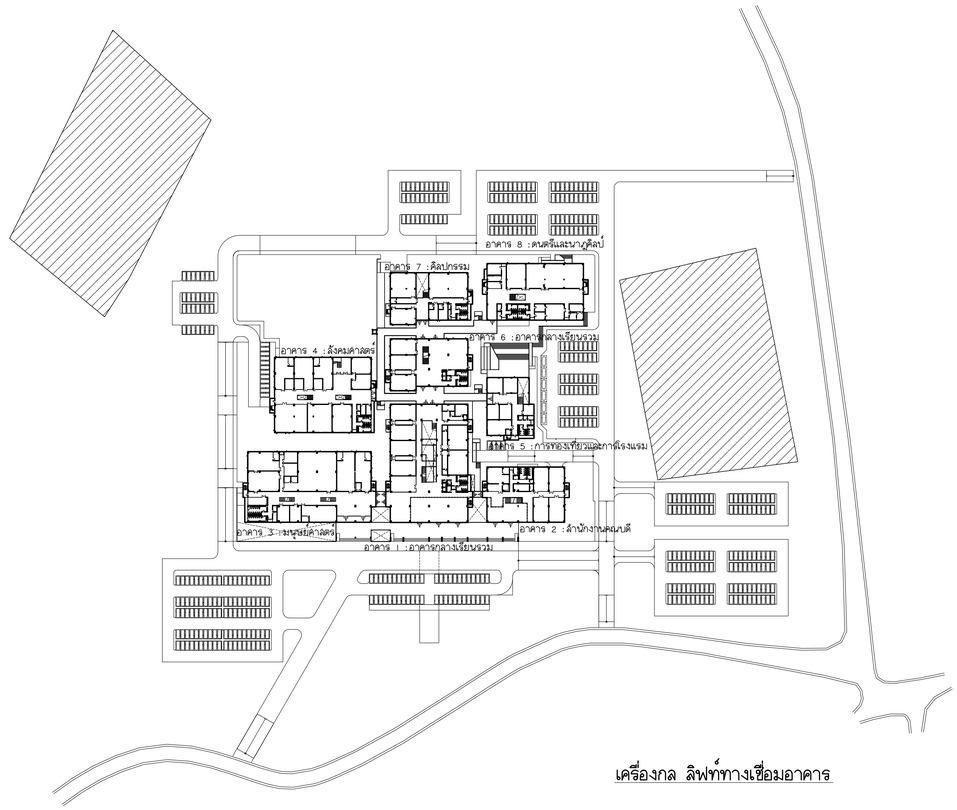


เครื่องกล ลิฟท์ทางเชื่อมอาคาร

มหาวิทยาลัยราชภัฏเชียงใหม่

แพลงฤทธิ์
96 หมู่2 ต.ท่าตาม อ.เมือง
จ.เชียงใหม่ 50000
Tel: 081 366 0002
E-MAIL: plankrich@gmail.com

PROJECT NAME

-

กลุ่มอาคารคณะมนุษย์ศาสตร์และสังคมศาสตร์
มหาวิทยาลัยราชภัฏเชียงใหม่

CLIENT

มหาวิทยาลัยราชภัฏเชียงใหม่ ศูนย์แม่ริม

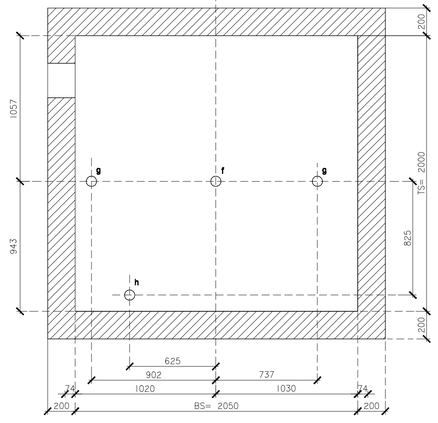
	A	แบบสถาปัตยกรรม ARCHITECTURAL
	S	แบบวิศวกรรมโครงสร้าง STRUCTURAL
	E	แบบวิศวกรรมระบบไฟฟ้าและสื่อสาร ELECTRICAL SYSTEM
	SN	แบบวิศวกรรมระบบสุขาภิบาล SANITARY SYSTEM
	AC	แบบวิศวกรรมเครื่องกล MACHANICAL SYSTEM

LIST OF DRAWING

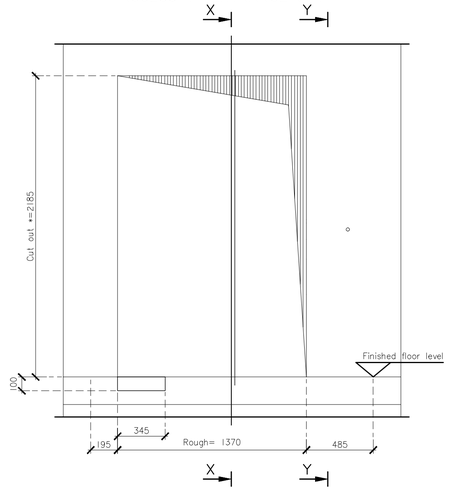
DWG No.	DESCRIPTION
AC - 01	LIST OF DRAWING DETAIL DRAWING OF ELEVATOR 1
AC - 02	DETAIL DRAWING OF ELEVATOR 2
AC - 03	DETAIL DRAWING OF ELEVATOR 3
AC - 04	DETAIL DRAWING OF ELEVATOR 4

TYPICAL DETAIL DRAWING OF ELEVATOR 1

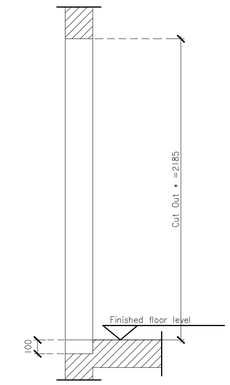
WELL HEAD 1:20



LOADING DOOR CUT OUT 1:20
ACCESS 1 :ENTRANCE : 4



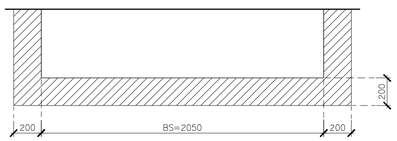
SECTION Y-Y 1:20



*** = From finished floor surface**

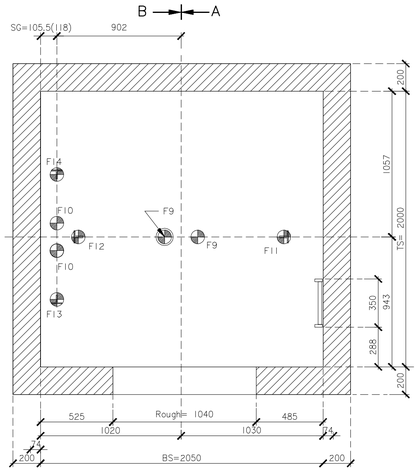
B — A

DOOR DETAIL 1:20
ACCESS 1 :ENTRANCE : 26



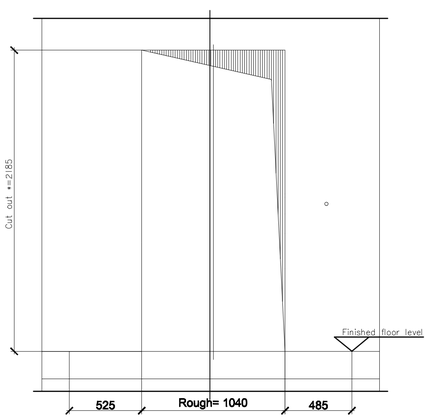
Well Pit 1:20
ACCESS 1 :ENTRANCE : 1, 2, 3

B — A

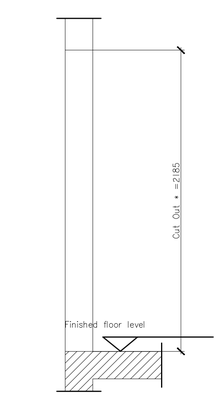


B — A

LOADING DOOR CUT OUT 1:20
ACCESS 1 :ENTRANCE : 1 ,2 ,3



SECTION X-X 1:20



*** = From finished floor surface**

Inlay Parts: 0301190589

Description	Description Type	Quantity
f	min. 30 kN SWL	1
g	min. 20 kN SWL	2
h	min. 20 kN	1

Attention℄ Do Not Scale This Drawing℄

WORKS BY CLIENT

Pit

1. The lift pit shall be impervious to infiltration **of water. Waterproof lining if provided must not encroach on minimum shaft plan dimensions.**
2. Form reinforced concrete buffer plinths at pit level to be built during course of erection, reinforced steel bars to be reserved. exact height of concrete plinths to be determined during course of erection.
3. Provide cat ladder to pit
4. Provide a rigid dividing screen, to a height of 2500mm from pit floor level, between lifts when installed in a common shaft.
5. Provide wire mesh panel or checker plate service platform for every lift pit deeper than 2500mm.
6. If without CWT safety gear, there's a forbidden space for person under the pit.

Shaft

1. Shaft structure are strongly recommanded to be concrete. If bricky situation, adding structure beam to the position of brackets locates should be taken into account.
2. When front wall of shaft is bricky, a lintel used to fasten brackets should be added above the hole of landing door, with height not less than 350mm.
3. The internal surfaces of lift shaft are to be clean and free from projections.
4. Grouting of door frames to be filled up after door frames are installed.
5. When emergency doors at landings are required, they should be located within the car door clear opening width.
6. The well shall be suitably ventilated. It shall not be used to provide ventilation of rooms other than those belonging to the lift. In the absence of relevant regulations or standards, it is recommended that ventilation openings at the top of the well, with a minimum area of 1 % of the horizontal section of the well, are provided.
7. The well shall be provided with permanently installed electric lighting, giving an intensity of illumination of at least 50 lux, 1 m above the car roof and the pit floor, even when all doors are closed. This lighting shall comprise one lamp at most 0.50 m from the highest and lowest points in the well with intermediate lamp(s).
8. Shaft- and axis dimensions may not exceed perpendicular tolerance of: +/- 25 mm
9. The well shall be suitably ventilated. The ambient temperature in the machine room is assumed to be maintained between +5 ℃and +40 ℃.

Power supply and circuit breaker in Machine Room

1. An individual building mains breaker to be provided for each elevator (Actual location to be decided on site)
2. Mains supply to be connected by builder from the building mains breaker to the JH (Schinder provide) for each elevator.

JLBS	Well light switch & Well socket outlet	JH	Main power switch
JHL	Car main switch light	JHNS	Emergency power main switch

(Head section)
Car
FF1 = 177 N
FF2 = 491 N
Counterweight
FF1 = 874 N
FF2 = 72 N

(Travel section)
Car
FF1 = 909 N
FF2 = 767 N
Counterweight
FF1 = 625 N
FF2 = 52 N

(Pit section)
Car
FF1 = 1591 N
FF2 = 1030 N
Counterweight
FF1 = 500 N
FF2 = 72 N

Attention℄ Do Not Scale This Drawing℄

Guide shoe forces

Car
FF1 =1591.00 N
FF2 =1030.00 N
CWT
FF1 =874.00 N
FF2 =72.00 N

Loads (N)

F1 =	F7 =	F13 = 25543	F19 =		
F2 =	F8 =	F14 = 25543	F20 =		
F3 =	F9 = 38202	F15 =	F21 =		
F4 =	F10 = 30389	F16 =	F22 =		
F5 =	F11 = 36065	F17 =	F23 =		
F6 =	F12 = 36065	F18 =	F24 =		

Loads F9 + F10 in case either car or counterweight lands on the buffers.
Load F11 + F12 only occur in case of operation of the safety gear.
Loads F13 + F14 - in case of operation of the safety gear for CWT.
F9,F10, (F11+F12), (F13+F14) Never Occur Simultaneously

	Modification	Modified by		Date
00	Automatic Generation with SAP data CP 285 (---)			

MAIN DATA :

Rated Load (kg)	800
Passenger No.	10
Travel Height (m)	12.00
Rated Speed (m/s)	1.00
Floor No. / Stops No.	4
Entrances	1
Control Type	KS
Building tolerance (mm)	+25/-25
Weight of Car GK (kg)	1148
Weight of Cwt GG (kg)	1549
GKU (kg)	1951

ELECTRICAL DATA :

Main power supply type	TN_S
Nominal Voltage (V)	380
Power supply for light (V)	220
Main frequency (Hz)	50 +/- 5%
Nom.current of installation total INNT	20.1
Starting nominal current total INAT	22.5
Main fuse (building) SIH	40
Total heat generation POW	0.79

Machine Room Less

Project:

Customer: Customer Ref. No.:

Drawing No.: Contract No. Codeword Lift No.:

Page	Total	Modification	Ae1
1	4		
Drawing	Joey Yan	Date	2019.03.28
Checked	/	Date	/
Approved	Vivien Weng	Date	/
		Format	A1

Glossaries :
Shaft:
BS =Width of shaft clear
TS =Depth of shaft clear
BSG =Width of shaft total clear
HSG =Height of pit clear
HSK =Height of overhead clear
HQ =Travel height
HS =Height of shaft total
HSS1 =Height of buffer support car
HSS2 =Height of buffer support CWT
Machine Room :
BO =Width of MR
TO =Depth of MR
HO =Height of MR
TZ =Suspension rope fall distance at machine
Car
BK =Width of car (before decoration)
TK =Depth of car (before decoration)
HK =Height of car (before decoration)
BKS =Distance between car guides
TKF =Distance between edge of car-sill to car guide axis
SKO =Overtravel of car top
SKU =Overtravel of car bottom
Landing doors:
BT =Width of door clear
HT =Height of door clear
Counterweight :
BG =Width of CWT
TG =Depth of CWT
BGS =Distance between CWT guides
HGR =Height of CWT Frame
Panels:
LOP =Landing operation panel
LIP =Landing indicator panel
COP =Car operating panel

Voltage Levelling
A voltage levelling point needs to be made in the shaft pit. All guide rails must have a physical (metallic) connection with this voltag levelling point, installed by the electician of the construction site, Lightning protection)
Cross section of cable 25 mm2 according local codes.

มหาวิทยาลัยราชภัฏเชียงใหม่
แพลงฤทธิ์
96 หมู่ 2 ต.ท่าข่าม อ.เมือง
จ.เชียงใหม่ 50000
Tel: 081 366 0002
E-MAIL: plankrich@gmail.com

PROJECT NAME ชื่อโครงการ
ทางเชื่อมอาคาร
กลุ่มอาคารคณะมนุษย์ศาสตร์
และสังคมศาสตร์

CLIENT เจ้าของ
มหาวิทยาลัยราชภัฏเชียงใหม่ คุณย่แม่ริม

ARCHITECTS สถาปนิก
นาย เอกชัย ก้ลยาประสิทธิ์ ลสก.3055

STRUCTURAL ENGINEER วิศวกรโครงสร้าง
นาย ธรรมนูญ เทพจันทร์ วย.1401
(ผู้รับของโครงสร้าง)
นาย ศกาวุธ ไชยแสน ลย.8674
นาย ศักดิ์ชัย ทองพันชั่ง ภย.33429

ELECTRICAL ENGINEER วิศวกรไฟฟ้า
นาย จำนงค์ ใจนวล ลพก.4537

SANITARY ENGINEER วิศวกรสุขาภิบาล
นาย คุภาชัย คงอินทร์ ลส.276
นาย อลงกรณ์ กล่อมจิต ภก.26773

MACHANICAL ENGINEER วิศวกรเครื่องกล
นาย ยศธา คุณาทร ลก.4056
นาย ณัฐพล ไชยแก้ว ภก.35147

REVISION DATE

TITLE
LIST OF DRAWING
DETAIL DRAWING OF ELEVATOR 1

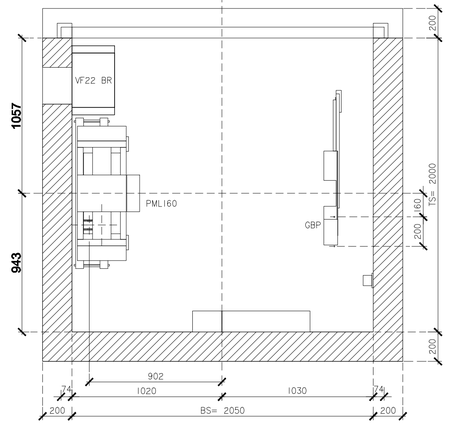
JOB NO : -
DWG BY : -
DATE : 04-2563

AC-01

TYPICAL DETAIL DRAWING OF ELEVATOR 2

WELL HEAD 1:20

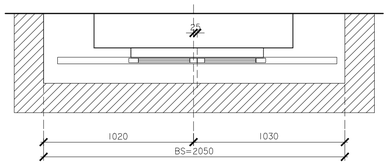
B ⟶|⟵ A



B ⟶|⟵ A

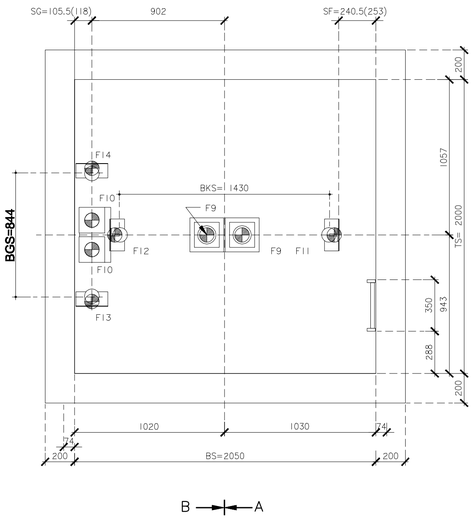
DOOR DETAIL 1:20

ACCESS 1 :ENTRANCE : 26



Well Pit 1:20

B ⟶|⟵ A

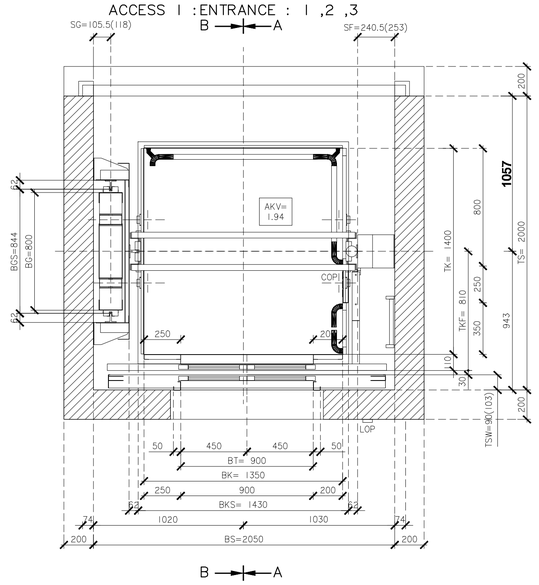


B ⟶|⟵ A

SHAFT PLAN 1:20

ACCESS 1 :ENTRANCE : 1 ,2 ,3

B ⟶|⟵ A



B ⟶|⟵ A

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Attention! Do Not Scale This Drawing!

WORKS BY CLIENT

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Attention! Do Not Scale This Drawing!

Guide shoe forces

Car		Loads (N)					
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CWT		F3	=	F9	=38202	F15	= F21 =
FF1	=874.00 N	F4	=	F10	=30389	F16	= F22 =
FF2	=72.00N	F5	=	F11	=36065	F17	= F23 =
		F6	=	F12	=36065	F18	= F24 =

Loads F9 + F10 in case either car or counterweight lands on the buffers.
Load F11 + F12 only occur in case of operation of the safety gear.
Loads F13 + F14 - in case of operation of the safety gear for CWT.
F9,F10, (F11+F12), (F13+F14) Never Occur Simultaneously

	Modification	Modified by		Date
00	Automatic Generation with SAP data CP 285 (----)			

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TO =Depth of MR
HO =Height of MR
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HK =Height of car (before decoration)
BKS =Distance between car guides
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GKU (kg)	1951

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Power supply for light (V)	220
Main frequency (Hz)	50 +/- 5%
Nom.current of installation total INNT	20.1
Starting nominal current total INAT	22.5
Main fuse (building) SIH	40
Total heat generation POW	0.79

Machine Room Less

Project: CMRU
Customer: Customer Ref. No.:
Drawing No.: Contract No. Codeword: Lift No.: 0301190589

Page	Total	Modification	Ael
2	4		
Drawing	Joey Yan	Date	2019.03.28
Checked	/	Date	/
Approved	Vivien Weng	Date	/
		Format	A1

มหาวิทยาลัยราชภัฏเชียงใหม่

แพลงฤทธิ์
96 หมู่2 ต.ท่าข่าม อ.เมือง
จ.เชียงใหม่ 50000
Tel:081 366 0002
E-MAIL: plankrich@gmail.com

PROJECT NAME ชื่อโครงการ
ทางเชื่อมอาคาร
กลุ่มอาคารคณะมนุษยศาสตร์
และสังคมศาสตร์

CLIENT เจ้าของ
มหาวิทยาลัยราชภัฏเชียงใหม่ คุณย์แม่ริม

ARCHITECTS สถาปนิก
นาย เอกชัย กัลยาประสิทธิ์ ลสถ.3055

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นาย ธรรมนูญ เทพจันทร์ วย.1401
(ผู้รับรองโครงสร้าง)
นาย คฑาวุธ ไชยแสน สย.8674
นาย ศักดิ์ชัย ทองพันชั่ง ภย.33429

ELECTRICAL ENGINEER วิศวกรไฟฟ้า
นาย จำนงค์ ไจนวัส ลพก.4537

SANITARY ENGINEER วิศวกรสุขาภิบาล
นาย คุภชัย คงอินทร์ สส.276
นาย อลงกรณ์ กล่อมจิต ภก.26773

MACHANICAL ENGINEER วิศวกรเครื่องกล
นาย ยศธา คุณาทร ลก.4056
นาย ณัฐพล ไชยแก้ว ภก.35147

REVISION DATE

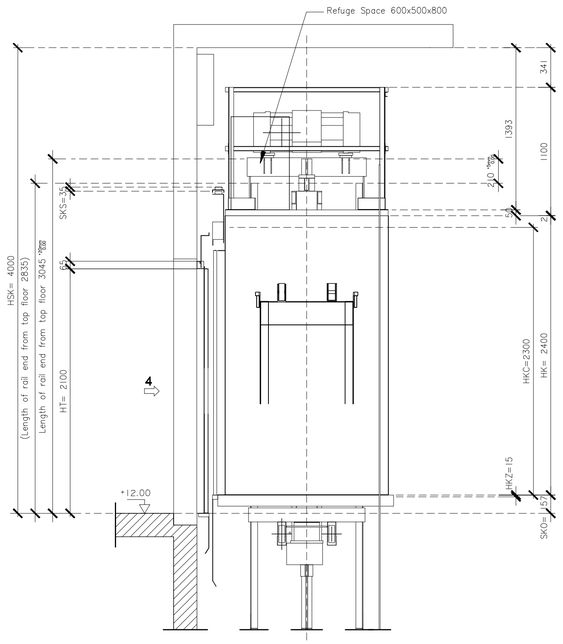
TITLE
DETAIL DRAWING OF ELEVATOR 2

JOB NO : -
DWG BY : -
DATE : 04-2563

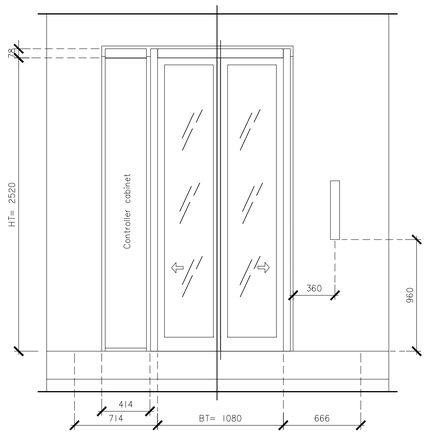
AC-02

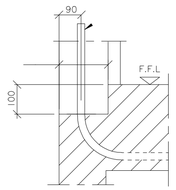
TYPICAL DETAIL DRAWING OF ELEVATOR 3

WELL HEAD AND WELL PIT 1:30

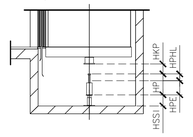


DOOR DETAIL 1:20
ACCESS 1 : ENTRANCE 4

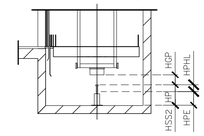




Car position at bottom floor

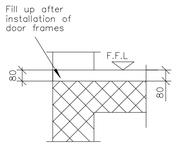


Car position at top floor

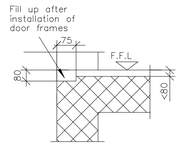


	Car buffer	Counterweight buffer
	ACLA 300510	ACLA 300501
(HP)	100	80
HPH/HPHL	90 / 90	72 / 72
HKP/HGP	70	85
HSS1/2	1055	35
HPE	10	8
Quantity	2	2

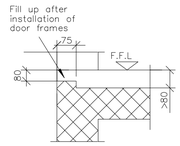
Door Sill Detail



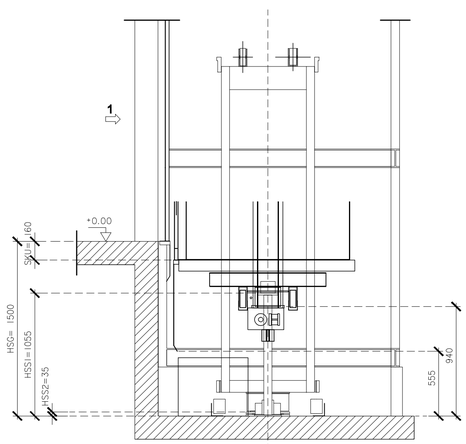
Door Sill Detail

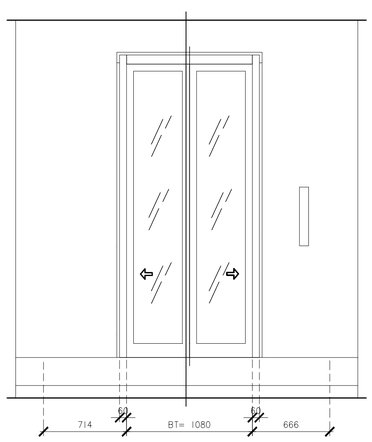


Door Sill Detail



DOOR DETAIL 1:20
ACCESS 1 : ENTRANCE 1 ,2 ,3





Attention! Do Not Scale This Drawing!				
	Modification	Modified by		Date
00	Automatic Generation with SAP data CP 285 (----)			

Machine Room Less

Project: CMRU
Customer: Customer Ref. No.:

Drawing No.: Contract No. : Codeword : Lift No.: 0301190589

Page	Total	Modification	Ael
3	4		
Drawing	Joey Yan	Date	2019.03.28
Checked	/	Date	/
Approved	Vivien Weng	Date	/
		Format	A1

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จ.เชียงใหม่ 50000
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E-MAIL: plankrich@gmail.com

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กลุ่มอาคารคณะมนุษยศาสตร์
และสังคมศาสตร์

CLIENT เจ้าของ
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นาย ณัฐพล ไชยแก้ว ภก.35147

REVISION DATE

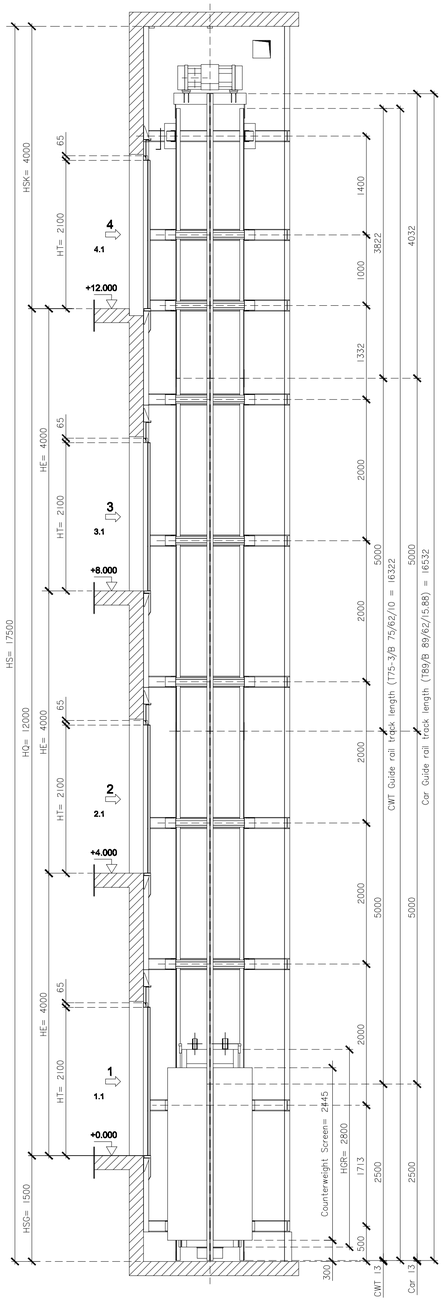
TITLE
DETAIL DRAWING OF ELEVATOR 3

JOB NO: -
DWG BY: -
DATE: 04-2563

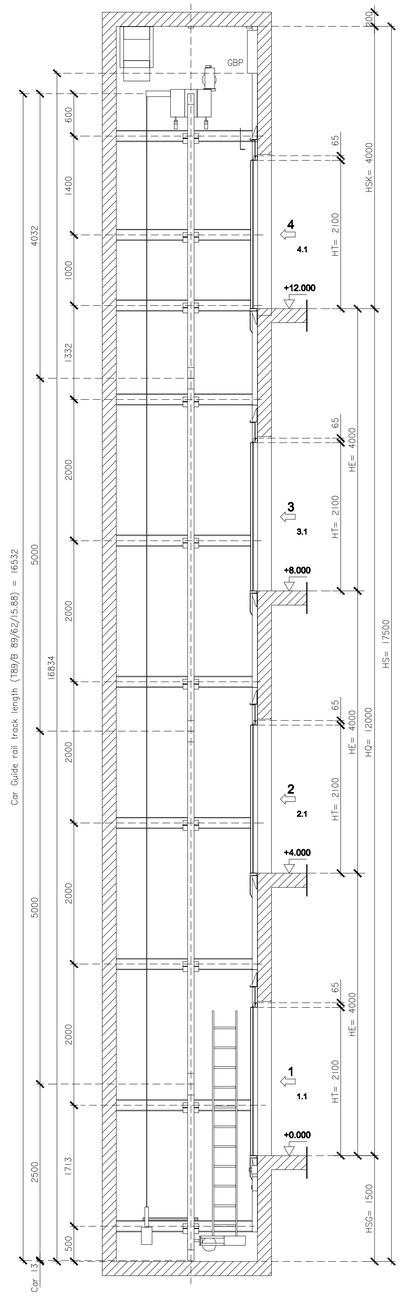
AC-03

TYPICAL DETAIL DRAWING OF ELEVATOR 4

SECTION A-A 1:30



SECTION B-B 1:30



Bracket Selection

HF max = 2000	Level	Car side	Counterweight side
		Type	Type
Head section	to 15045	3 x Z-BL4	1 x L0-A AL1
	from 10772		2 x 0-AL NB1
Travel section	to 10771	5 x Z-BL4	5 x 0-AL NB1
	from 2591		
Pit section	to 2590	2 x Z-BL4	2 x 0-BL NB1 *)
	from -1500		

*) Brackets are marked with a sticker if they differ from bracket type in travel section.

Guide rail fixings
Car guide rail length 16532 mm
Cwt guide rail length 16322 mm

Sequence	HF Dist. Car	CWT
HF_Top	1400	1400
HF_2nd Top	1000	1000
HF_3rd Top	1332	1332
HF_4th Top	2000	2000
HF_Rest	2 x 2000	2 x 2000
HF3	2000	2000
HF2	2000	2000
HF1	1713	1713
HF0	500	500

Attention! Do Not Scale This Drawing!

	Modification	Modified by		Date
00	Automatic Generation with SAP data CP 285 (----)			

Machine Room Less

Project: CMRU

Customer: Customer Ref. No.:

Drawing No.: Contract No. Codeword : Lift No.: 0301190589

Page 4	Total 4	Modification	Ael
Drawing	Joey Yan	Date	2019.03.28
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		Format	A1

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CLIENT เจ้าของ
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นาย ณัฐพล ไชยแก้ว ภก.35147

REVISION DATE

TITLE
TYPICAL DETAIL DRAWINGS OF ELEVATOR 4

JOB NO : -
DWG BY : -
DATE : 04-2563

AC-04