



THAI OBAYASHI CORP.,LTD
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Date :

JANUARY 2017

PRESENT PHOTOGRAPH



THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

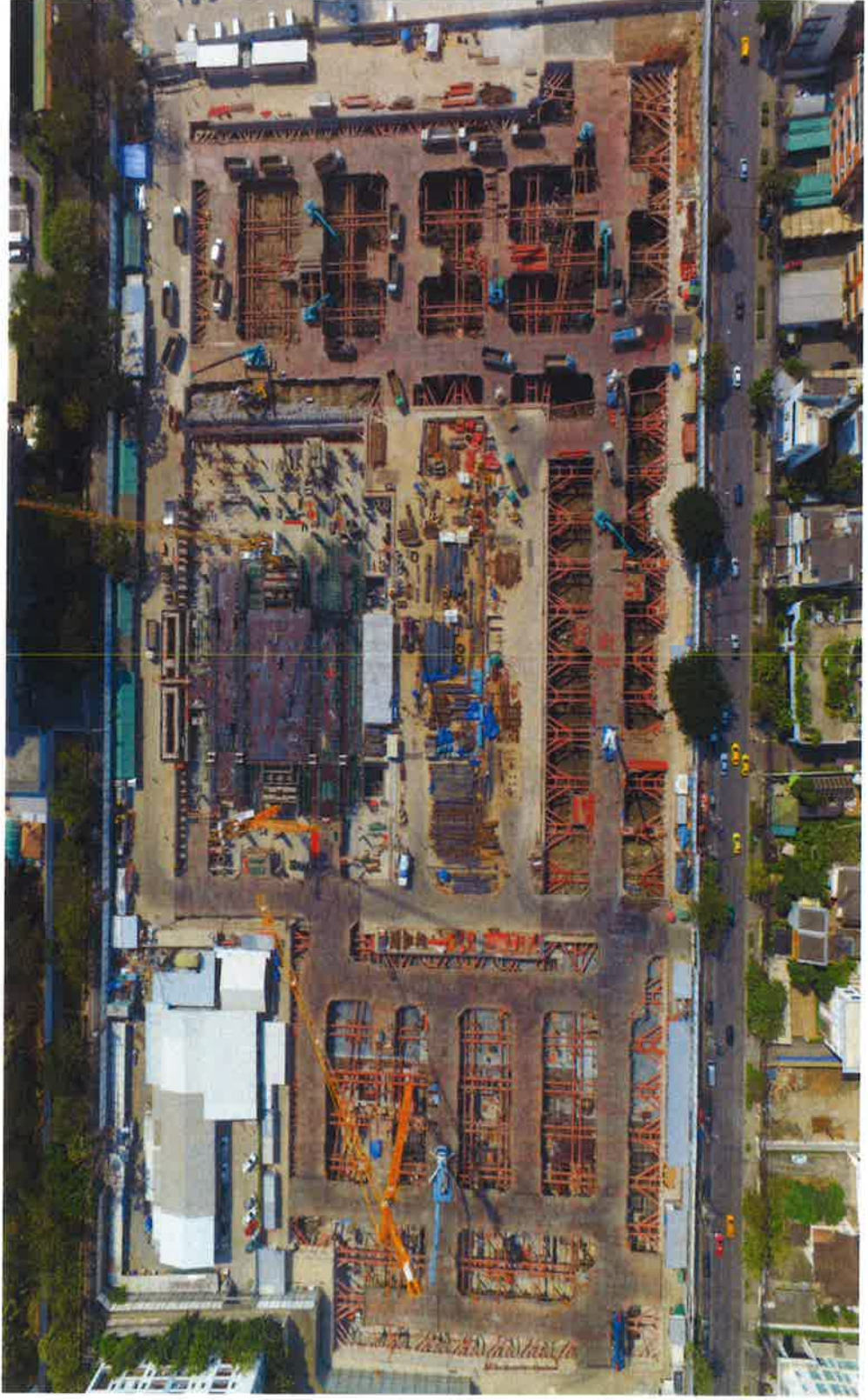
Project : LANGSUAN VILLAGE

Title : Site view

Date : JANUARY 2017

Picture No.

1



SITE VIEW



THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : AP-S and HC zone

Picture No.

2



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : AP-W zone

Picture No.

3





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : WS zone

Picture No.

4



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : AP-L zone

Picture No.

5





THAI OBAYASHI CORP.,LTD
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH AP-S ZONE

Date :

JANUARY 2017

PRESENT PHOTOGRAPH AP-S ZONE



THAI OBAYASHI CORP., LTD.
 11th Fl. Nantawan Bldg., 161
 Ratchadamri Rd., Bangkok
 10330, Thailand. Tel. +66(0)2252-5200,
 Fax : +66(0) 2252-5381
 www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE	Date : JANUARY 2017
Title : Inspection steel bar for Slab B1.FL.WS zone Line:KC-KI/K8-K13	Picture No. 1



Project : LANGSUAN VILLAGE	Date : JANUARY 2017
Title : Checking shoring form work for casting concrete B1.FL.WS zone Line:KC-KI/K8-K13	Picture No. 2





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Concrete work WS.Zone Line: KC-KI/K8-K13

Picture No.

3



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Concrete steel towel for Finishing work WS.Zone Line: KC-KI/K8-K13

Picture No.

4





THAI OBAYASHI CORP., LTD.
 11th Fl. Nantawan Bldg., 161
 Ratchadamri Rd., Bangkok
 10330, Thailand. Tel. +66(0)2252-5200,
 Fax : +66(0) 2252-5381
 www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Form Work & Level Guide Setting in Slab B1-3, B1-4 Line : SI-SR/S18-S23 (AP-S)

Picture No.

5



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Concrete Work in Slab B1-2 Line : SR-KA/S18-S23 (AP-S,WS)

Picture No.

6





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.lhaiobayashi.co.th

PRESENT PHOTOGRAPH

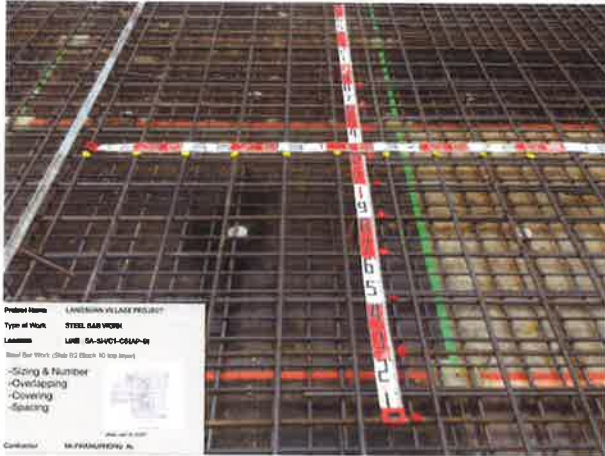
Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Steel Bar Work in Slab B2-10 Line : SA-SI/S1-S4 (AP-S)

Picture No.

7



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Form Work in Slab B1-6 Line : SI-SR/S5-S17 (AP-S)

Picture No.

8





THAI OBAYASHI CORP.,LTD
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH AP-W ZONE

Date :

JANUARY 2017

PRESENT PHOTOGRAPH AP-W ZONE



THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.lhaobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE

Title : Formwork for slab

Date : JANUARY 2017

Picture No. 1



Project : LANGSUAN VILLAGE

Title : Rebar work for slab and beam

Date : JANUARY 2017

Picture No. 2





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Rebar work for column

Picture No.

3



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Casting concrete for core lift

Picture No.

4





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE	Date : JANUARY 2017
Title : Casting concrete for column	Picture No. 5



Project : LANGSUAN VILLAGE	Date : JANUARY 2017
Title :	Picture No.



THAI OBAYASHI CORP.,LTD
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH AP-L ZONE

Date :

JANUARY 2017

PRESENT PHOTOGRAPH AP-L ZONE



THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Cap beam steel bar work

Picture No.

1



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Cap beam form work and concrete work

Picture No.

2





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

PRESENT PHOTOGRAPH

Project : LANGSUAN VILLAGE	Date : JANUARY 2017
Title : Excavation work for 2nd layer	Picture No. 3



Project : LANGSUAN VILLAGE	Date : JANUARY 2017
Title : Bracing work for 2nd layer	Picture No. 4





THAI OBAYASHI CORP.,LTD
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

SAFETY & ENVIRONMENTAL ACTIVITIES

Date :

JANUARY 2017

SAFETY & ENVIRONMENTAL ACTIVITIES



THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

SAFETY & ENVIRONMENTAL ACTIVITIES

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Monthly Inspection lifting gear.

Picture No.

1



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : On the job training using welding machine.

Picture No.

2





THAI OBAYASHI CORP., LTD.
11th Fl, Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

SAFETY & ENVIRONMENTAL ACTIVITIES

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Monthly safety demonstration using PPE.

Picture No.

3



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Monthly safety patrol .

Picture No.

4





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand, Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaibayashi.co.th

SAFETY & ENVIRONMENTAL ACTIVITIES

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Monthly safety meeting .

Picture No.

5



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Exercise.

Picture No.

6





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

SAFETY & ENVIRONMENTAL ACTIVITIES

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Tools box meeting.

Picture No.

7



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : KY Meeting.

Picture No.

8





THAI OBAYASHI CORP., LTD.
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

SAFETY & ENVIRONMENTAL ACTIVITIES

Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Big Cleaning Day.

Picture No.

9



Project : LANGSUAN VILLAGE

Date : JANUARY 2017

Title : Cleaning public road.

Picture No.

10





THAI OBAYASHI CORP.,LTD
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

ON THE JOB TRAINING SCHEDULE

Date :

JANUARY 2017

ON THE JOB TRAINING SCHEDULE

ON THE JOB TRAINING SCHEDULE (Year 2015-2016)

Site Code: 4001 Site Name: LANGSUAN VILLAGE (SUB STRUCTURE)

PM/Manager: Wiwat Limanondumrong OJT In-charge: Chaowanun Phaongern-ngam

Ref. No. _____		
PM/Manager's Approval	OJT In-charge	EDU's Approval

No.	Topic	Schedule of 2015												Schedule of 2016				Trainer	Actual Date
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct					
1	Bored pile and Diaphragm wall construction																	SEAFCO PUBLIC CO.,LTD	20-Oct-15
2	Static and Dynamic load test																	STS Pile Testing Co.,LTD.	2-Dec-15
3	Cap Beam Construction																	Thai Obayashi Corp, Ltd.	25-Feb-16
4	Underground Work																	Thai Obayashi Corp, Ltd.	15-Apr-16
5	D-wall displacement monitoring																	Thai Obayashi Corp, Ltd.	25-Mar-16
6	Cut off pile head																	Thai Obayashi Corp, Ltd.	10-Aug-16
7	Mat Foundation work																	Thai Obayashi Corp, Ltd.	17-Oct-16
8	Waterproof system																	Thai Obayashi Corp, Ltd.	20-Jan-16
9	Pre-Loading & Release Loading																	Thai Maruken Co. Ltd.	18-May-16
10	Pile Deviation																	Thai Obayashi Corp, Ltd.	1-Aug-16
11	Bored Pile Seismic Integrity Test																	STS Pile Testing Co.,LTD.	3-Aug-16
12	Tower Crane Installation																	Thai Obayashi Corp, Ltd.	25-Oct-16

Remark

1. Please attach your site work schedule together with this form. (โปรดแนบแผนงานของหน่วยงานของท่านมาพร้อมกับแบบฟอร์มนี้)
2. In case of plan revision, please submit the revised plan to Office Education. (หากมีการปรับแผน ขอ ให้ส่งแผนใหม่มาที่แผนก Education)



THAI OBAYASHI CORP.,LTD
11th Fl. Nantawan Bldg., 161
Ratchadamri Rd., Bangkok
10330, Thailand. Tel. +66(0)2252-5200,
Fax : +66(0) 2252-5381
www.thaiobayashi.co.th

SUB CONTRACTOR EVALUATION

Date :

JANUARY 2017

SUB CONTRACTOR EVALUATION

SUB-CONTRACTOR EVALUATION SHEET

PROJECT NAME LANGSUAN VILLAGE

EVALUATE DATE 31/01/2017

- Building Monthly
 Civil Yearly (1~15 December)
 M/E Project Close

NO.	CODE	COMPANY NAME	IN CHARGE	TYPE OF WORK	EVALUATION SCORE								COMMENT / REMARK	
					1. WORKING QUALITY (การทำงาน)	2. WORKING SCHEDULE (การจัดตารางการทำงาน)	3. COST (ราคา)	4. SITE SAFETY (ความปลอดภัยในการทำงาน)	5. COOPERATION (ความร่วมมือในการทำงาน)	6. MANAGER CAPACITY (ความสามารถในการบริหาร)	7. UNDERSTAND & DESIGN (ความเข้าใจในงาน)	Total		
1		S.SAMRUAY TRADING CO., LTD	WEERAPHAT	TEMPORARY WORK	4	4	4	4	4	4	4	5	4	
2		CHAICHANA ENGINEERING AND CONSTRUCTION LTD., PART.	WEERAPHAT	STRUCTURE WORK	4	5	4	4	4	4	4	5	4	
3		P.POONSUB	WEERAPHAT	STRUCTURE WORK	4	5	4	4	4	5	5	5	5	
4		THAI MARUKEN	JUMPON	TEMP. PLATFORM AND BRACING	4	5	4	4	4	5	5	5	5	
5		PCONJIRA	JUMPON	EARTH WORK	4	4	4	5	4	4	4	5	4	
6		SFRIMITR	VIROTE	STRUCTURE WORK	4	4	3	3	3	3	4	3	3	
7		PCRNCHAN	VIROTE	TEMPORARY WORK	3	3	3	4	3	3	3	3	3	
8		THAI SEMCON	WITTAYA	EE WORK	4	4	4	4	4	4	4	4	4	
9		THAI TAKASAGO	SOMNUK	ME WORK	3	4	3	4	4	4	3	3	3	

SCORE DESCRIPTION

- 5 : EXCELLENT / 4 : SATISFACTORY / 3 : ACCEPTABLE JUST ABOVE STANDARD
 2 : NOT ACCEPTABLE TO BE IMPROVED AT NEXT PROJECT / 1 : BAD TO BE REJECTED

GENERAL MANAGER

(Yearly)

14 FEB 17

PROJECT MANAGER

SUPPLIER EVALUATION SHEET

PROJECT NAME : 4001 LANGSUAN VILLAGE SUB STRUCTURE
 EVALUATE DATE : 15 FEBRUARY 2017

- Monthly
 Yearly (1-15 December)
 Project Close

NO	CODE	COMPANY NAME	IN CHARGE	TYPE OF WORK	EVALUATION SCORE							Average	COMMENT / REMARK
					DELIVERY SCHEDULE (การส่งมอบงาน)	QUALITY CONTROL (การควบคุมคุณภาพ)	CO - OPERATION (การประสานงาน)	COST (ราคา)	SITE SAFETY (ความปลอดภัยในการทำงาน)	SERVICE DURING WORKING (การบริการหลังการขาย)	2 AFTER COMPLETION OF PROJECT (การตรวจรับงานหลังการดำเนินงาน)			Average
1	1089	APACE PRODUCTS CO.,LTD.	MR. WEERAPHAT	FORM WORK	4	4	3	4	4	4	4	3.8	
2	1103	ALLIED CONSTRUCTION CHEMICALS CO.,LTD.	MR. JARAN	TEMPORARY WORK	4	4	4	4	4	3	4	3.8	
3	2018	CHAROEN KIT SPECIAL SLINGS CO.,LTD.	MR. WEERAPHAT	SLING	4	4	4	3	4	4	4	3.8	
4	2545	DEXTRA MANUFACTURING CO.,LTD.	MR. WEERAPHAT	STEEL BAR WORK	3	4	4	4	4	4	3	3.8	
5	3012	FIRE WORLD IMPORT EXPORT CO.,LTD.	MR. JARAN	TEMPORARY WORK	4	4	4	4	4	4	4	3.8	
6	3410	H.M. SUPPLY LTD.,PART	MR. JARAN	FORM WORK	4	4	4	4	4	4	3	3.8	
7	3433	HILTI (THAILAND) LTD.	MR. JARAN	TEMPORARY WORK	4	4	4	3	4	4	4	3.8	
8	4410	LYRECO (THAILAND) CO.,LTD.	MR. JARAN	MISC. EXPENSES	3	4	4	4	3	4	4	3.8	
9	4415	LIGHTING HOUSE (THONGLO) CO.,LTD.	MR. WEERAPHAT	TEMPORARY WORK	4	4	4	4	4	4	4	3.8	
10	4618	MAHAJAK AUTOPARTS CO.,LTD.	MR. JARAN	TEMPORARY WORK	4	4	4	4	4	4	4	3.8	
11	5509	POR. DAMRONG CO.,LTD.	MR. JARAN	TEMPORARY WORK	4	4	4	4	4	4	3	3.8	
12	5516	PKE COMMERCIAL LTD.,PART	MR. JARAN	TEMPORARY WORK	4	4	4	4	4	3	4	3.8	
13	6580	SIAM HAND TOOLS CO.,LTD.	MR. JARAN	SAFETY WORK	4	4	4	3	4	4	4	3.8	
14	8299	THAIRUAMKIJ GROUP (1995) CO.,LTD.	MR. WEERAPHAT	CONCRETE WORK	4	4	4	4	3	4	4	3.8	
15	9713	YONG PONG SENG RANGSIT CO.,LTD.	MR. JARAN	FORM WORK	3	4	4	4	4	4	3	3.8	
16	9998	CONCRETE PRODUCT AND AGGREGATED CO.,LTD. (THE)	MR. JARAN	CONCRETE WORK	4	4	4	4	4	4	3	3.8	

SCORE DESCRIPTION
 5 : EXCELLENT / 4 : SATISFACTORY / 3 : ACCEPTABLE JUST ABOVE STANDARD
 2 : NOT ACCEPTABLE TO BE IMPROVED AT NEXT PROJECT / 1 : BAD TO BE REJECTED

GENERAL MANAGER	PROJECT MANAGER
(Yearly)	
_____ / _____ / _____	<i>[Signature]</i> 27 JAN, 17

RAJADAMRI TOWER, BANGKOK PROJECT

CALCULATION SHEET OF

FORM WORK

RETAINING WALL

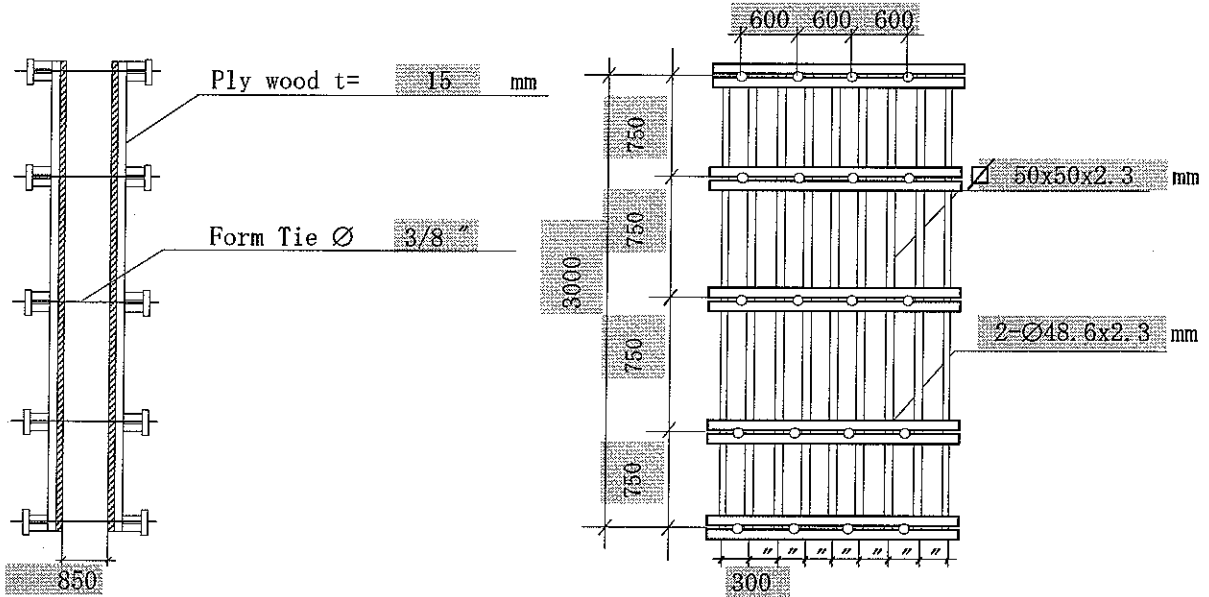
23-May-07

THAI OBAYASHI CORP.,LTD.

Content

1. Wall-Form Work Drawing	.....	1
2. Concrete Casting Condition	.....	1
3. Material Properties	.....	1
4. Load Calculation	.....	2
4-1 ACI-347 Method		
4-2 CEB Method		
5. Form Tie Calculation	.....	3
6. Calculation of Ply Wood	.....	3
7. Calculation of Joist	.....	4
8. Calculation of Beam	.....	4
9. Attachment	.....	5

1. Wall-Form Work Typical Drawing



2. Concrete Casting Condition

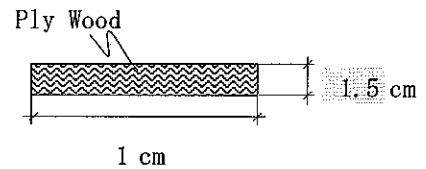
Unit Weight of Concrete ; $W_o = 2.4 \text{ t/m}^3$
 Casting Speed ; $R = 2.0 \text{ m/hr}$
 Height of formwork ; $H = 4.2 \text{ m}$ (Typical Formwork=3.00)
 Width of Wall ; $W = 0.85 \text{ m}$ (Extension Formwork=1.20)

3. Material Properties

(1) Steel (SS400) $f_y = 2.40 \text{ tf/cm}^2$
 Bending Stress $f_b = 1.80 \text{ tf/cm}^2$ (0.6Fyx1.25)
 Shearing Stress $f_s = 1.20 \text{ tf/cm}^2$ (0.4Fyx1.25)

(2) Ply Wood

Bending Stress $f_b = 0.14 \text{ tf/cm}^2$
 Shearing Stress $f_s = 0.08 \text{ tf/cm}^2$
 All. Deflection $\delta = 0.30 \text{ cm}$



Item	Description	f_b (Kg/cm ²)	f_v (Kg/cm ²)	E (Kg/cm ²)	I (cm ⁴)	Z (cm ³)	A (cm ²)	
1	Ply Wood t= 15 mm	140	80	52,000	0.281	0.375	1.5	
2	Joint □-50x50x2.3	1,800	1,200	2.04×10^6	15.9	6.34	4.25	
3	Beam 2-Ø48.6x2.3mm	1,800	1,200	2.04×10^6	17.98	7.4	6.9	
4	Form Tie 3/8"	Ft= 2100 Kg (Ref. Table 2)						

4. Load Calculation

4-1) ACI-347 Method

$$P = 150 + (9,000R/T)$$

$$R = \text{Casting Rate (ft/hr)} = 6.56 \text{ ft/hr} \quad (2\text{m/hr})$$

$$T = \text{Temperature (° F)} = 122 \text{ ° F} \quad (50\text{°C})$$

$$P = 150 + \left[\frac{9000 \times 6.56}{122} \right] = 634 \quad (\text{lb/ft}^2)$$

$$= 3,095 \quad (\text{Kg/m}^2)$$

4-2) CEB Method

4-2.1) Hydrostatic pressure

$$P = \gamma H$$

$$g = \text{Unit weight of concrete (Kg/m}^3) = 2,400 \quad (\text{Kg/m}^3)$$

$$H = \text{Height of Formwork (m)} = 4.2 \quad (\text{m})$$

$$P = 2400 \times 4.2 = 10,080 \quad (\text{Kg/m}^2)$$

4-2.2) Casting Speed

$$P = 2400 \times kR + 500$$

$$R = \text{Casting Speed (m/hr)} = 2 \quad (\text{m/hr})$$

$$k = \text{Factor} = 0.65 \quad (\text{Ref. Table 1})$$

$$P = 2400 \times [2 \times 0.65] + 500 = 3,620 \quad (\text{Kg/m}^2)$$

4-2.3) Width factor of Formwork

$$P = 300R + 10,000d + 1500$$

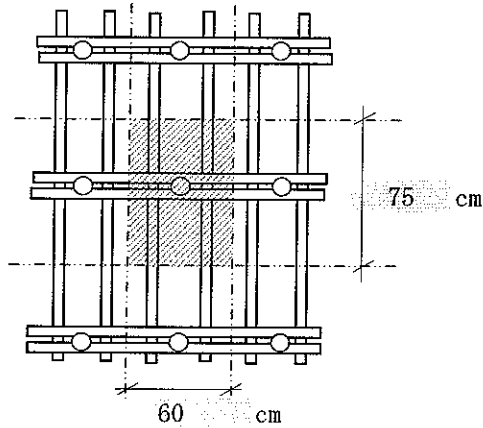
$$R = \text{Casting Speed (m/hr)} = 2 \quad (\text{m/hr})$$

$$d = \text{Width of formwork (m)} = 0.85 \quad (\text{m})$$

$$P = [300 \times 2] + [10,000 \times 0.85] + 1500 = 10,600 \quad (\text{Kg/m}^2)$$

$$\text{Use } P = 3,600 \quad (\text{Kg/m}^2)$$

5. Form Tie Calculation



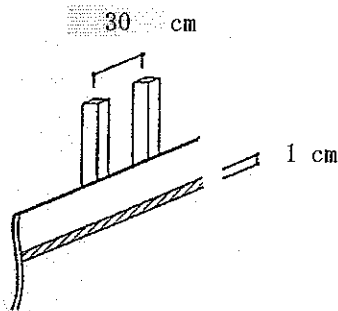
$$W_o = 3,600 \text{ Kg/m}^2$$

$$= 0.36 \text{ Kg/cm}^2$$

$$R_a = 0.36 \text{ Kg/cm}^2 \times 60 \text{ cm} \times 75 \text{ cm}$$

$$= 1,620 \text{ Kg} < 2,100 \text{ Kg O.K.}$$

6. Calculation of Ply Wood



$$W_o = 0.36 \text{ Kg/cm}^2 \times 1 \text{ cm} = 0.36 \text{ Kg/cm}$$

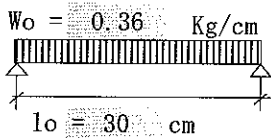
$$l_o = 30 \text{ cm}$$

$$V_o = \frac{1}{2} W_o l_o$$

$$= \frac{1}{2} \times 0.36 \times 30 = 5.4 \text{ Kg}$$

$$M_o = \frac{1}{8} W_o l_o^2$$

$$= \frac{1}{8} \times 0.36 \times 30^2 = 40.5 \text{ Kg.cm/cm}$$



$$F_v = \frac{V_o}{A} = \frac{5.4}{1.5} = 3.6 \text{ Kg/cm}^2$$

$$< 80 \text{ Kg/cm}^2 \text{ O.K.}$$

$$F_b = \frac{M_o}{Z} = \frac{40.5}{0.375} = 108 \text{ Kg/cm}^2$$

$$< 140 \text{ Kg/cm}^2 \text{ O.K.}$$

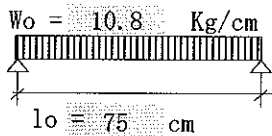
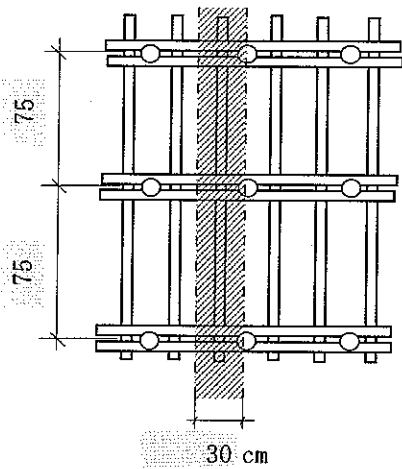
$$\delta = \frac{5 W_o l_o^4}{384 E I}$$

$$= \frac{5 \times 0.36 \times 25^4}{384 \times 52,000 \times 0.281} = 0.13 \text{ cm}$$

$$< 0.30 \text{ cm O.K.}$$

Use Ply Wood t = 15 mm

7. Calculation of Joist



$$W_o = 0.36 \text{ Kg/cm}^2 \times 30 \text{ cm} = 10.8 \text{ Kg/cm}$$

$$l_o = 75 \text{ cm}$$

$$V_o = \frac{1}{2} W_o l_o = \frac{1}{2} \times 10.8 \times 75 = 405 \text{ Kg}$$

$$M_o = \frac{1}{10} W_o l_o^2 = \frac{1}{10} \times 10.8 \times 75^2 = 6,075 \text{ Kg.cm}$$

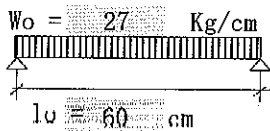
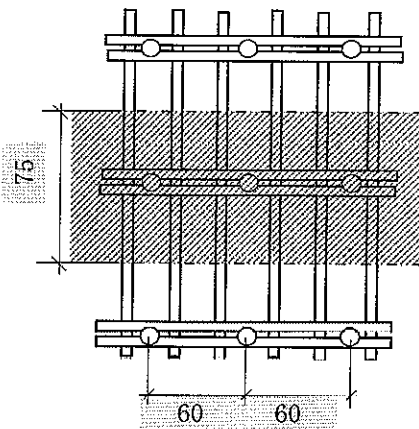
$$F_v = \frac{V_o}{A} = \frac{405}{4.25} = 95.29 \text{ Kg/cm}^2 < 1,200 \text{ Kg/cm}^2 \text{ O.K.}$$

$$F_b = \frac{M_o}{Z} = \frac{6,075}{6.34} = 958.2 \text{ Kg/cm}^2 < 1,800 \text{ Kg/cm}^2 \text{ O.K.}$$

$$\delta = \frac{1}{128} \frac{W_o l_o^4}{E I} = \frac{1}{128} \times \frac{10.8 \times 75^4}{2.04 \times 10^6 \times 15.90} = 0.08 \text{ cm} < 0.30 \text{ cm O.K.}$$

Use Joist \checkmark 50x50x2.3 mm

8. Calculation of Beam



$$W_o = 0.36 \text{ Kg/cm}^2 \times 75 \text{ cm} = 27 \text{ Kg/cm}$$

$$l_o = 60 \text{ cm}$$

$$V_o = \frac{1}{2} W_o l_o = \frac{1}{2} \times 27 \times 60 = 810 \text{ Kg}$$

$$M_o = \frac{1}{10} W_o l_o^2 = \frac{1}{10} \times 27 \times 60^2 = 9,720 \text{ Kg.cm}$$

$$F_v = \frac{V_o}{A} = \frac{810}{6.9} = 117.4 \text{ Kg/cm}^2 < 1,200 \text{ Kg/cm}^2 \text{ O.K.}$$

$$F_b = \frac{M_o}{Z} = \frac{9,720}{7.4} = 1,313.5 \text{ Kg/cm}^2 < 1,800 \text{ Kg/cm}^2 \text{ O.K.}$$

$$\delta = \frac{1}{128} \frac{W_o l_o^4}{E I} = \frac{1}{128} \times \frac{27 \times 60^4}{2.04 \times 10^6 \times 17.98} = 0.07 \text{ cm} < 0.30 \text{ cm O.K.}$$

Use Beam 2- \varnothing 48.6x2.3mm

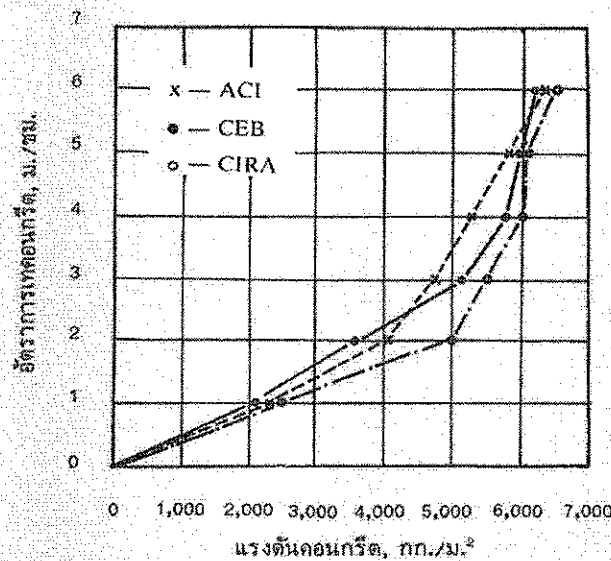
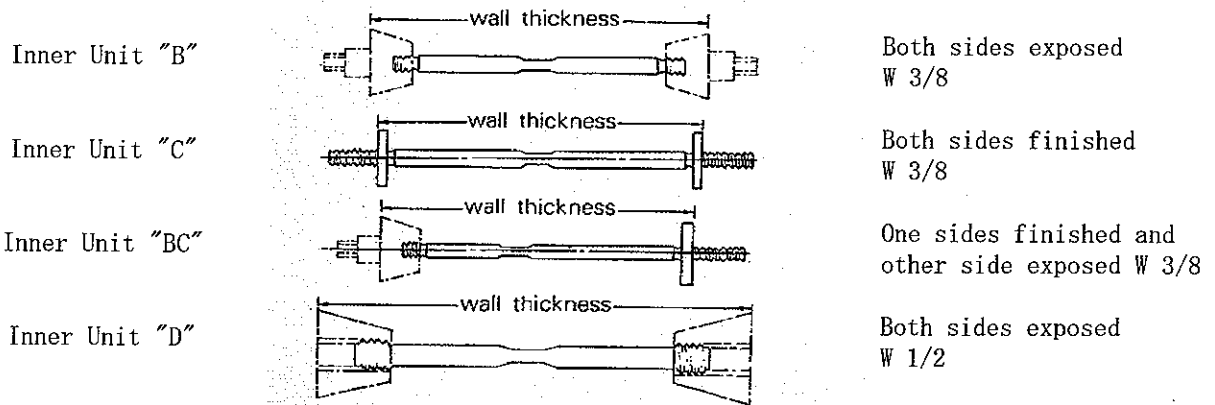
Table 1 ค่าปรับ K ตามความชันเหลวและอุณหภูมิของคอนกรีต (CEB)

การยวบตัวของคอนกรีต (cm)	ค่าปรับ K					
	อุณหภูมิของคอนกรีตขณะเท (°C)					
	5	10	15	20	25	30
2.5	1.45	1.10	0.80	0.60	0.45	0.35
5.0	1.90	1.45	1.10	0.80	0.60	0.45
7.5	2.35	1.80	1.35	1.00	0.75	0.55
10.0	2.75	2.10	1.60	1.15	0.90	0.65

Table 2 กำลังดึงทดสอบของ Form Tie

Type	Dia. (Inch)	Area Section (cm ²)	Ult. stress (Kg)	All. Stress (Kg)	Length (cm)
B, C, BC	3/8"	0.5	3000	2100	18-31
D	1/2"	0.9	4000	2800	25-36

Figure 1 Type of Form Tie



อุณหภูมิ 30°

แบบหนา 30 ซม.

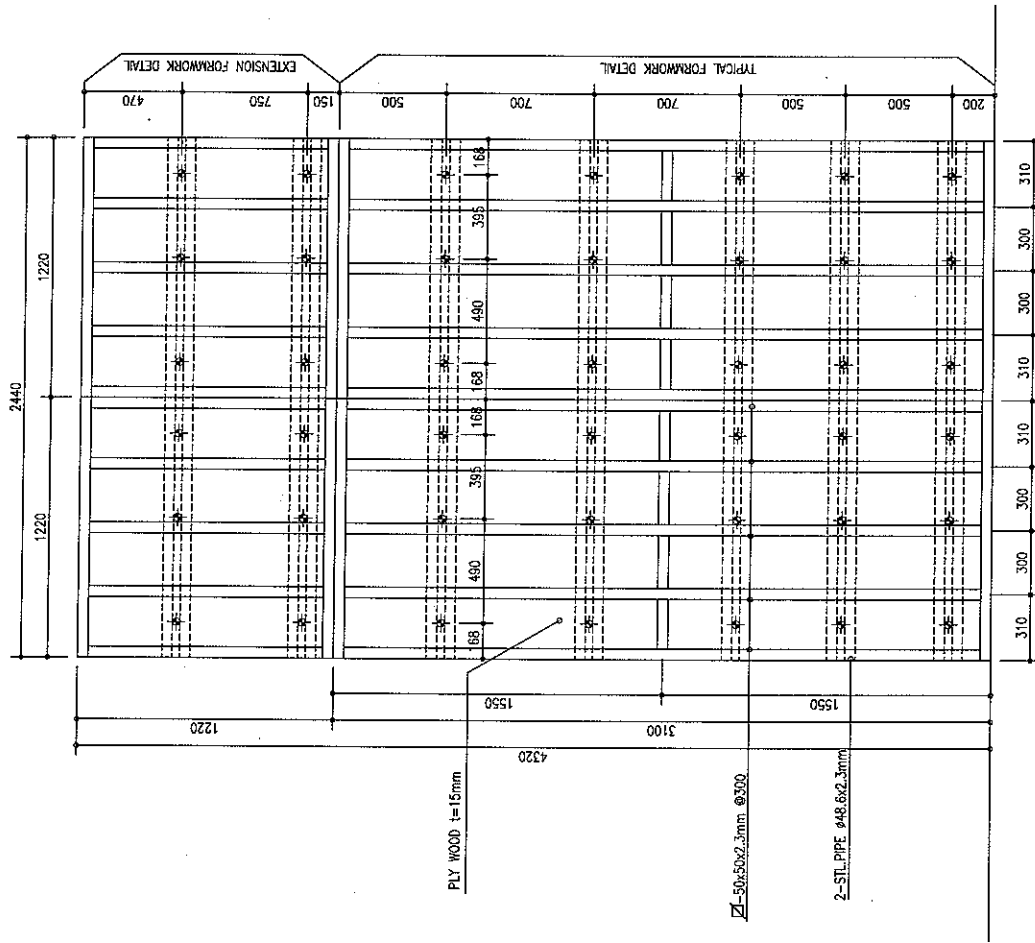
การยวบตัว 10 ซม.

รูปที่ 2.6 กราฟเปรียบเทียบแรงดันของคอนกรีตโดยวิธีการคำนวณต่างๆ กัน

$$f_{\text{wet}} = P \sqrt{\frac{1}{1000000000} \times \frac{1}{a^2} \times f_b}$$

種	類	ヤング率 E (kgf/cm ²)	許容曲げ 応力度 f_b (kgf/cm ²)	断面二次モ ーメント I (cm ⁴)	断面係数 Z (cm ³)
型枠用合板	12mm(5) (積層数) 	56 000 (70 000) 20 000 (20 000)	140 80	0.144	0.24
	15mm(5以上) 	52 000 (65 000) 20 000 (25 000)	140 80	0.281	0.375
	18mm(7以上) 	48 000 (60 000) 20 000 (30 000)	140 80	0.486	0.54
栈木	24×48 (べいつか) 	70 000 25 000	105	22.12	9.22
	30×60 (べいつか) 	70 000 25 000	105	54.0	18.0
端太角	105×105 (べいつか) 	70 000 25 000	105	1012.9	192.9
	90×90 (べいつか) 	70 000 25 000	105	546.8	121.5
単管	○φ48.6 ○2.3 STK400	2 100 000	1 600	8.99	3.70
	○φ48.6 ○2.4 STK500	2 100 000	2 400	9.32	3.83
角形鋼管	□-50×50×2.3 STKR400	2 100 000	1 600	15.9 28.3	6.34 9.44
	□-60×60×2.3				
アルバタ	■-45×45×2.5 A6061S-T6	700 000	1 500	11.56	5.14
	■-50×50×2.5			17.82	7.13
	■-60×60×2.5			30.01	10.00
軽量形鋼	[-60×30×10×2.3 SSC400	2 100 000	1 600	$I_x=15.6$ $I_y=14.2$	$Z_x=5.20$ $Z_y=4.72$
	[-60×30×2.3				
パイプ サポート <i>pipe support</i>	長尺 2 700~3 900* 定尺 2 100~3 400* 1 800~3 000* 短尺 1 200~2 100*	最大使用 強度 (kgf) 2 000以下			
わく組	<p>サポートの使用長さ (m) 支柱の長さ l (m)</p> <p>注) Pはジャッキベースの繰り出し長や枠組の種類により異なる (p261参照)</p>				

(注) // : 縦方向 ⊥ : 縦方向に直角
 合板のヤング率は上段は湿潤状態、下段()付は気乾状態での値
 * : 各メーカーにより多少の差がある。
 ** : 使用長さ2 400mm以上の場合には中間つなぎを設けた場合の値



TYPICAL DETAIL FORMWORK FOR RC-WALL 3.20m. HEIGHT

THAI OBAYASHI CORP., LTD.
 11th floor Thai Obayashi Building
 Rajadamri Bangkok Thailand



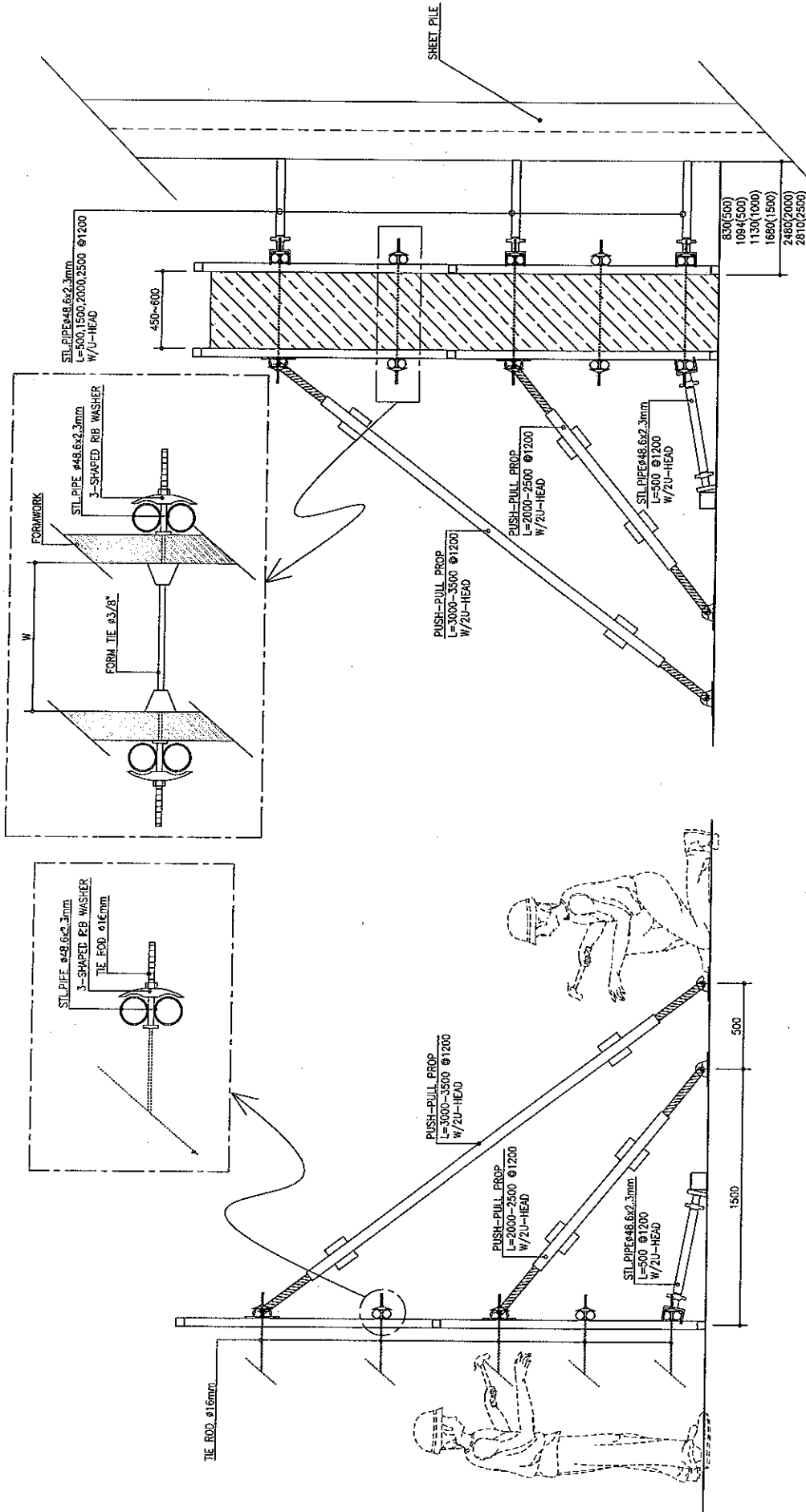
DATE: 29 MAR '07
 DWG. BY: CHAOWANUN PL.
 JOB No. XXX
 FILES: DR/RAJADAMRI TOWER

TITLE: TYPICAL DETAIL FORMWORK
 SCALE: 1/25
 DWG. No. T-001

OWNER: RAJADAMRI RESIDENCE CO., LTD.

PROJECT

RAJADAMRI TOWER, BANGKOK



TYPICAL DETAIL FORMWORK FOR MAT FOUNDATION

TYPICAL DETAIL FORMWORK FOR RC-WALL

THAI OBAYASHI CORP., LTD.
 11th floor Thai Obayashi Building
 Rajadamri Bangkok Thailand

DATE: 29 MAR '07
 DWG. BY: CHAOWANUN PH.
 JOB No. XXX
 FILES: D:RAJADAMRI TOWER

TITLE: TYPICAL DETAIL FORMWORK
 SCALE: 1/25
 OWNER: RAJADAMRI RESIDENCE CO., LTD.

PROJECT

RAJADAMRI TOWER, BANGKOK

