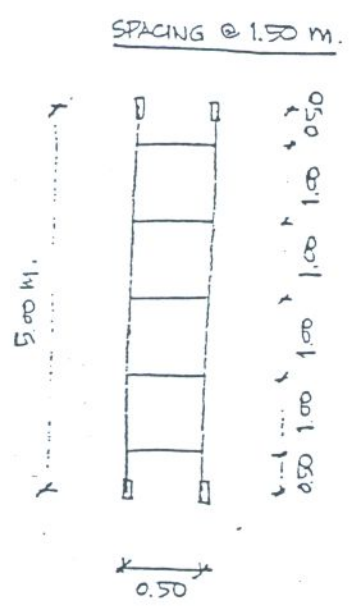
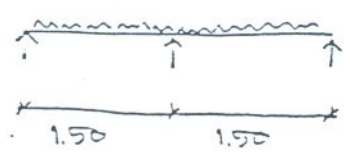


บันไดเลื่อน



ความสูงบันไดเลื่อน = $5 \times 5.00 = 25.00$ m.
 ระยะกึ่งกลางของขั้นบันได: 3.20 m. = 8 ขั้น

PLATFORM



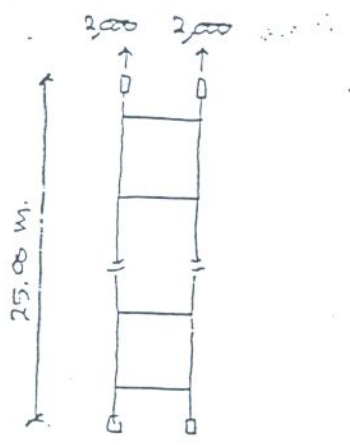
D.L. = $50 \text{ kg/m}^2 = 25 \text{ kg/m}$.
 L.L. = $600 \text{ kg/m}^2 = 300 \text{ kg/m}$.
 } $w = 325 \text{ kg/m}$.

$M = \frac{1}{8} \times 325 \times 1.50^2 = 91.4 \text{ kg-m}$.

$Z = \frac{9140}{1,200} = 7.62 \text{ cm}^3$

USE 2 \square 60x30x10x1.6 @ 1.63 kg/m = $2 \times 3.88 = 7.76$ cm

บันไดเลื่อนในตู้ลิฟต์



USE ϕ 16 mm. D.L. = $5 \times 12.50 \text{ m} \times 1.50 \text{ kg/m} = 100 \text{ kg}$

ASSUME หนัก PLATFORM ยุกกึ่งกลางของขั้นบันได 8 ขั้น

D.L. + L.L. = $8 \times 325 \text{ kg/m} \times 1.50 \text{ m} = 3900 \text{ kg}$

TOTAL LOAD = $4000 \text{ kg} / 2 \text{ จุด}$.

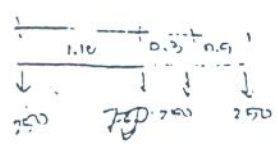
= $2000 \text{ kg/จุด} < 2.01 \text{ cm}^2 \times 1,400 \text{ KSC}$. o.

บันไดเลื่อน 1 ชุด.

$w = 325 \text{ kg/m}$.

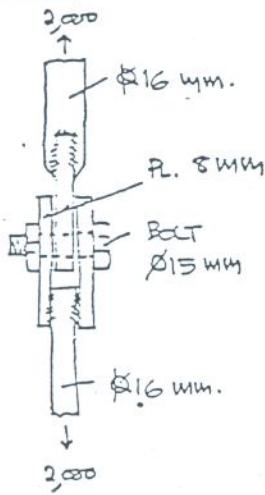
$D.L. + L.L. = 325 \times 1.50 = 487.5 \text{ kg}$. $\leq 500 \text{ kg}$.

น้ำหนักของบันได = 250 kg .



[Signature]

CONNECTION



USE PLATE 8 mm. กว้าง 8 cm. ; BOLT (A307) Ø 15 mm.

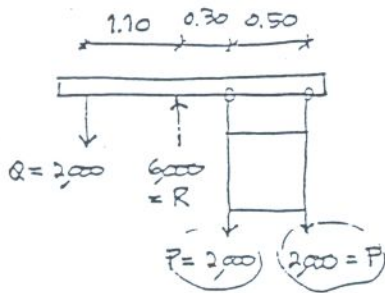
PLATE TENSION = $(8 - 1.5) \times 0.8 \times 1200 = 6,240 \text{ kg} > 2,000$

BOLT SHEAR = $2 \times \frac{\pi}{4} \times 1.5^2 \times 700 = 2,474 \text{ kg} > 2,000$

วัสดุเชื่อม : วัสดุเชื่อม E60 นี้อัด 6 mm. = 530 kg/cm.

LOAD 2,000 kg สอดรับกับ 38 cm.

คานรับโถงฝังรอก (คานรับโถงฝังรอกขนาดยาว 5x5.00 = 25.00 m)



$M = 0.3 \times 2,000 + 0.8 \times 2,000 = 2,200 \text{ kg-m.}$

$Z = \frac{2,200 \times 100}{1,200} = 183.3 \text{ cm.}^3$



USE 2 JI 150x75x6.5 @ 18.6 kg/m = 2x115 = 330 cm.³

ANCHOR LOAD 2,000 kg.

USE 4-HILTI HKD M10 = 4x550 = 2,200 kg. (spacing 14 cm)

วัสดุเชื่อม ANCHOR BOLT Ø12 mm. 4 รัด. = 4x1.13x1,200 = 5,424

วัสดุเชื่อม L = $\frac{1.2 \times 1200}{4 \times 11} = 32.7 \text{ cm.}$ USE 35 cm.

คานรับโถงฝังรอก (คานรับโถงฝังรอกขนาดยาว 5.00 m)

DL. ราง Ø16 = 12.50 x 1.58 = 20 kg } TOTAL = 510 kg.
DL.+L.L. PLATFORM = 325 x 150 = 4,90

P = Q = 255 kg. ; R = 765 kg

M = 280 kg-m. $Z = \frac{280 \times 100}{1,200} = 23.3 \text{ cm.}^3$

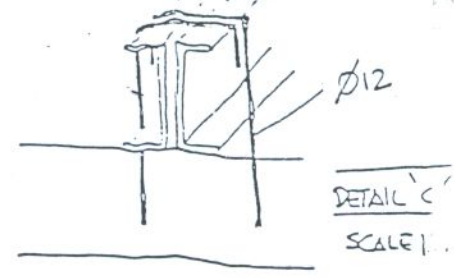
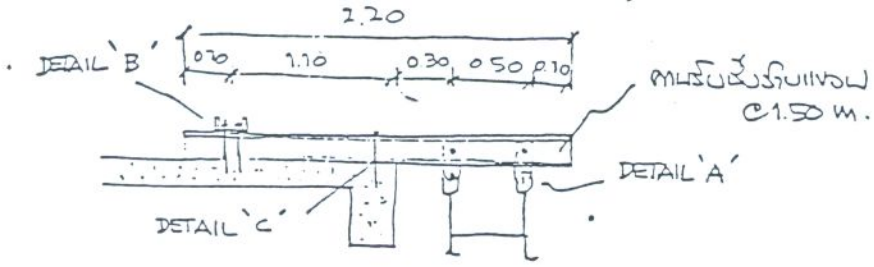
USE C 125x50x20x3.2 @ 6.1 kg/m. = 290 cm.³

or C 150x50x20x2.3 @ 5.0 kg/m. = 28.0 cm.³

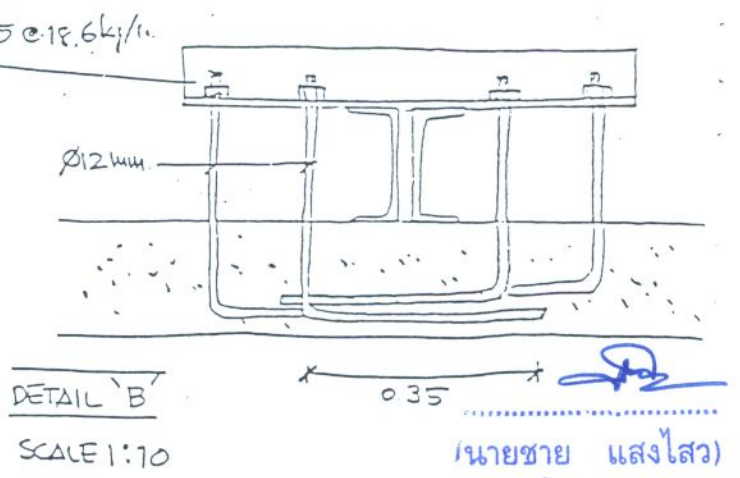
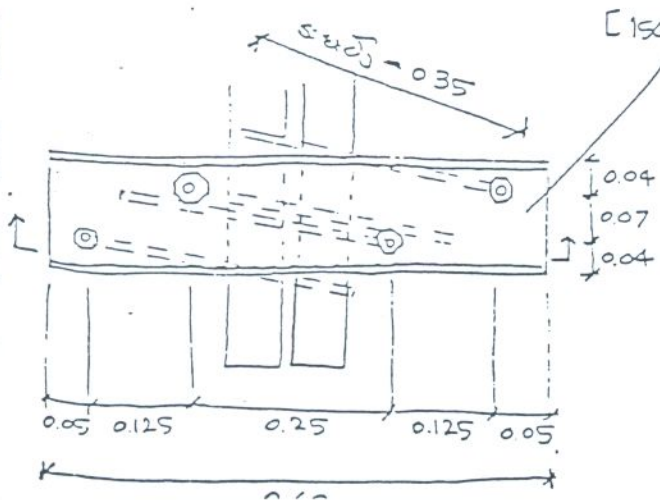
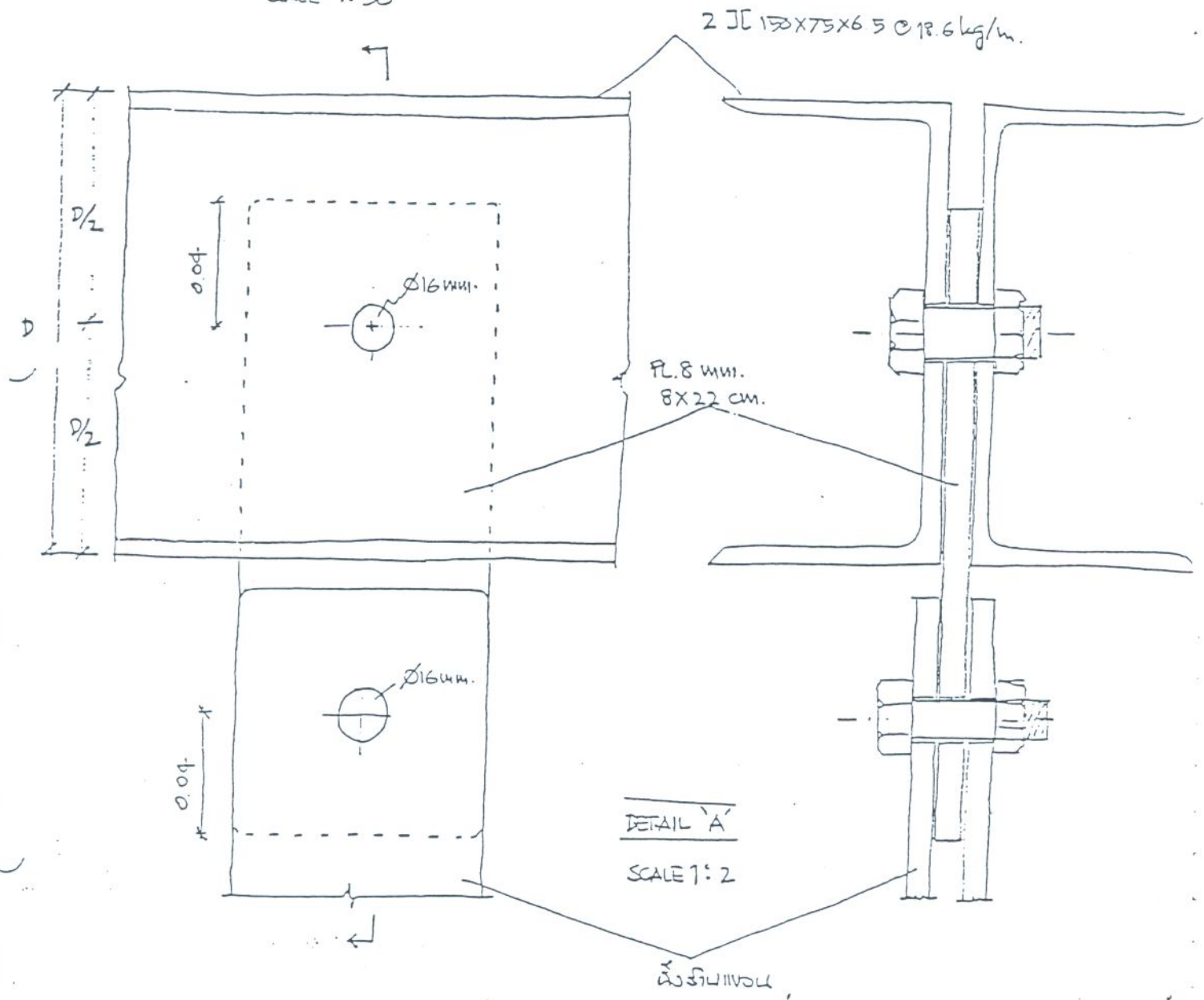
COUNTER WEIGHT 255 kg.

วัสดุ 4-HILTI HKD M6 = 4x210 = 840 kg (spacing 9 cm)

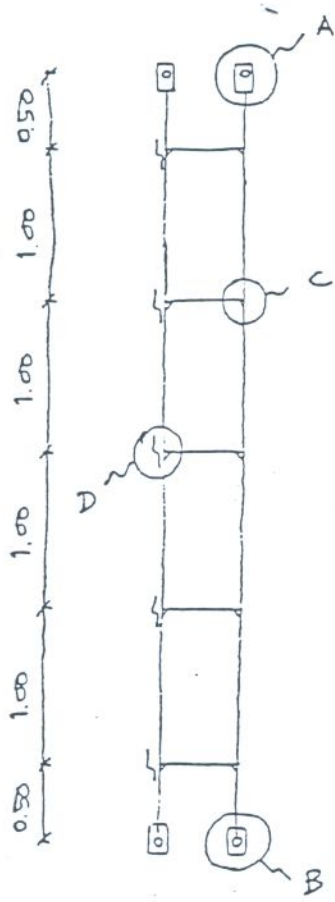
นายชาย แสงใส
วิศวกรโยธา สย.8611



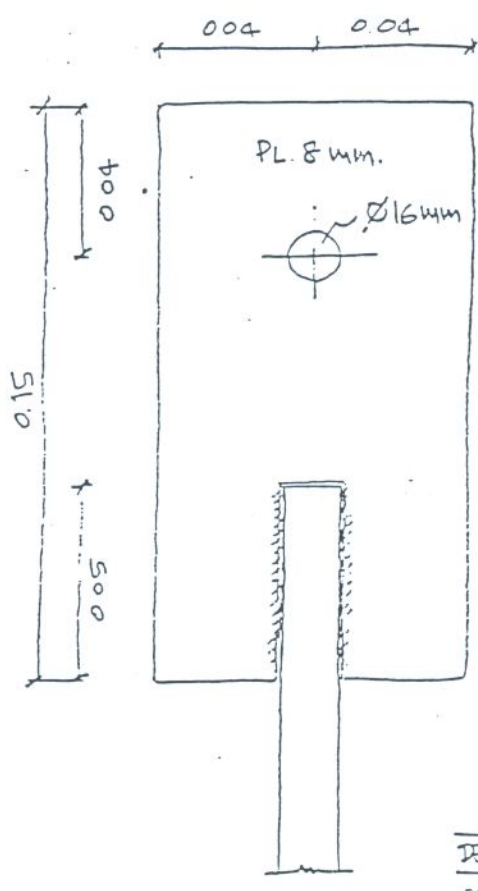
SCALE 1:50



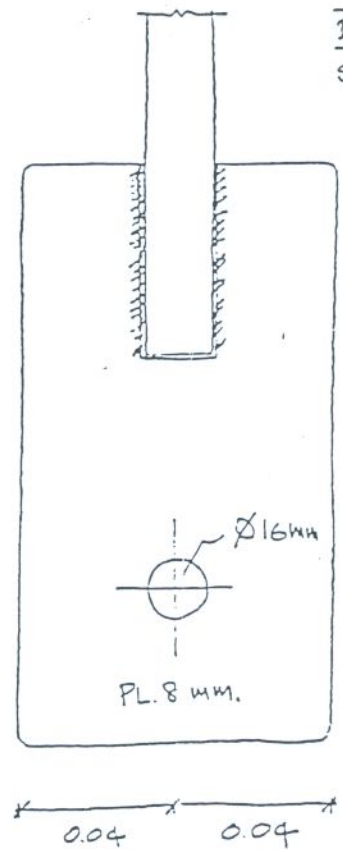
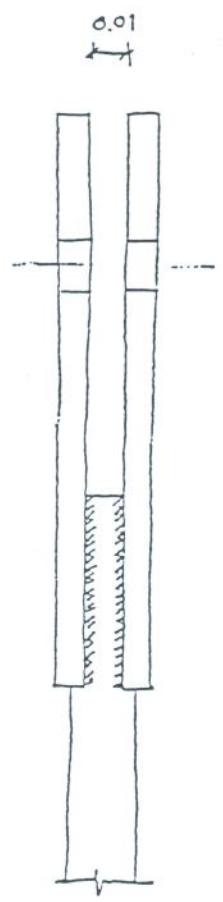
นายชาย แสงไสว
วิศวกรโยธา สย.8611



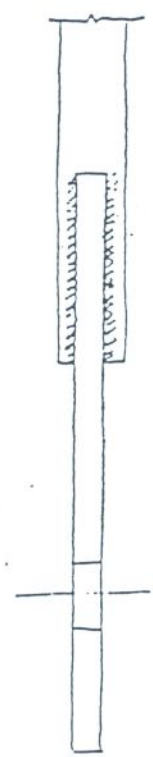
SCALE 1:50



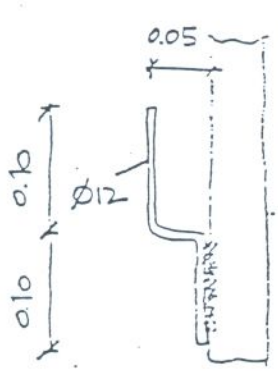
DETAIL 'A'
SCALE 1:2



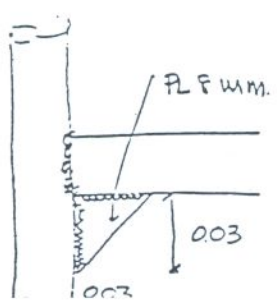
DETAIL 'B'
SCALE 1:2



DETAIL 'D'



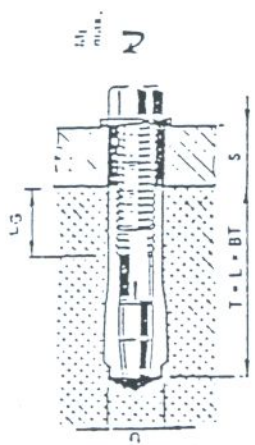
DETAIL 'C'



* รอยเชื่อมพูนแนว ๑๕ องศาเชื่อม E60
ขนาดรอยเชื่อม = 6 mm.


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H1111 HKD Anchor



Setting details

Details	Anchor size	HKD M8	HKD M10	HKD M12	HKD M16	HKD M20
D hole dia (mm)		8	10	12	15	20
T rec. min. depth of embedment		25	30	40	50	65
L anchor length		11	13	15	18	23
BT hole depth (mm)		5	11	22	37	80
LG length of thread (mm)		10	13	17	19	24
M ₁ max. tight torque (Nm) for bolts of UTS (v.B) 500 N/mm ²		TE-C-8/15	TE-C-10/15	TE-C-12/15	TE-C-15/15	TE-F-20/32
SW width across flats (mm)		TE 12	TE 17/TE 22	TE 22	TE 24	TE-F-25/32
Required drill bit		TE 10	TE 10	TE 12	TE 14	TE 18
Rotary hammer drill						
SG min. base material thickness (cm)						

Distance between anchors A and distance from edge R

Anchor	A	A _{min}	I _A	Load directed towards edge			Load not directed towards edge		
HKD	3.5T	2T	0.5	R	R _{min}	I _R	R	R _{min}	I _R
				JT	JT	JT	JT	JT	JT

Note: The min. screwed-in depth of bolt is 1x thread dia. To determine the holding powers screws with a UTS (v.B) of 500 N/mm² were used.

H1111 HKD Anchor

Safe working loads (using a generally applied safety of $\gamma = 3.14$)

Value N/mm ²	Anchor size						
	M6	M8	M10	M12	M16	M20	
Z _{0.1} f _w = 25 N/mm ²	2.9	3.8	5.5	8.9	14.1	16.9	
Z _{0.2} f _w = 45 N/mm ²	3.4	4.8	5.8	10.8	19.0	25.3	
O _{0.1} f _w = for all concrete	2.1	3.1	4.6	7.5	14.1	20.2	
	5.6 8.8	6.2 11.7	12.5 17.8	21.8 36.8	55.5 74.3	108.2 140.6	

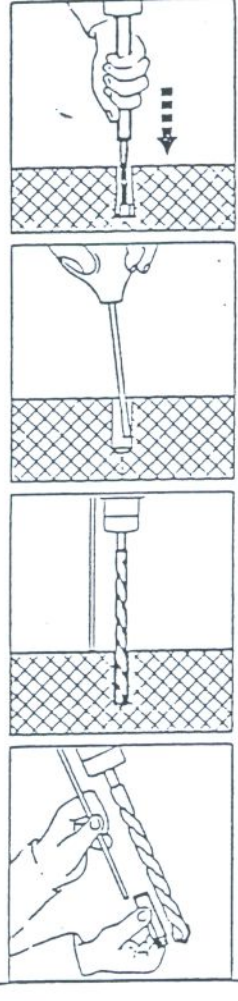
Checking the holding power:

The anchor can be checked by a testing device and torque wrench.

Special notes:

1. Approved by the IIBT (Institute for Building Technology) West Germany, for loadbearing fastenings.
2. Dynamic loading, as described in the introduction, does not reduce the loading capacity of the anchor.

Setting operations:



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