If there is a call registered again, it works again.	○	20) Earthquake operation	When the seismic sensor detects an earthquake that exceeds a predetermined level, all cars promptly proceed to land at the nearest floor and park with the doors open to allow passengers to exit out safely.	★
10) Car door interlock switch	When the door is opened, the switch installed at the door operator is activated and keeps the car from moving. During the operation of car, it locks the door completely so as not to open the door from outside.	○	21) Parking	With the use of the parking switch on the hall button, the car can be parked at a specified floor, during nights and holidays.	★
11) Overload features	To protect the overload of an elevator, this device sounds a buzzer and the elevator remains stopped at that floor when the number of passengers exceeds the rated capacity. When the excess number of passengers get out of the car, the buzzer stops and the elevator door closes.	○			

Note: Consult Hyundai if you need the specific features except the above items.



# Layout Plan - LUXEN (Gearless Elevators) 1 ~ 2.5m/sec

## 1. Plan of Hoistway & Machine Room



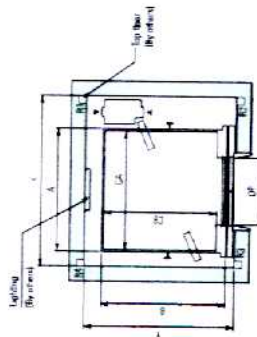
Speed (m/sec)	Capacity		Clear Opening		Car		Hoistway				M/C Room			Pit Reaction					
	Persons	kg	OP	CA x CB	Internal	External	1Car	2Cars	3Cars	Depth	1Car	MX1	MX2	MX3	MY	R1	R2	R3	MA
1	6	450	800	1420 x 850	1460 x 1105	1800	1700	1430	1430	1430	2700	2700	4000	4000	3700	3620	2000	5400	4500
1.5	8	550	800	1420 x 1020	1460 x 1185	1900	1700	1430	1430	1430	2700	2700	4000	4000	3700	4050	2350	6000	4900
1.75	9	600	800	1420 x 1130	1460 x 1285	1900	1700	1430	1430	1430	2700	2700	4000	4000	3700	4120	2450	6400	5100
2.0	10	700	800	1420 x 1250	1460 x 1405	1900	1700	1430	1430	1430	2700	2700	4000	4000	3700	4200	2700	6800	5500
2.25	11	750	800	1420 x 1350	1460 x 1505	1900	1700	1430	1430	1430	2700	2700	4000	4000	3700	4250	2850	7100	5800
2.5	13	900	900	1420 x 1350	1460 x 1505	2050	1700	1430	1430	1430	2700	2700	4000	4000	3700	4300	3750	8100	6300
2.5	15	1000	900	1420 x 1500	1460 x 1655	2050	1700	1430	1430	1430	2700	2700	4000	4000	3700	4350	4200	8400	6600
2.5	17	1150	1000	1800 x 1500	1900 x 1670	2250	1700	1430	1430	1430	2700	2700	4000	4000	3700	4400	5100	11500	8700
2.5	20	1350	1000	2000 x 1350	2100 x 1570	2450	1700	1430	1430	1430	2700	2700	4000	4000	3700	4400	6100	13600	10400
2.5	24	1600	1000	2000 x 1500	2100 x 1670	2550	1700	1430	1430	1430	2700	2700	4000	4000	3700	4400	6100	13600	10400

- Hoistway temperature in hoistway is to be maintained for application in over 16°C in wet buildings.
- Hoistway temperature shall be at least 5°C in wet buildings.
- When the shaft is based on a gearless drive, the shaft shall be supported by the shaft.
- The shaft shall be supported by the shaft.
- The shaft shall be supported by the shaft.

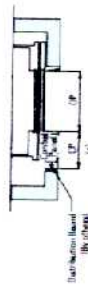
- Machine room temperature should be maintained below 40°C with maximum humidity of 50%.
- The minimum hoistway dimensions are shown in the above table.
- The minimum machine room height should be made as stated in the table.
- The minimum machine room height should be 4000mm in case of the hoistway machine with 2.5m/sec.

Speed (m/sec)	Overhead (O H)	Pit (PP)	M/C Room Height (MH)
1	4600	1500	2200
1.5	4800	1800	2400
1.75	5000	2100	2400
2	5000	2100	2600
2.5	5500	2400	2600

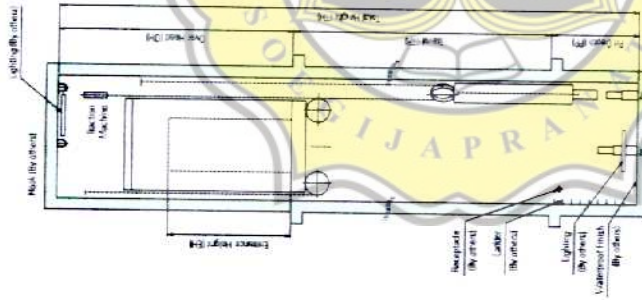
# Layout Plan - YZER (Machine-Room-Less Elevators) 1 ~ 2.5m/sec



Floor without control panel



- Notes:
- The lighting has been provided as installable than 500mm from above the ceiling of hallway and/or the 200mm above the bottom of the pit (By client)
  - Machine room temperature should be maintained below 40°C, well ventilating in and/or air conditioner (if necessary) and humidity below 90%.



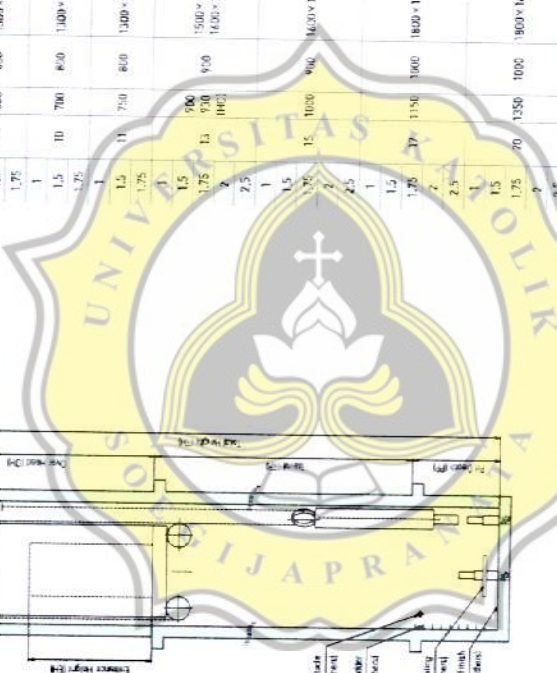
## Practical Machinery - 23 Projects

## System of Hoistway

## Control Panel

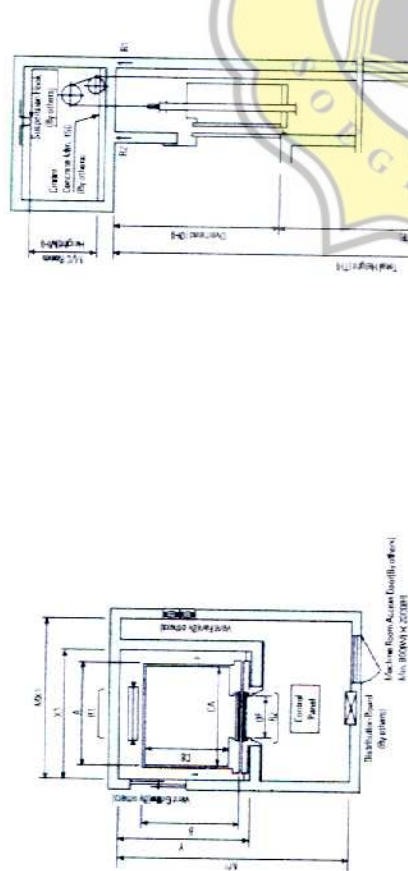
Speed (m/sec)	Capacity (persons)	Clear Opening		Car			Hoistway			Motor (kW)	MFC Room Reaction (kg)						Persons	Speed (m/sec)	Overhead (OH)	M Control Panel (CM)	Control Panel (CM)
		CA x CB	DP	A x B	X	Y	R1	R2	R3		R4	R5	R6								
1	8	1000 x 1100	800	1200 x 1200	2020	1700	3.4	4000	2100	1500	610	7000	1500	0.75	1	3800	1500	520			
1.75	8	1000 x 1100	800	1200 x 1200	2020	1700	5.1	4000	2100	1500	610	7000	1500	1.75	1	3800	1500	520			
1	9	1000 x 1100	800	1300 x 1300	2100	1800	3.7	4100	2200	1600	700	1600	1600	0.75	1	4200	1600	530			
1.75	9	1000 x 1100	800	1300 x 1300	2100	1800	5.6	4100	2200	1600	700	1600	1600	1.75	1	4200	1600	530			
1	10	1000 x 1100	800	1400 x 1400	2200	1900	4.3	4200	2300	1700	800	1700	1700	0.75	1	4600	1700	530			
1.75	10	1000 x 1100	800	1400 x 1400	2200	1900	6.5	4200	2300	1700	800	1700	1700	1.75	1	4600	1700	530			
1	11	1000 x 1100	800	1500 x 1500	2300	2000	4.4	4300	2400	1800	900	1800	1800	0.75	1	5000	1800	530			
1.75	11	1000 x 1100	800	1500 x 1500	2300	2000	6.9	4300	2400	1800	900	1800	1800	1.75	1	5000	1800	530			
1	12	1000 x 1100	800	1600 x 1600	2400	2100	5.7	4400	2500	1900	1000	1900	1900	0.75	1	5400	1900	530			
1.75	12	1000 x 1100	800	1600 x 1600	2400	2100	8.6	4400	2500	1900	1000	1900	1900	1.75	1	5400	1900	530			
2	13	1000 x 1100	800	1700 x 1700	2500	2200	10	4500	2600	2000	1100	2000	2000	2	1	5800	2000	530			
2.5	13	1000 x 1100	800	1700 x 1700	2500	2200	13.5	4500	2600	2000	1100	2000	2000	2.5	1	5800	2000	530			
1	15	1000 x 1100	800	1800 x 1800	2600	2300	6.7	4600	2700	2100	1200	2100	2100	0.75	1	6200	2100	530			
1.75	15	1000 x 1100	800	1800 x 1800	2600	2300	9.2	4600	2700	2100	1200	2100	2100	1.75	1	6200	2100	530			
2	15	1000 x 1100	800	1900 x 1900	2700	2400	10.8	4700	2800	2200	1300	2200	2200	2	1	6600	2200	530			
2.5	15	1000 x 1100	800	1900 x 1900	2700	2400	14.5	4700	2800	2200	1300	2200	2200	2.5	1	6600	2200	530			
1	17	1100 x 1200	900	1900 x 1900	2700	2400	7.1	4800	2900	2300	1400	2300	2300	0.75	1	7000	2300	530			
1.75	17	1100 x 1200	900	1900 x 1900	2700	2400	10.6	4800	2900	2300	1400	2300	2300	1.75	1	7000	2300	530			
2	17	1100 x 1200	900	2000 x 2000	2800	2500	12.4	4900	3000	2400	1500	2400	2400	2	1	7400	2400	530			
2.5	17	1100 x 1200	900	2000 x 2000	2800	2500	16.1	4900	3000	2400	1500	2400	2400	2.5	1	7400	2400	530			
1	18	1100 x 1200	900	2100 x 2100	2900	2600	8.2	5000	3100	2500	1600	2500	2500	0.75	1	7800	2500	530			
1.75	18	1100 x 1200	900	2100 x 2100	2900	2600	11.5	5000	3100	2500	1600	2500	2500	1.75	1	7800	2500	530			
2	18	1100 x 1200	900	2200 x 2200	3000	2700	13.5	5100	3200	2600	1700	2600	2600	2	1	8200	2600	530			
2.5	18	1100 x 1200	900	2200 x 2200	3000	2700	17.2	5100	3200	2600	1700	2600	2600	2.5	1	8200	2600	530			
1	20	1200 x 1300	1000	2100 x 2100	2900	2600	9.9	5200	3300	2700	1800	2700	2700	0.75	1	8600	2700	530			
1.75	20	1200 x 1300	1000	2100 x 2100	2900	2600	14.9	5200	3300	2700	1800	2700	2700	1.75	1	8600	2700	530			
2	20	1200 x 1300	1000	2200 x 2200	3000	2700	17.2	5300	3400	2800	1900	2800	2800	2	1	9000	2800	530			
2.5	20	1200 x 1300	1000	2200 x 2200	3000	2700	21.7	5300	3400	2800	1900	2800	2800	2.5	1	9000	2800	530			
1	22	1300 x 1400	1100	2100 x 2100	2900	2600	11.5	5400	3500	2900	2000	2900	2900	0.75	1	9400	2900	530			
1.75	22	1300 x 1400	1100	2100 x 2100	2900	2600	16.2	5400	3500	2900	2000	2900	2900	1.75	1	9400	2900	530			
2	22	1300 x 1400	1100	2200 x 2200	3000	2700	19.2	5500	3600	3000	2100	3000	3000	2	1	9800	3000	530			
2.5	22	1300 x 1400	1100	2200 x 2200	3000	2700	24.6	5500	3600	3000	2100	3000	3000	2.5	1	9800	3000	530			
1	25	1400 x 1500	1200	2100 x 2100	2900	2600	12.1	5600	3700	3100	2200	3100	3100	0.75	1	10200	3100	530			
1.75	25	1400 x 1500	1200	2100 x 2100	2900	2600	17.2	5600	3700	3100	2200	3100	3100	1.75	1	10200	3100	530			
2	25	1400 x 1500	1200	2200 x 2200	3000	2700	20.1	5700	3800	3200	2300	3200	3200	2	1	10600	3200	530			
2.5	25	1400 x 1500	1200	2200 x 2200	3000	2700	25.4	5700	3800	3200	2300	3200	3200	2.5	1	10600	3200	530			

- Notes:
- When the standard is less than the above table, the following table should be applied to meet the local code, please consult the local code.
  - The minimum hoistway time to clear is shown in the above table. Therefore, some allowances should be made on raising the height of the hoistway.
  - If the height of floor is more than the above table, the height should be increased to the next floor level.
  - When the standard is applied to use the above table, the door is provided to be protected clear that the clear opening is over 1000mm.
  - In case the emergency stop is applied, the counter weight must be at the end.
  - When the local code is different from the above table, the following table should be applied (By client).

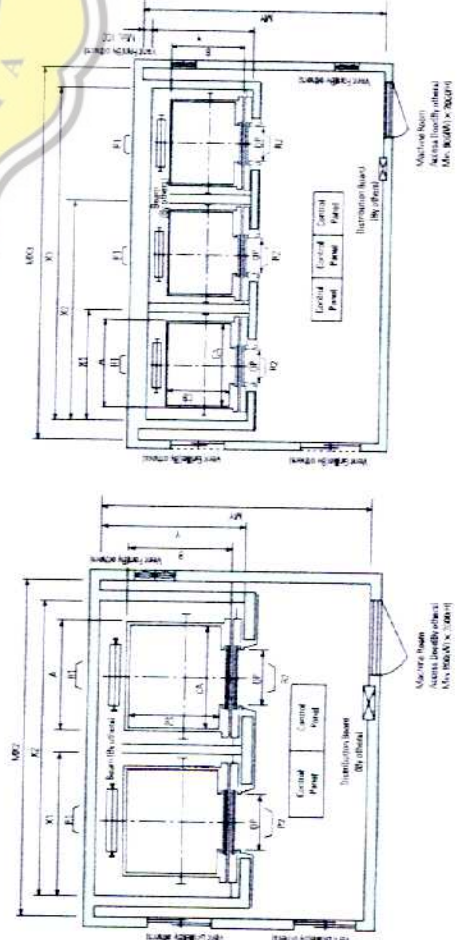


# Layout Plan – Geared Elevators 1~1.75m/sec

Plan of Hoistway & Machine Room



Note: Machine room temperature should be maintained below 40°C with adequate fan and/or cooling coil (refrigerator) and humidity below 85%.



Plan of Hoistway & Machine Room

(Unit: mm)

Speed (m/sec)	Capacity Persons	Clear Opening OP	Car			Hoistway			M/C Room			Pit Reaction			
			Internal CA X CB	External A X B	1Car X1	2Cars X2	3Cars X3	1Car MX1	2Cars MX2	3Cars MX3	Depth MY	R1	R2	R3	R4
1	6	630	1400 X 650	1440 X 1015	1800	3700	3700	4050	4050	3700	460	200	320	430	
	8	800	1400 X 800	1440 X 1165	1900	3700	3700	4000	4000	3500	480	220	340	450	
	9	850	1400 X 850	1440 X 1215	1900	3700	3700	4000	4000	3500	410	240	360	470	
	10	900	1400 X 900	1440 X 1265	1900	3700	3700	4000	4000	3500	420	260	380	490	
	11	950	1400 X 950	1440 X 1315	1900	3700	3700	4000	4000	3500	430	280	400	510	
	13	1050	1400 X 1050	1440 X 1465	1900	3700	3700	4000	4000	3500	450	300	420	530	
	15	1200	1600 X 1200	1640 X 1615	2150	4200	4200	4600	4600	4000	480	320	440	560	
	17	1350	1800 X 1350	1840 X 1765	2400	4700	4700	5100	5100	4500	510	340	460	590	
1.75	20	1500	1800 X 1500	1840 X 1915	2550	5200	5200	5600	5600	5000	540	360	480	620	
	24	1600	2000 X 1600	2040 X 2165	2800	5700	5700	6100	6100	5500	570	380	500	650	
	26	1600	2000 X 1600	2040 X 2215	2800	5700	5700	6100	6100	5500	580	400	520	680	
			2150 X 1600	2190 X 1770	2700	5800	5800	6200	6200	5600	600	420	540	7100	

1. Above hoistway floor system are based on 15 degree overhead. For application refer to special drawings.
2. The hoistway clear width shall be at least 300mm larger considering the slope of the hoistways.
3. Above dimension shall be for center-to-center spacing.
4. When non-standard condition and dimension are required to meet the local code, contact Hiltac.
5. The capacity of person is calculated at 65kg person (0.75m² x 65kg/person).
6. Above dimension shall be applied in case the door is standard. In case the door opening is over 1000mm is applied.

(Unit: mm)

Speed (m/sec)	Overhead (OH)	Pit (PP)	M/C Room Height (MH)
1	4600	1500	2200
1.5	4800	1800	2400
1.75	5000	2100	2400

1. The machine hoistway dimension must comply with the above table. There are some allowances should be made including the slope of the hoistways.
2. Machine room temperature should be maintained below 40°C with ventilation fan and/or air cooler. Refer to factory specification below 85%.
3. The minimum machine room weight should be 200kg in case of the traction machine with double foundation load.

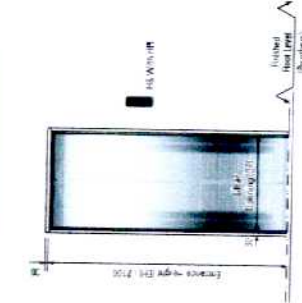
Typical Entrance Layouts

Entrance

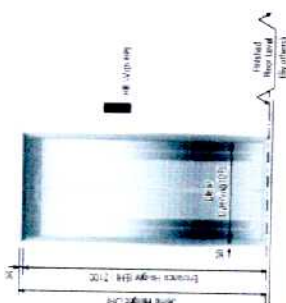
Structural Opening of Entrance

Entrance Design

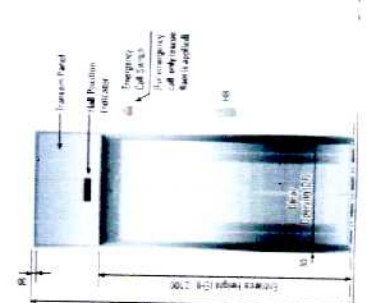
Typical Entrance Layouts – Only for Floor with Control Panel of the Machine-Room-Less Elevators



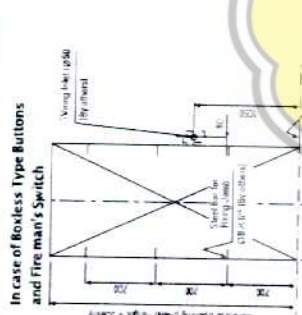
JP050 Type (Standard)



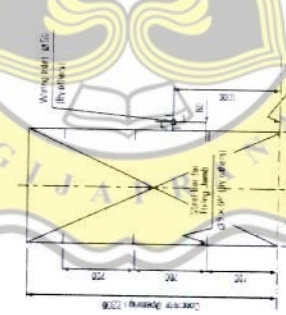
JP100 Type (Optional)



JP200 Type (Optional)



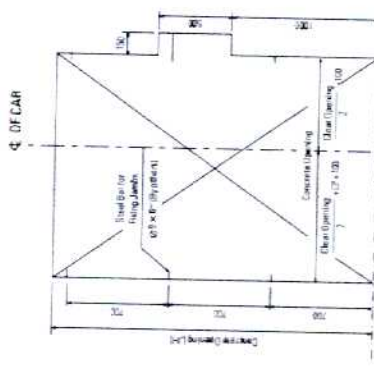
In case of Boxless Type Buttons and Fire man's Switch



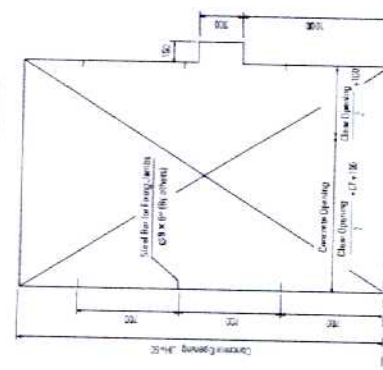
CP110 Type (Standard)



CP110 Type (Optional)

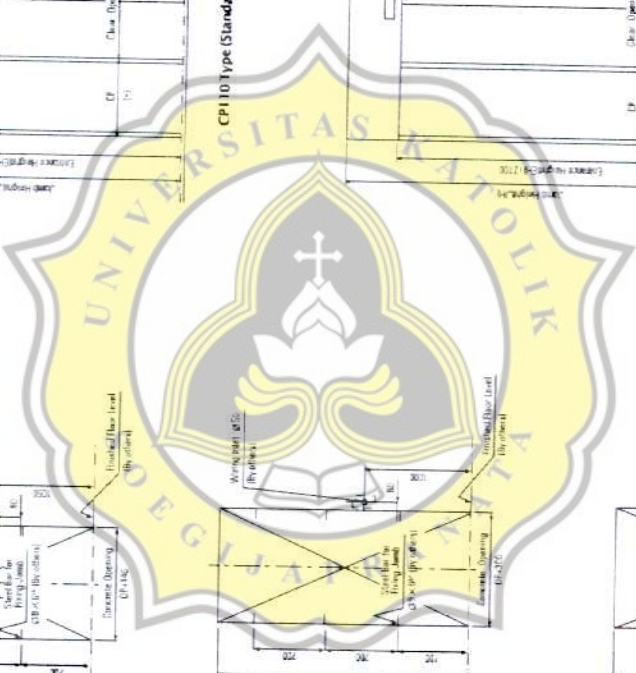


CP110 Type (Standard)

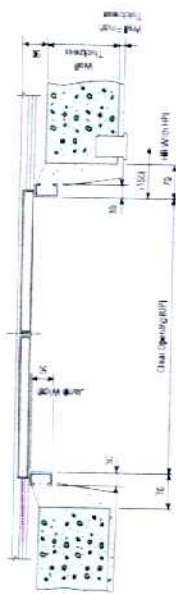


CP210 Type (Optional)

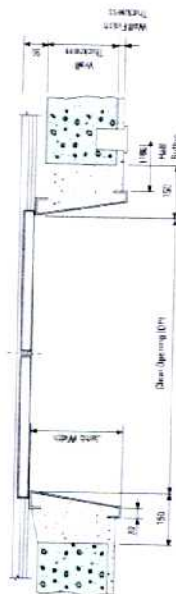
Persons	Speed (m/sec)	Width of Control Panel (CP)(*)	
		Speed (m/sec)	Width of Control Panel (CP)(*)
8-17	Under 1.75	1	530
		1.5	630
20-24	1.75	1	530
		1.5	630



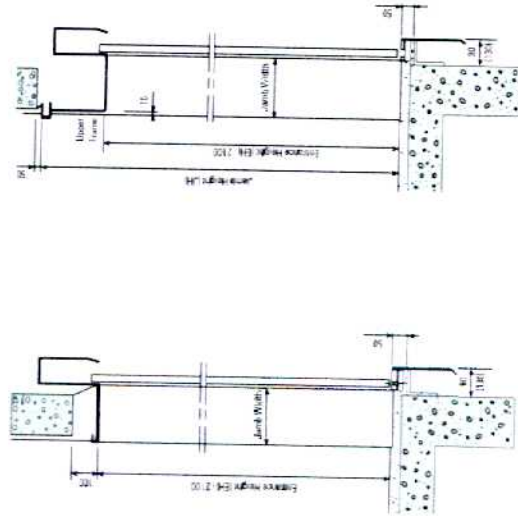
## Typical Entrance Layouts – 2-Panel Center-Opening Doors (CO)



**JP50 Type**

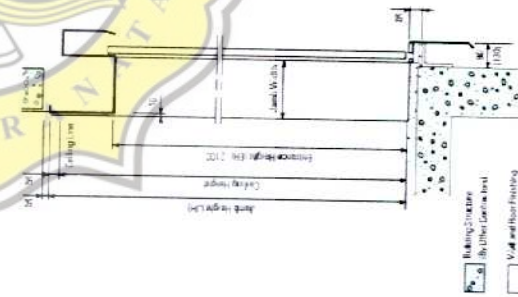


**JP100, JP200 Type**

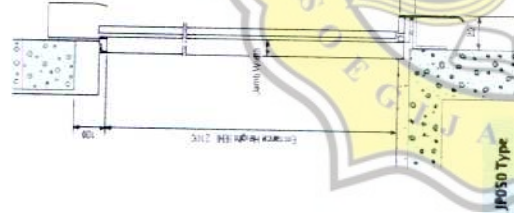


**JP100 Type**

**JP200 Type (with upper frame)**



**JP200 Type (without upper frame)**



**JP50 Type**

## Works To Be Done By Other Contractors

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 the applicable codes and regulations. The reference rules shown are from Code ANSI.

### Building Work

#### HOISTWAY

1. Clear shaft hoistway with fire resistant hatch walls as required by the applicable code. (Rule 100.1a)
2. 2" level grade on all projections, necessary, or set-backs over 150mm except on side used for loading or unloading. (Rule 100.6)
3. Venting of the hoistway as required by the applicable code or responsible authority. (Rule 100.4)
4. Supports for all brackets, at each floor roof, and machine room. (Rule 200.9)
5. Maximum allowable vertical spacing of all supports without backing. (Rule 200.4 and 201.1) (See beams, 100mm between joists of each floor and roof for general brackets supports. (Rule 200.4, 200.9 and 201.1))
6. Supports for all brackets, and patching as required to accommodate hall button boxes, signal boxes, etc.
7. All brackets for all brackets, hoistways or between shaft hoistways as required by the applicable code or responsible authority. (Rule 100.1b and 100.1c) (See the Hyundai Elevator Company for rail forces and buffer impacts. Where there is a space below the pit floor that will be occupied, consult Hyundai Elevator Company for special requirements. (Rule 200.1) (Plaster safe, except under the pit as required, and backing around the code required when direct plunger type is to be installed.)
8. Where access for the pit is by means of the lowest hoistway entrance, vertical iron ladder rungs at 100mm minimum above all of access door. (Rule 100.1d)
9. Floor or wall and ceiling floor opening to be constructed with other door frames and sills which place. Door frames are to be attached to walls and properly graded in place to maintain legal fire rating.
10. In applications where an outdoor detection elevator, a glass enclosure at least 1.5m in height at the bottom landing is recommended for safety. For air as an outdoor elevator elevator, a full-height glass enclosure is required.

#### Machine Room

11. Locked and tagged machine room. (Rule 101.1)
12. Access to the machine room are to be provided as required by the applicable code or responsible authority. (Rule 101.3)
13. Reinforced concrete machine room floor slab or grating, as specified, which must not be placed over the hoistway until elevator machinery is set in position. (Rule 100.3) (See The Code.)
14. Clear access above the pit, for oil line and wiring duct from machine room. If machine room is remote from elevator hoistway, for Hyundai Elevator Cabot through machine room wall, for oil line and wiring duct as required by Hyundai Elevator's shop drawings. (See Hydraulic Elevator.)
15. Hoisting beams, trap doors, and other means of access to machine room for maintenance and equipment removal purposes. (Rule 101.1)
16. Cable guards in the machine room or secondary level. (Rule 104.1)
17. Supports for machine and drive beams and reactions including wall jacking and patching after frame are set in place. (Rule 105.1 to 105.4)

### Electrical Work

#### HOISTWAY

1. Light outlets for each elevator, in center of hoistway for in machine room as indicated by Hyundai Elevator Company.
2. Convenience outlet and light fixture in pit with switch located adjacent to the access door. (Rule 100.1d)
3. Wiring and piping work of emergency hall, telephone, etc. outside the hoistway and the machine room.

#### Machine Room

4. Lighting, convenience outlets, ventilation, heating of machine room, and machinery space. (Rule 101.5)
5. Temperature should be maintained below 40° by a circulating fan or air conditioner, if necessary, and humidity below 90%.
6. A fused disconnect switch or circuit breaker for each elevator and light switch located per the applicable code and where practicable located adjacent to the door of the machine room. (Rule 210.5 and 306.7)
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.

#### Elevator Company Requirements

9. Elevator terminals and other emergency services wiring and interconnections to automatic sprinkler systems or heat and smoke sensing devices furnished by others and installed in terminal points on the elevator controllers.
10. When emergency power operation of elevators is required, the electrical contractor shall coordinate with Hyundai Elevator Company or local distributor for operation requirements.
11. Elevator terminals and other emergency service requirements may differ from each country. Consult Hyundai Elevator Company or local distributor for detail requirements.
12. When provisions for earthquake action are required, consult Hyundai Elevator Company for special requirements.

### Notes

- O: Kool/BH-WXXXLX
- W: Capacity (kg)
- F: Factor (1/4th WWT)
- V: Speed (m/sec)
- N: Number of cars

Notes: The dimensions ( ) is applied for 7/16x5 and 1/2x5.

# Electric Power Requirements (Byothers)

Persons (kg)	Speed (m/sec)	Motor (kW)	MCB (A)		Power (KVA)		Cable (mm <sup>2</sup> )		Earth (mm <sup>2</sup> )	
			1Car	2Cars	1Car	2Cars	1Car	2Cars	1Car	2Cars
6/650	1	5.5 (2.8)	20 (20)	30 (20)	4 (3)	7 (5)	4 (4)	6 (4)	4 (6)	4 (6)
	1.5	2.5 (1.2)	20 (20)	30 (40)	6 (4)	10 (8)	4 (4)	6 (10)	4 (6)	6 (6)
	1.75	7.5 (4.9)	20 (20)	40 (40)	7 (5)	12 (9)	4 (4)	10 (10)	4 (6)	6 (6)
8/550	1	5.5 (3.4)	20 (20)	30 (20)	3 (4)	9 (8)	4 (4)	6 (4)	4 (6)	4 (6)
	1.5	2.5 (1.2)	20 (20)	30 (40)	7 (5)	12 (10)	4 (4)	6 (10)	4 (6)	4 (6)
	1.75	11 (5.9)	20 (20)	50 (40)	9 (6)	15 (11)	6 (4)	16 (10)	4 (6)	4 (6)
9/600	1	5.5 (3.2)	20 (20)	30 (20)	5 (4)	9 (7)	4 (4)	6 (4)	4 (6)	4 (6)
	1.5	11 (5.4)	20 (20)	50 (40)	9 (6)	14 (11)	6 (4)	16 (10)	4 (6)	4 (6)
	1.75	7.5 (4.3)	20 (20)	40 (20)	9 (7)	16 (12)	6 (4)	16 (10)	4 (6)	4 (6)
10/700	1	11 (6.5)	30 (20)	40 (40)	6 (5)	11 (8)	4 (4)	16 (10)	4 (6)	6 (6)
	1.5	11 (6.5)	30 (20)	40 (40)	9 (7)	15 (12)	6 (4)	16 (10)	4 (6)	6 (6)
	1.75	11 (7.4)	30 (20)	60 (40)	11 (9)	19 (14)	6 (4)	16 (10)	4 (6)	6 (6)
11/750	1	2.5 (1.4)	20 (20)	40 (20)	6 (5)	12 (9)	4 (4)	10 (6)	4 (6)	6 (6)
	1.5	11 (6.9)	20 (20)	40 (20)	10 (7)	17 (13)	6 (4)	16 (10)	4 (6)	6 (6)
	1.75	11 (8.9)	20 (20)	60 (50)	11 (9)	20 (15)	10 (6)	16 (10)	4 (6)	6 (6)
13/900	1	8 (2)	30 (1)	50 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	11 (5.4)	40 (10)	50 (10)	9 (6)	16 (11)	6 (4)	16 (10)	4 (6)	6 (6)
	1.75	15 (9.2)	40 (10)	60 (50)	12 (9)	21 (16)	10 (6)	16 (10)	4 (6)	6 (6)
15/1000	1	11 (3)	30 (1)	50 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (9.2)	40 (10)	75 (50)	12 (9)	21 (16)	10 (6)	16 (10)	4 (6)	6 (6)
	1.75	15 (13.8)	40 (10)	75 (50)	15 (11)	27 (20)	10 (6)	25 (16)	4 (6)	6 (6)
17/1150	1	12 (3)	40 (1)	75 (1)	1 (0)	1 (0)	1 (0)	16 (10)	4 (6)	6 (6)
	1.5	15 (4)	50 (1)	100 (1)	1 (0)	1 (0)	1 (0)	16 (10)	4 (6)	6 (6)
	1.75	18 (12.4)	50 (1)	100 (1)	1 (0)	1 (0)	1 (0)	16 (10)	4 (6)	6 (6)
20/1350	1	15 (4)	40 (1)	75 (1)	1 (0)	1 (0)	1 (0)	16 (10)	4 (6)	6 (6)
	1.5	15 (10.4)	40 (1)	75 (60)	15 (11)	27 (20)	10 (6)	25 (16)	4 (6)	6 (6)
	1.75	18 (12.4)	50 (1)	100 (60)	17 (13)	31 (24)	10 (6)	25 (16)	4 (6)	6 (6)
24/1600	1	17 (7)	60 (1)	100 (1)	1 (0)	1 (0)	1 (0)	16 (10)	4 (6)	6 (6)
	1.5	15 (8.1)	30 (20)	60 (40)	12 (9)	21 (16)	10 (6)	16 (10)	4 (6)	6 (6)
	1.75	22 (14.5)	30 (40)	100 (75)	20 (15)	37 (28)	16 (10)	35 (25)	10 (6)	6 (6)
26/1800	1	16 (4)	40 (1)	75 (1)	1 (0)	1 (0)	1 (0)	16 (10)	4 (6)	6 (6)
	1.5	15 (9.9)	40 (1)	75 (60)	16 (10)	25 (20)	10 (6)	16 (10)	4 (6)	6 (6)
	1.75	27 (17.2)	60 (50)	100 (75)	24 (18)	43 (33)	16 (10)	35 (25)	10 (6)	6 (6)
28/2100	1	19 (2)	50 (1)	100 (1)	1 (0)	1 (0)	1 (0)	16 (10)	4 (6)	6 (6)
	1.5	15 (10.4)	40 (1)	75 (60)	15 (11)	27 (20)	10 (6)	25 (16)	4 (6)	6 (6)
	1.75	24 (14.5)	50 (1)	100 (75)	24 (18)	43 (33)	16 (10)	35 (25)	10 (6)	6 (6)

Notes: 1. Above power requirements are for the length of electric wire up to 50m from elevator shaft to motor to power.  
 2. Above cable sizes are for copper wires in electronic cable usage.  
 Cable sizes (mm<sup>2</sup>) =  $\frac{1000 \times \text{length} \times I^2 \times \rho}{V^2 \times \text{allowable}} \times 10^{-6}$   
 3. For power requirement of 3 cars or more, consult Hyundai.  
 4. Machine room temperature should be maintained inside 40°C by providing fan and air conditioner, and humidity should be 35%.  
 5. Data shown in ( ) are applied to the Machine Room less elevators and shafts elevators.

Persons (kg)	Speed (m/sec)	Motor (kW)	MCB (A)		Power (KVA)		Cable (mm <sup>2</sup> )		Earth (mm <sup>2</sup> )	
			1Car	2Cars	1Car	2Cars	1Car	2Cars	1Car	2Cars
6/650	1	5.5 (2.8)	30 (20)	50 (40)	4 (3.3)	9 (6.6)	4 (4)	10 (6)	4 (4)	6 (6)
	1.5	7.5 (4.2)	30 (20)	60 (40)	6 (4.2)	12 (8.4)	6 (6)	16 (10)	4 (4)	6 (6)
	1.75	23 (12.9)	40 (20)	75 (40)	7 (5.25)	14 (10.5)	6 (6)	16 (10)	6 (6)	10 (10)
8/550	1	5.5 (3.4)	30 (20)	50 (40)	3 (2.2)	9 (6.6)	4 (4)	10 (6)	4 (4)	6 (6)
	1.5	2.5 (1.2)	30 (20)	50 (40)	7 (5)	12 (9)	4 (4)	10 (6)	4 (4)	6 (6)
	1.75	11 (5.9)	30 (20)	75 (40)	9 (6.75)	14 (11)	6 (6)	16 (10)	4 (4)	6 (6)
9/600	1	5.5 (3.2)	30 (20)	50 (40)	4 (3.2)	9 (6.4)	4 (4)	10 (6)	4 (4)	6 (6)
	1.5	11 (5.4)	30 (20)	60 (40)	7 (5.4)	10 (8)	4 (4)	10 (6)	4 (4)	6 (6)
	1.75	11 (6.3)	40 (20)	100 (40)	10 (7.5)	15 (11.2)	10 (6)	25 (16)	4 (4)	6 (6)
10/700	1	11 (6.5)	40 (20)	60 (40)	4 (3.5)	10 (7)	4 (4)	10 (6)	4 (4)	6 (6)
	1.5	11 (6.5)	40 (20)	60 (40)	7 (6)	12 (9)	4 (4)	10 (6)	4 (4)	6 (6)
	1.75	11 (7.4)	40 (20)	100 (75)	11 (8.25)	17 (12.75)	4 (4)	10 (6)	4 (4)	6 (6)
11/750	1	2.5 (1.4)	30 (20)	50 (40)	3 (2.1)	7.5 (5.25)	4 (4)	10 (6)	4 (4)	6 (6)
	1.5	11 (6.9)	30 (20)	60 (40)	7 (5.25)	10 (7.5)	4 (4)	10 (6)	4 (4)	6 (6)
	1.75	11 (8.9)	30 (20)	100 (75)	10 (7.5)	14 (10.5)	4 (4)	10 (6)	4 (4)	6 (6)
13/900	1	8 (2)	30 (1)	50 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (8.1)	40 (10)	75 (50)	12 (9)	18 (13.5)	6 (4)	16 (10)	4 (6)	6 (6)
	1.75	15 (13.8)	40 (10)	75 (50)	15 (11.25)	22 (16.5)	6 (4)	16 (10)	4 (6)	6 (6)
15/1000	1	11 (3)	30 (1)	50 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (9.2)	40 (10)	75 (50)	12 (9)	18 (13.5)	6 (4)	16 (10)	4 (6)	6 (6)
	1.75	15 (13.8)	40 (10)	75 (50)	15 (11.25)	22 (16.5)	6 (4)	16 (10)	4 (6)	6 (6)
17/1150	1	12 (3)	40 (1)	75 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (4)	50 (1)	100 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.75	18 (12.4)	50 (1)	100 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
20/1350	1	15 (4)	40 (1)	75 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (10.4)	40 (1)	75 (60)	15 (11)	27 (20)	10 (6)	25 (16)	4 (6)	6 (6)
	1.75	22 (14.5)	50 (1)	100 (75)	17 (13)	31 (24)	10 (6)	25 (16)	4 (6)	6 (6)
24/1600	1	17 (7)	60 (1)	100 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (8.1)	30 (20)	60 (40)	12 (9)	21 (16)	10 (6)	16 (10)	4 (6)	6 (6)
	1.75	22 (14.5)	30 (40)	100 (75)	20 (15)	37 (28)	16 (10)	35 (25)	10 (6)	6 (6)
26/1800	1	16 (4)	40 (1)	75 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (9.9)	40 (1)	75 (60)	16 (10)	25 (20)	10 (6)	16 (10)	4 (6)	6 (6)
	1.75	27 (17.2)	60 (50)	100 (75)	24 (18)	43 (33)	16 (10)	35 (25)	10 (6)	6 (6)
28/2100	1	19 (2)	50 (1)	100 (1)	1 (0)	1 (0)	6 (1)	16 (10)	4 (6)	6 (6)
	1.5	15 (10.4)	40 (1)	75 (60)	15 (11)	27 (20)	10 (6)	25 (16)	4 (6)	6 (6)
	1.75	24 (14.5)	50 (1)	100 (75)	24 (18)	43 (33)	16 (10)	35 (25)	10 (6)	6 (6)

Notes: 1. Above power requirements are for the length of electric wire up to 50m from elevator shaft to motor to power.  
 2. Above cable sizes are for copper wires in electronic cable usage.  
 Cable sizes (mm<sup>2</sup>) =  $\frac{1000 \times \text{length} \times I^2 \times \rho}{V^2 \times \text{allowable}} \times 10^{-6}$   
 3. For power requirement of 3 cars or more, consult Hyundai.  
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LAMPIRAN 03  
**Perhitungan Momen  
Lentur, Geser, dan  
Torsi pada Balok Lantai  
*1 – Lantai Atap***

( Dalam CD )

**LAMPIRAN 04**  
**Perhitungan Momen**  
**Lentur dan Geser pada**  
**Kolom Lantai *Basement***  
**– Lantai 8**

( Dalam CD )



# LAMPIRAN 05

## Lampiran *SAP*



