CET ENGINEERING COMPANY LIMITED
Email: indy-engineer@live.com
CET ENGINEERING COMPANY LIMITED
39/340 Moo.3 Taladkwan Muang Nonthaburi Nonthaburi T.084-4496-777

Project :	แบบอาคาร คสล.1 ชั้น และโครงหลังคาเหล็ก	Date	16/7/2012 14:02
Owner :	นางสาวชุติญา หลิมปิชาติ	Made by / Checked / Sheet no.	
Location :	อ.เขาสมิง จ.ตราด	PAp /	1

CRITERIA

รายการคำนวณ

ข้อกำหนดการออกแบบ

เหล็กโครงสร้าง	=	JIS G3101 OR SS-400 OR ASTM A-36	
fy	=	2,400	กก/ตร.ซม.
Es	=	2.04E+06	กก/ตร.ซม.
Cc	=	129.53	
คอนกรีตเสริมเหล็ก	=	EIT 1007-34	
fc'	=	240	กก/ตร.ซม.
fc	=	108.00	กก/ตร.ซม.
USE	=	108.00	กก/ตร.ซม.
fs (RB)	=	1,200	กก/ตร.ซม.
fs (DB)	=	1,500	กก/ตร.ซม.
n	=	9	
k1	=	0.448	(ROUND BAR)
k2	=	0.393	(DEFORMED BAR)
R1	=	20.56	kg./sq.cm.
R2	=	18.45	kg./sq.cm.
j1	=	0.851	(ROUND BAR)
j2	=	0.869	(DEFORMED BAR)
Vc = 0.29SQRT(fc')	=	4.49	กก/ตร.ซม.
Vcs = 0.53SQRT(fc')	=	8.21	กก/ตร.ซม.
u = 2.29SQRT(fc')/D	=	29.56	กก/ตร.ซม.สำหรับเหล็กเสริมบน
u = 3.23SQRT(fc')/D	=	41.70	กก/ตร.ซม.สำหรับเหล็กเสริมล่าง

หน่วยน้ำหนักบรรทุก และ แรงลม สำหรับการคำนวณออกแบบ

	ประเภทและส่วนต่าง ๆของอาคาร	หน่วยน้ำหนักบรรทุกจร	
1	พื้นที่ใช้สอยชั้น 1	400	กก/ตรม.
2	ส่วนสำนักงาน	300	กก/ตรม.
3	หลังคา Metal sheet	30	กก/ตรม.

	น้ำหนักวัสดุต่าง ๆ	หน่วยน้ำหนักบรรทุกคงตัว	
1	คอนกรีตโครงสร้าง	2,400	กก/ลบม.
2	เหล็กเสริมคอนกรีต	7,850	กก/ลบม.
3	เหล็กรูปพรรณ และ เหล็กโครงสร้างอื่นๆ	7,850	กก/ลบม.
4	หลังคา METAL SHEET	5	กก/ลบม.

แรงลมในการออกแบบ

1	ส่วนของอาคารที่สูงไม่เกิน 10 เมตร	50	กก/ตรม.
2	ส่วนของอาคารที่สูงเกิน 10 เมตร แต่ไม่เกิน 20 เมตร	80	กก/ตรม.
3	ส่วนของอาคารที่สูงเกิน 20 เมตร แต่ไม่เกิน 40 เมตร	120	กก/ตรม.
4	ส่วนของอาคารที่สูงเกิน 40 เมตร	160	กก/ตรม.

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Project :	แบบอาคาร คสล.1 ชั้น และโครงหลังคาเหล็ก	**CRITERIA**	
Owner :	นางสาวชุติญา หลิมปิชาติ	**Date**	16/7/2012 14:02
Location :	อ.เขาสมิง จ.ตราด	**Made by** / **Checked** / **Sheet no.**	PAp / / 2

Structural steel work

1 Allowable Stress

ชนิดวัสดุ	JIS	ASTM	Yield strength กก/ตรซม	แรงดึง กก/ตรซม	แรงอัด กก/ตรซม	แรงเฉือน กก/ตรซม	แรงดัด กก/ตรซม	แรงกด กก/ตรซม
เหล็กแผ่น	G 3101 SS 400	A-36	2,400	1,440	1,440	960	1,440	1,800
เหล็กรูปพรรณ	G 3192	A-36	2,400	1,440	1,440	960	1,440	1,800
ท่อเหล็ก	G 3444 ,STK 41	-	2,400	1,440	1,440	960	1,440	1,800

2 Length of Buckling Coefficient

Supporting Condition	Length of Buckling Coefficient
Both Ends Pin	1.0
Both Ends Fixed	0.5
One End Pin ,Other Fixed	0.7
One End Free , Other Fixed	2.0

3 Allowable Deflection

Allowable Deflection Due to LL	L/300-L/360
Allowable Deflection Due to WL	L/150-L/200

4 Maximum slenderness ratio (KL/r ratio)

Tension member

Main member	KL/r	=	<240
Secondary member	KL/r	=	<300

Compression member

Main member	KL/r	=	<200
Secondary member	KL/r	=	<200

Lacing for compression member

Single lacing	KL/r	=	<140
Double lacing	KL/r	=	<200

5 Compression stress for A-36

Cc = 126.91

ตัวอย่าง Cc<126.91 KL/r Fc = (1-((kL/r)^2/2/126.91^2))*2500/(5/3+3*(kL/r)/8/kL/r1-(kL/r)^3/8/126.91^3)

KL/r	Fc
41.73	1,325
120.00	723

Cc>126.91 KL/r Fc =10473944/C21^2

KL/r	Fc
149.46	469
126.91	650

Compression stress for steel pipe Cc = 129.53

ตัวอย่าง Cc<129.53 KL/r Fc = (1-((kL/r)^2/2/(129.53)^2))*2400/(5/3+3*(kL/r)/8/129.53-(kL/r)^3/8/129.53^3)

KL/r	Fc
41.73	1,276
120.00	716

Cc>129.53 KL/r Fc =10473944/C21^2

KL/r	Fc
149.46	469
129.53	624

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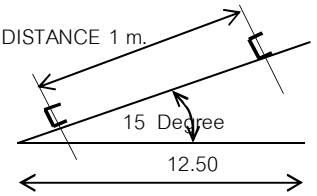
PURLIN DESIGN

Project :	
Owner :	
Location :	

Date	16/7/2012 13:48	
Made by	Checked	Sheet no.
PAp		1

PURLIN DESIGN



PURLIN DISTANCE		enter =	1.00	m.			
SPAN		enter =	4.00	m.			
LOAD							
ROOF DL.	5 kg/m2	= 5 kg/m2 x 1 m.			=	5.00	kg /m.
PURLIN DL.	C 100 x 50 x 20 x 3.2				=	5.50	kg /m.
LL.	30 kg/m2	= 30 kg/m2 x 1 m.			=	30.00	kg /m.
SUM				W	=	40.50	kg /m.
WIND LOAD		H =	15	ม.	=	80.00	kg /m.^{2}
				enter Y	=	3.35	m.
No. sagrod	0			enter X	=	12.50	m.
Lx=	4 m.			Ø = tan -1 (3.35 / 12.5)	=	15.00	Degree
				SAY Ø	=	15.00	Degree

แรงลมตั้งฉากกับหลังคาตามสูตร KETCHUM	= (80 x 15 / 45) kg/m	=	26.67	kg /m.	LL.only	
W x = W sin Ø	= 40.5 x sin 15	=	10.48	=	7.76	kg /m.
W y = W cos Ø + W winload	= 40.5 x cos 15 + 26.67	=	65.79	=	55.65	kg /m.
M x = 1/8*Wy*Ly^2	M x = 1/8 x 65.79 x 4^2	=	131.58	=	111.30	kg.m
M y = 1/8*Wx*Lx^2	M y = 1/8 x 10.48 x 4^2	=	20.96	=	15.52	kg.m

Use Steel A 36 Fu = 5,000.00 kg /cm^2 Fy = 2,400.00 kg /cm^2

E = 2.04* 10^6

C 100 x 50 x 20 x 3.2

		w =	5.5	kg /m.	
Ix =	107 cm^4	Iy =	24.5	cm^4	
Sx =	21.3 cm^3	Sy =	7.81	cm^3	
A =	7.007 cm^2	h =	5	cm	

F bx = 0.6* Fy = 1,440.00 kg /cm^2

F by = 0.75* Fy = 1,800.00 kg /cm^2

Check Stress

f bx / F bx + f by / F by = (Mx/Sx) / Fbx + (My/Sy) / Fby

= (131.58x 100/21.3) / 1440 + (20.96x100/7.81) / 1800

= 0.429 + 0.149 = 0.57 < 1 O.K.

Check Deflection Live Load only

Δ Allowable = L / 300 = 400 / 300 = 1.33 cm.

Δ ในแนวแกน Y = 5*Wy * Ly^4 / (384 * E* Ix)

= 0.85 < 1.33 O.K.

Δ ในแนวแกน X = 5*Wx * Lx^4 / (384* E* Iy)

= 0.52 < 1.33 O.K.

Check Shear	Vy = 1/2 x 65.79 x 4	=	131.58	kg .	
Allowable Shear	= 0.40*Fy	=	960.00	kg /cm^2	
แรงเฉือนตามขวาง	V t = V / A	=	18.78	kg /cm^2	< 1,008 O.K.
แรงเฉือนตามยาว	V h = V / h*t	=	82.24	kg /cm^2	< 1,008 O.K.

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CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No **Cet-Jk-2012-01**	Sheet No **1**	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time	16-Jul-2012 13:24

Job Information

	Engineer	Checked	Approved
Name:	PAP	PAB	
Date:	16-Jul-12		

Structure Type	SPACE FRAME

Number of Nodes	502	Highest Node	507
Number of Elements	1013	Highest Beam	1026

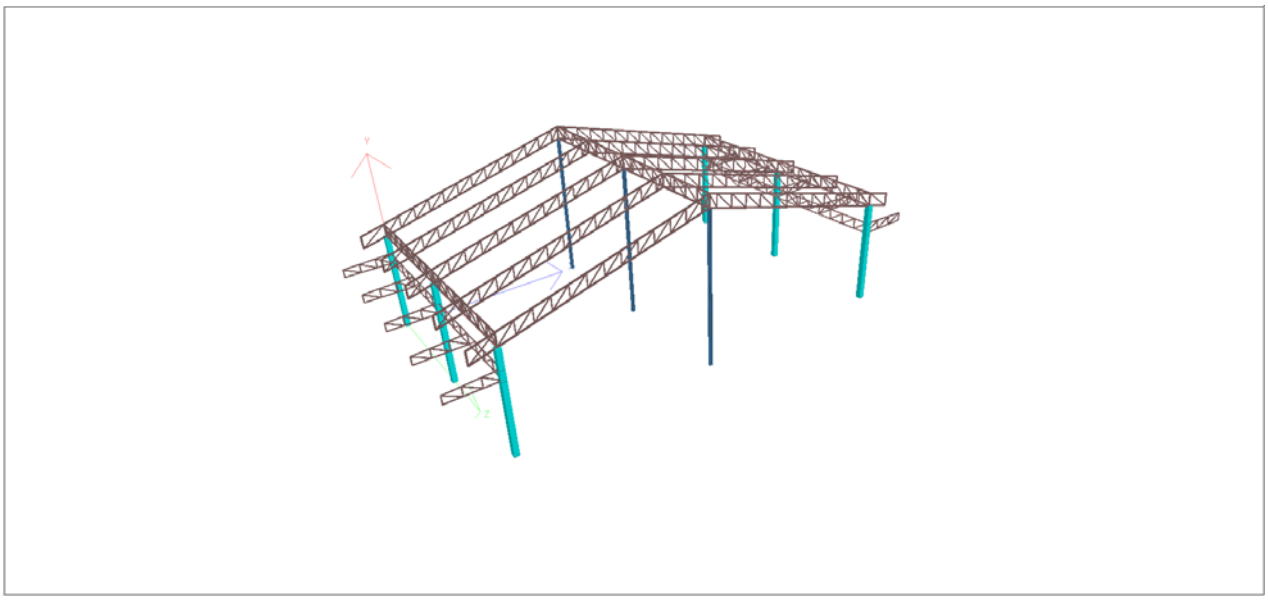
Number of Basic Load Cases	5
Number of Combination Load Cases	5

Included in this printout are data for:

All	The Whole Structure

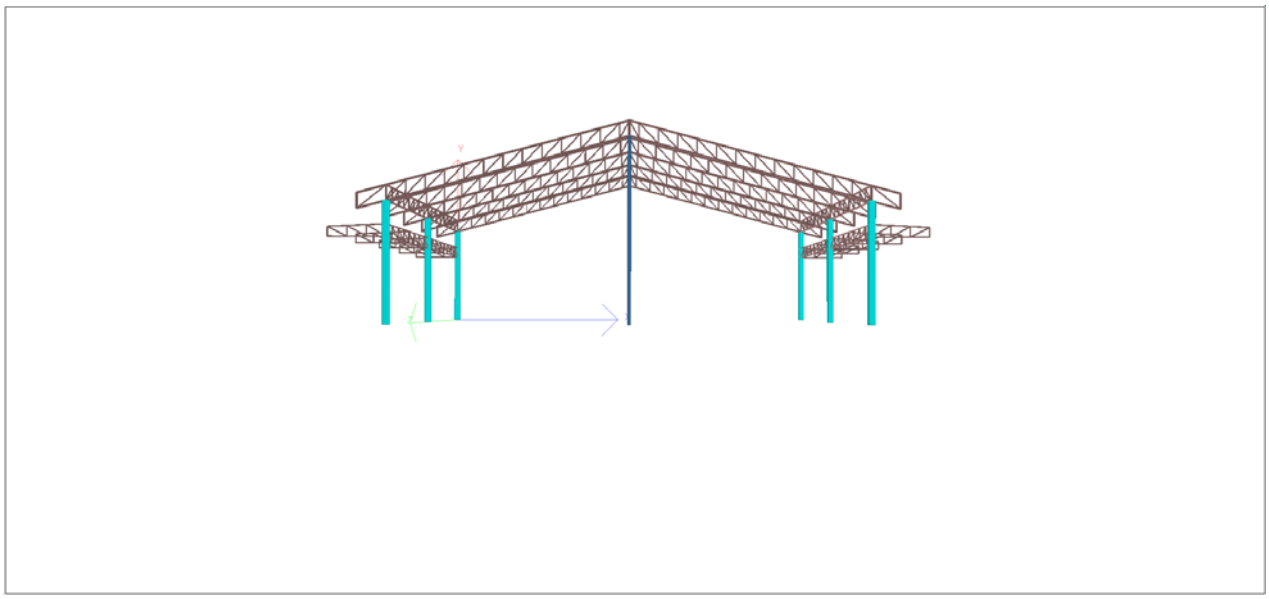
Included in this printout are results for load cases:

Type	L/C	Name
Combination	9	DL+LL
Combination	10	DL+0.75(LL+WL)

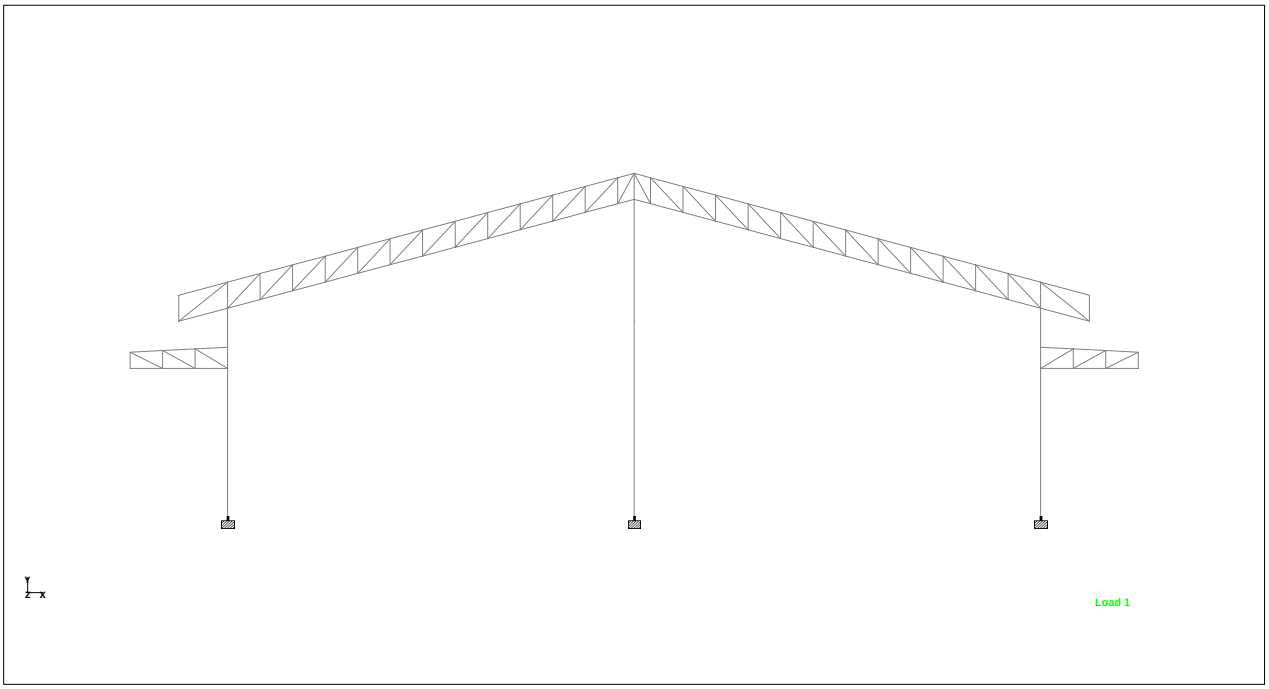


3D Rendered View

Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 2	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	



3D Rendered View



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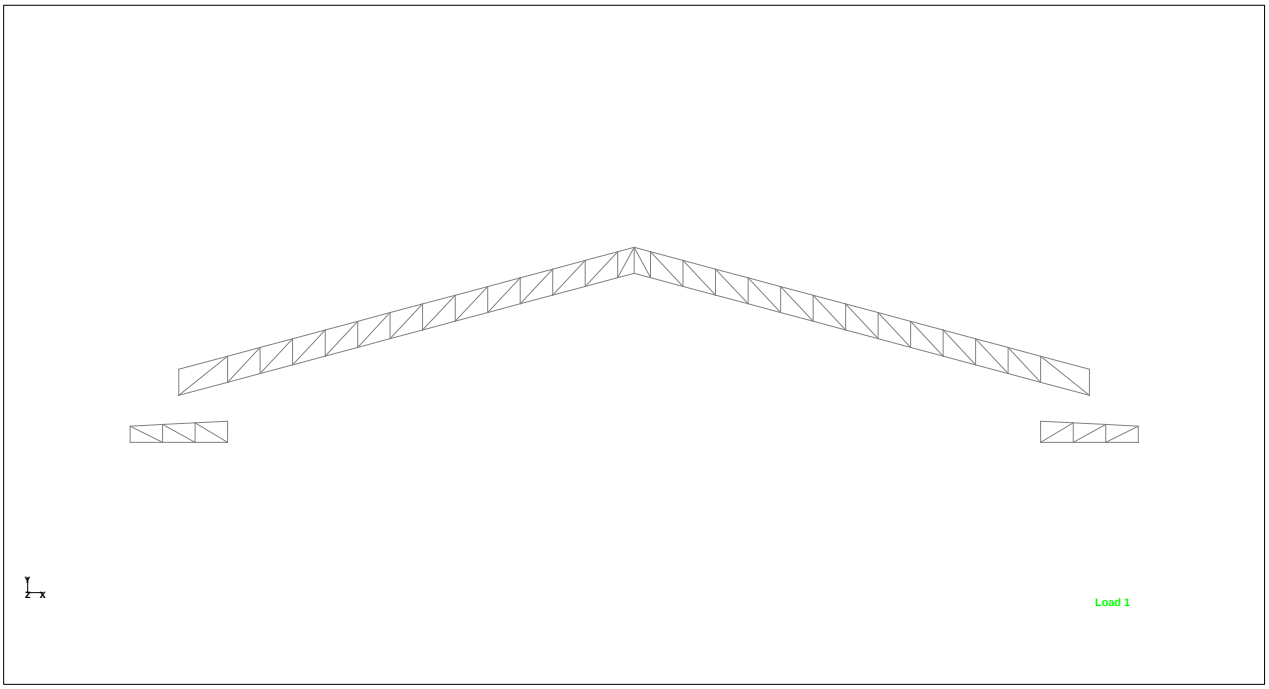
CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No **Cet-Jk-2012-01**	Sheet No **3**	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	



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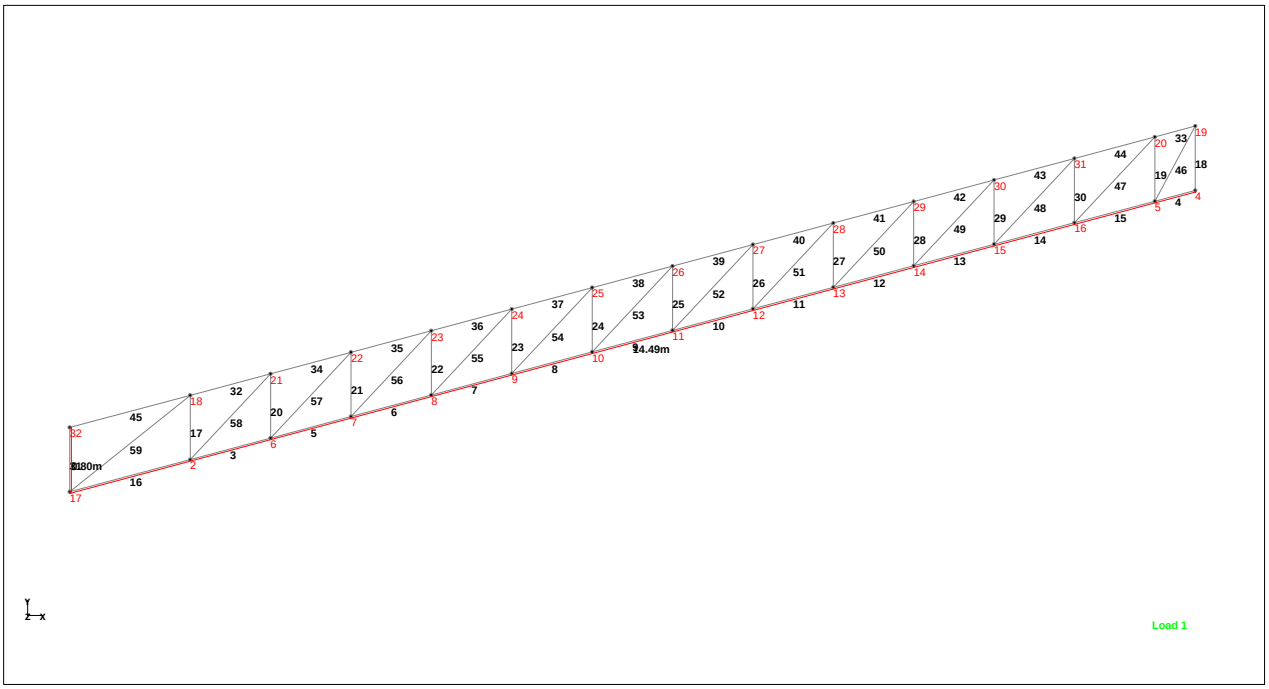
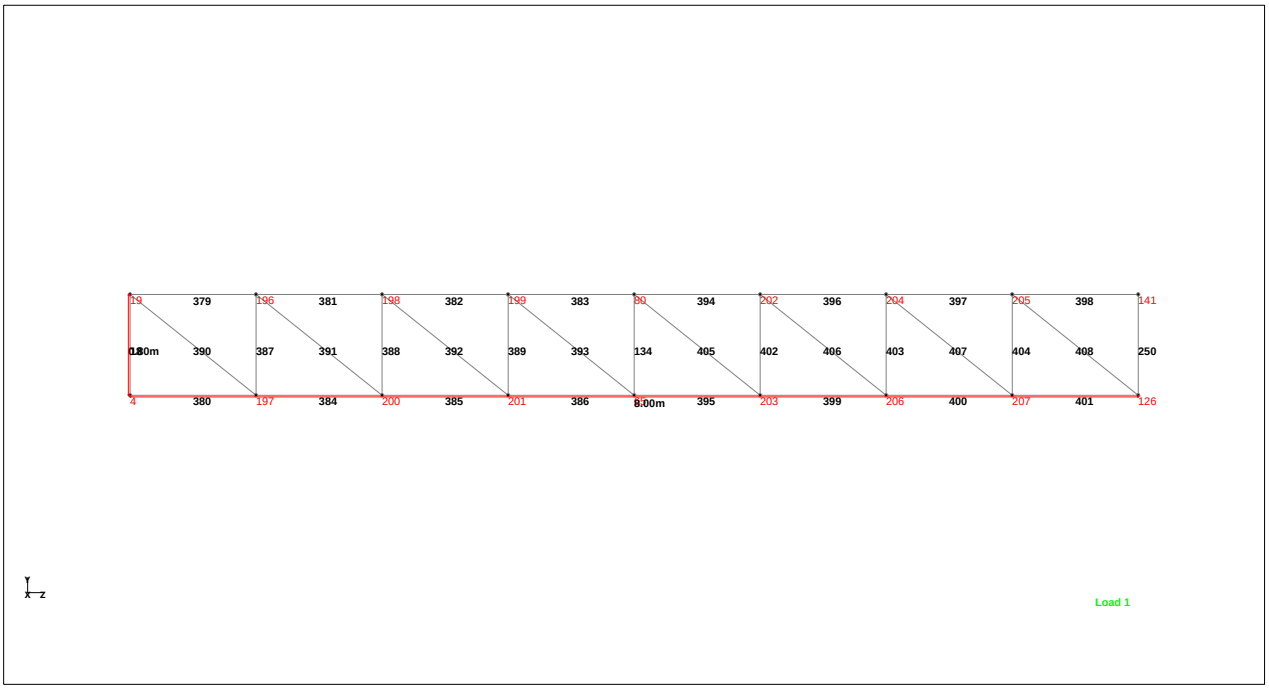
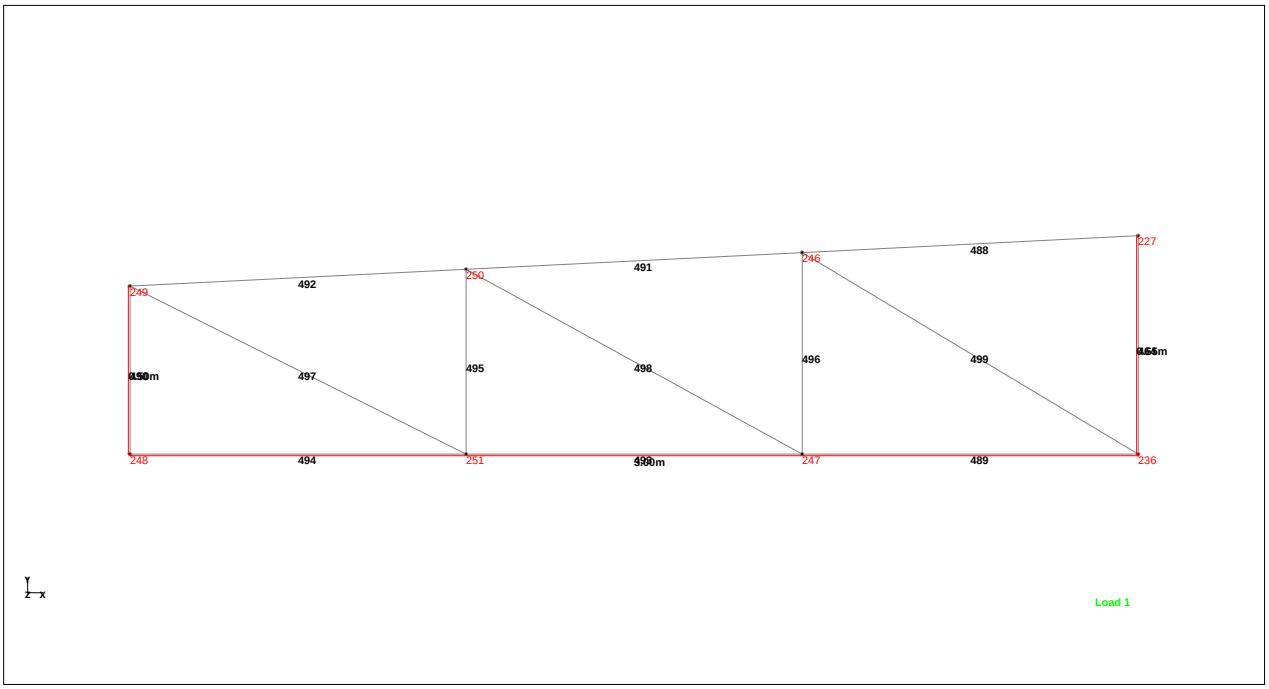


T-1

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No **Cet-Jk-2012-01**	Sheet No **4**	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

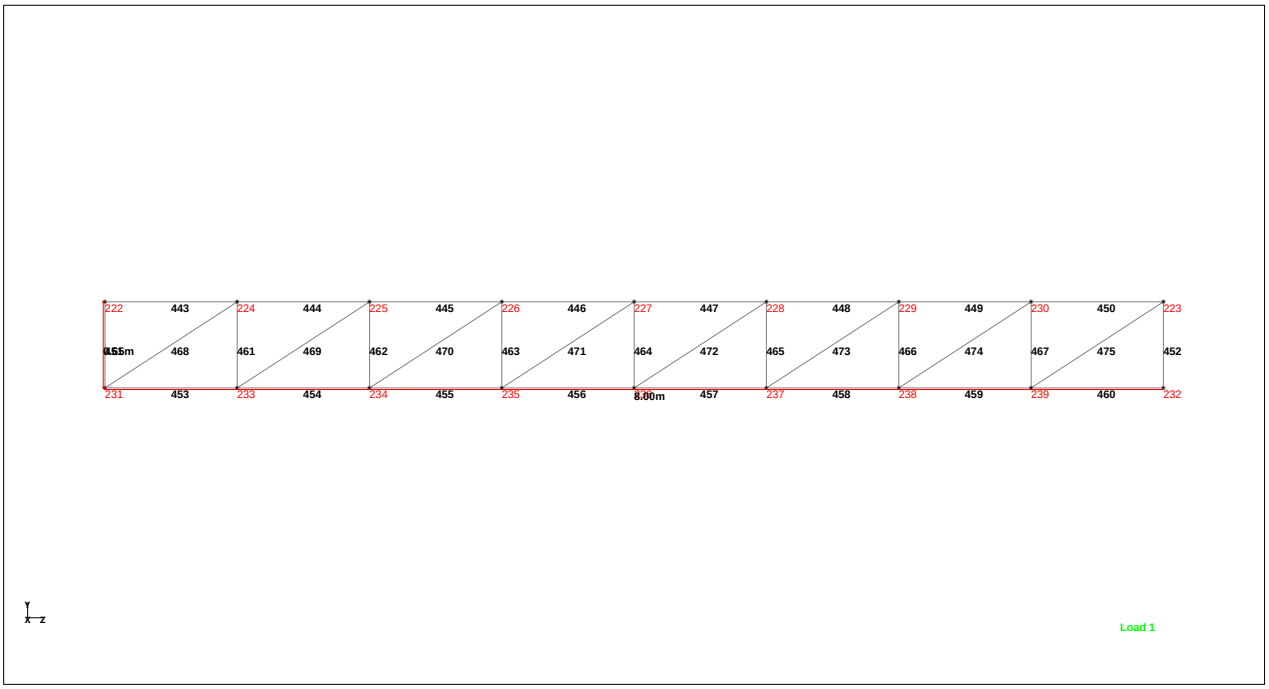


T-2



T-3

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No **Cet-Jk-2012-01**	Sheet No **5**	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	



T-4

Nodes

Node	X (m)	Y (m)	Z (m)
1	0.000	0.000	0.000
2	0.000	6.400	0.000
3	12.500	0.000	0.000
4	12.500	9.750	0.000
5	11.997	9.615	0.000
6	1.000	6.668	0.000
7	1.999	6.936	0.000
8	2.999	7.204	0.000
9	3.999	7.472	0.000
10	4.999	7.740	0.000
11	5.998	8.008	0.000
12	6.998	8.275	0.000
13	7.998	8.543	0.000
14	8.997	8.811	0.000
15	9.997	9.079	0.000
16	10.997	9.347	0.000
17	-1.500	6.000	0.000
18	0.000	7.200	0.000
19	12.500	10.550	0.000
20	11.997	10.415	0.000
21	1.000	7.468	0.000
22	1.999	7.736	0.000
23	2.999	8.004	0.000
24	3.999	8.272	0.000
25	4.999	8.540	0.000
26	5.998	8.808	0.000

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 6	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
27	6.998	9.075	0.000
28	7.998	9.343	0.000
29	8.997	9.611	0.000
30	9.997	9.879	0.000
31	10.997	10.147	0.000
32	-1.500	6.800	0.000
33	25.000	6.400	0.000
34	13.003	9.615	0.000
35	24.000	6.668	0.000
36	23.001	6.936	0.000
37	22.001	7.204	0.000
38	21.001	7.472	0.000
39	20.001	7.740	0.000
40	19.002	8.008	0.000
41	18.002	8.275	0.000
42	17.002	8.543	0.000
43	16.003	8.811	0.000
44	15.003	9.079	0.000
45	14.003	9.347	0.000
46	26.500	6.000	0.000
47	25.000	7.200	0.000
48	13.003	10.415	0.000
49	24.000	7.468	0.000
50	23.001	7.736	0.000
51	22.001	8.004	0.000
52	21.001	8.272	0.000
53	20.001	8.540	0.000
54	19.002	8.808	0.000
55	18.002	9.075	0.000
56	17.002	9.343	0.000
57	16.003	9.611	0.000
58	15.003	9.879	0.000
59	14.003	10.147	0.000
60	26.500	6.800	0.000
63	0.000	6.400	4.000
65	12.500	9.750	4.000
66	11.997	9.615	4.000
67	1.000	6.668	4.000
68	1.999	6.936	4.000
69	2.999	7.204	4.000
70	3.999	7.472	4.000
71	4.999	7.740	4.000
72	5.998	8.008	4.000
73	6.998	8.275	4.000
74	7.998	8.543	4.000
75	8.997	8.811	4.000
76	9.997	9.079	4.000
77	10.997	9.347	4.000
78	-1.500	6.000	4.000

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 7	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time	16-Jul-2012 13:24

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
79	0.000	7.200	4.000
80	12.500	10.550	4.000
81	11.997	10.415	4.000
82	1.000	7.468	4.000
83	1.999	7.736	4.000
84	2.999	8.004	4.000
85	3.999	8.272	4.000
86	4.999	8.540	4.000
87	5.998	8.808	4.000
88	6.998	9.075	4.000
89	7.998	9.343	4.000
90	8.997	9.611	4.000
91	9.997	9.879	4.000
92	10.997	10.147	4.000
93	-1.500	6.800	4.000
94	25.000	6.400	4.000
95	13.003	9.615	4.000
96	24.000	6.668	4.000
97	23.001	6.936	4.000
98	22.001	7.204	4.000
99	21.001	7.472	4.000
100	20.001	7.740	4.000
101	19.002	8.008	4.000
102	18.002	8.275	4.000
103	17.002	8.543	4.000
104	16.003	8.811	4.000
105	15.003	9.079	4.000
106	14.003	9.347	4.000
107	26.500	6.000	4.000
108	25.000	7.200	4.000
109	13.003	10.415	4.000
110	24.000	7.468	4.000
111	23.001	7.736	4.000
112	22.001	8.004	4.000
113	21.001	8.272	4.000
114	20.001	8.540	4.000
115	19.002	8.808	4.000
116	18.002	9.075	4.000
117	17.002	9.343	4.000
118	16.003	9.611	4.000
119	15.003	9.879	4.000
120	14.003	10.147	4.000
121	26.500	6.800	4.000
123	0.000	0.000	8.000
124	0.000	6.400	8.000
125	12.500	0.000	8.000
126	12.500	9.750	8.000
127	11.997	9.615	8.000
128	1.000	6.668	8.000

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 8	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
129	1.999	6.936	8.000
130	2.999	7.204	8.000
131	3.999	7.472	8.000
132	4.999	7.740	8.000
133	5.998	8.008	8.000
134	6.998	8.275	8.000
135	7.998	8.543	8.000
136	8.997	8.811	8.000
137	9.997	9.079	8.000
138	10.997	9.347	8.000
139	-1.500	6.000	8.000
140	0.000	7.200	8.000
141	12.500	10.550	8.000
142	11.997	10.415	8.000
143	1.000	7.468	8.000
144	1.999	7.736	8.000
145	2.999	8.004	8.000
146	3.999	8.272	8.000
147	4.999	8.540	8.000
148	5.998	8.808	8.000
149	6.998	9.075	8.000
150	7.998	9.343	8.000
151	8.997	9.611	8.000
152	9.997	9.879	8.000
153	10.997	10.147	8.000
154	-1.500	6.800	8.000
155	25.000	6.400	8.000
156	13.003	9.615	8.000
157	24.000	6.668	8.000
158	23.001	6.936	8.000
159	22.001	7.204	8.000
160	21.001	7.472	8.000
161	20.001	7.740	8.000
162	19.002	8.008	8.000
163	18.002	8.275	8.000
164	17.002	8.543	8.000
165	16.003	8.811	8.000
166	15.003	9.079	8.000
167	14.003	9.347	8.000
168	26.500	6.000	8.000
169	25.000	7.200	8.000
170	13.003	10.415	8.000
171	24.000	7.468	8.000
172	23.001	7.736	8.000
173	22.001	8.004	8.000
174	21.001	8.272	8.000
175	20.001	8.540	8.000
176	19.002	8.808	8.000
177	18.002	9.075	8.000

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 9	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time	16-Jul-2012 13:24

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
178	17.002	9.343	8.000
179	16.003	9.611	8.000
180	15.003	9.879	8.000
181	14.003	10.147	8.000
182	26.500	6.800	8.000
184	0.000	7.200	1.000
185	0.000	7.200	2.000
186	0.000	7.200	3.000
187	0.000	6.400	1.000
188	0.000	6.400	2.000
189	0.000	6.400	3.000
190	0.000	7.200	5.000
191	0.000	6.400	5.000
192	0.000	7.200	6.000
193	0.000	7.200	7.000
194	0.000	6.400	6.000
195	0.000	6.400	7.000
196	12.500	10.550	1.000
197	12.500	9.750	1.000
198	12.500	10.550	2.000
199	12.500	10.550	3.000
200	12.500	9.750	2.000
201	12.500	9.750	3.000
202	12.500	10.550	5.000
203	12.500	9.750	5.000
204	12.500	10.550	6.000
205	12.500	10.550	7.000
206	12.500	9.750	6.000
207	12.500	9.750	7.000
208	25.000	7.200	1.000
209	25.000	6.400	1.000
210	25.000	7.200	2.000
211	25.000	7.200	3.000
212	25.000	6.400	2.000
213	25.000	6.400	3.000
214	25.000	7.200	5.000
215	25.000	6.400	5.000
216	25.000	7.200	6.000
217	25.000	7.200	7.000
218	25.000	6.400	6.000
219	25.000	6.400	7.000
220	12.500	6.000	0.000
221	12.500	6.000	8.000
222	0.000	5.200	0.000
223	0.000	5.200	8.000
224	0.000	5.200	1.000
225	0.000	5.200	2.000
226	0.000	5.200	3.000
227	0.000	5.200	4.000

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 10	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
228	0.000	5.200	5.000
229	0.000	5.200	6.000
230	0.000	5.200	7.000
231	0.000	4.550	0.000
232	0.000	4.550	8.000
233	0.000	4.550	1.000
234	0.000	4.550	2.000
235	0.000	4.550	3.000
236	0.000	4.550	4.000
237	0.000	4.550	5.000
238	0.000	4.550	6.000
239	0.000	4.550	7.000
240	-3.000	5.050	0.000
241	-3.000	4.550	0.000
242	-1.000	5.150	0.000
243	-2.000	5.100	0.000
244	-1.000	4.550	0.000
245	-2.000	4.550	0.000
246	-1.000	5.150	4.000
247	-1.000	4.550	4.000
248	-3.000	4.550	4.000
249	-3.000	5.050	4.000
250	-2.000	5.100	4.000
251	-2.000	4.550	4.000
252	-1.000	5.150	8.000
253	-1.000	4.550	8.000
254	-3.000	4.550	8.000
255	-3.000	5.050	8.000
256	-2.000	5.100	8.000
257	-2.000	4.550	8.000
258	25.000	0.000	0.000
259	25.000	0.000	8.000
260	25.000	5.200	0.000
261	25.000	5.200	8.000
262	25.000	5.200	1.000
263	25.000	5.200	2.000
264	25.000	5.200	3.000
265	25.000	5.200	4.000
266	25.000	5.200	5.000
267	25.000	5.200	6.000
268	25.000	5.200	7.000
269	25.000	4.550	0.000
270	25.000	4.550	8.000
271	25.000	4.550	1.000
272	25.000	4.550	2.000
273	25.000	4.550	3.000
274	25.000	4.550	4.000
275	25.000	4.550	5.000
276	25.000	4.550	6.000

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 11	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
277	25.000	4.550	7.000
278	28.000	5.050	0.000
279	28.000	4.550	0.000
280	26.000	5.150	0.000
281	27.000	5.100	0.000
282	26.000	4.550	0.000
283	27.000	4.550	0.000
284	26.000	5.150	4.000
285	26.000	4.550	4.000
286	28.000	4.550	4.000
287	28.000	5.050	4.000
288	27.000	5.100	4.000
289	27.000	4.550	4.000
290	26.000	5.150	8.000
291	26.000	4.550	8.000
292	28.000	4.550	8.000
293	28.000	5.050	8.000
294	27.000	5.100	8.000
295	27.000	4.550	8.000
296	0.000	6.400	12.000
297	12.500	9.750	12.000
298	11.997	9.615	12.000
299	1.000	6.668	12.000
300	1.999	6.936	12.000
301	2.999	7.204	12.000
302	3.999	7.472	12.000
303	4.999	7.740	12.000
304	5.998	8.008	12.000
305	6.998	8.275	12.000
306	7.998	8.543	12.000
307	8.997	8.811	12.000
308	9.997	9.079	12.000
309	10.997	9.347	12.000
310	-1.500	6.000	12.000
311	0.000	7.200	12.000
312	12.500	10.550	12.000
313	11.997	10.415	12.000
314	1.000	7.468	12.000
315	1.999	7.736	12.000
316	2.999	8.004	12.000
317	3.999	8.272	12.000
318	4.999	8.540	12.000
319	5.998	8.808	12.000
320	6.998	9.075	12.000
321	7.998	9.343	12.000
322	8.997	9.611	12.000
323	9.997	9.879	12.000
324	10.997	10.147	12.000
325	-1.500	6.800	12.000

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 12	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
326	25.000	6.400	12.000
327	13.003	9.615	12.000
328	24.000	6.668	12.000
329	23.001	6.936	12.000
330	22.001	7.204	12.000
331	21.001	7.472	12.000
332	20.001	7.740	12.000
333	19.002	8.008	12.000
334	18.002	8.275	12.000
335	17.002	8.543	12.000
336	16.003	8.811	12.000
337	15.003	9.079	12.000
338	14.003	9.347	12.000
339	26.500	6.000	12.000
340	25.000	7.200	12.000
341	13.003	10.415	12.000
342	24.000	7.468	12.000
343	23.001	7.736	12.000
344	22.001	8.004	12.000
345	21.001	8.272	12.000
346	20.001	8.540	12.000
347	19.002	8.808	12.000
348	18.002	9.075	12.000
349	17.002	9.343	12.000
350	16.003	9.611	12.000
351	15.003	9.879	12.000
352	14.003	10.147	12.000
353	26.500	6.800	12.000
354	0.000	0.000	16.000
355	0.000	6.400	16.000
356	12.500	0.000	16.000
357	12.500	9.750	16.000
358	11.997	9.615	16.000
359	1.000	6.668	16.000
360	1.999	6.936	16.000
361	2.999	7.204	16.000
362	3.999	7.472	16.000
363	4.999	7.740	16.000
364	5.998	8.008	16.000
365	6.998	8.275	16.000
366	7.998	8.543	16.000
367	8.997	8.811	16.000
368	9.997	9.079	16.000
369	10.997	9.347	16.000
370	-1.500	6.000	16.000
371	0.000	7.200	16.000
372	12.500	10.550	16.000
373	11.997	10.415	16.000
374	1.000	7.468	16.000

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 13	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
375	1.999	7.736	16.000
376	2.999	8.004	16.000
377	3.999	8.272	16.000
378	4.999	8.540	16.000
379	5.998	8.808	16.000
380	6.998	9.075	16.000
381	7.998	9.343	16.000
382	8.997	9.611	16.000
383	9.997	9.879	16.000
384	10.997	10.147	16.000
385	-1.500	6.800	16.000
386	25.000	6.400	16.000
387	13.003	9.615	16.000
388	24.000	6.668	16.000
389	23.001	6.936	16.000
390	22.001	7.204	16.000
391	21.001	7.472	16.000
392	20.001	7.740	16.000
393	19.002	8.008	16.000
394	18.002	8.275	16.000
395	17.002	8.543	16.000
396	16.003	8.811	16.000
397	15.003	9.079	16.000
398	14.003	9.347	16.000
399	26.500	6.000	16.000
400	25.000	7.200	16.000
401	13.003	10.415	16.000
402	24.000	7.468	16.000
403	23.001	7.736	16.000
404	22.001	8.004	16.000
405	21.001	8.272	16.000
406	20.001	8.540	16.000
407	19.002	8.808	16.000
408	18.002	9.075	16.000
409	17.002	9.343	16.000
410	16.003	9.611	16.000
411	15.003	9.879	16.000
412	14.003	10.147	16.000
413	26.500	6.800	16.000
414	0.000	7.200	9.000
415	0.000	7.200	10.000
416	0.000	7.200	11.000
417	0.000	6.400	9.000
418	0.000	6.400	10.000
419	0.000	6.400	11.000
420	0.000	7.200	13.000
421	0.000	6.400	13.000
422	0.000	7.200	14.000
423	0.000	7.200	15.000

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 14	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
424	0.000	6.400	14.000
425	0.000	6.400	15.000
426	12.500	10.550	9.000
427	12.500	9.750	9.000
428	12.500	10.550	10.000
429	12.500	10.550	11.000
430	12.500	9.750	10.000
431	12.500	9.750	11.000
432	12.500	10.550	13.000
433	12.500	9.750	13.000
434	12.500	10.550	14.000
435	12.500	10.550	15.000
436	12.500	9.750	14.000
437	12.500	9.750	15.000
438	25.000	7.200	9.000
439	25.000	6.400	9.000
440	25.000	7.200	10.000
441	25.000	7.200	11.000
442	25.000	6.400	10.000
443	25.000	6.400	11.000
444	25.000	7.200	13.000
445	25.000	6.400	13.000
446	25.000	7.200	14.000
447	25.000	7.200	15.000
448	25.000	6.400	14.000
449	25.000	6.400	15.000
450	12.500	6.000	16.000
451	0.000	5.200	16.000
452	0.000	5.200	9.000
453	0.000	5.200	10.000
454	0.000	5.200	11.000
455	0.000	5.200	12.000
456	0.000	5.200	13.000
457	0.000	5.200	14.000
458	0.000	5.200	15.000
459	0.000	4.550	16.000
460	0.000	4.550	9.000
461	0.000	4.550	10.000
462	0.000	4.550	11.000
463	0.000	4.550	12.000
464	0.000	4.550	13.000
465	0.000	4.550	14.000
466	0.000	4.550	15.000
467	-1.000	5.150	12.000
468	-1.000	4.550	12.000
469	-3.000	4.550	12.000
470	-3.000	5.050	12.000
471	-2.000	5.100	12.000
472	-2.000	4.550	12.000

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 15	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Nodes Cont...

Node	X (m)	Y (m)	Z (m)
473	-1.000	5.150	16.000
474	-1.000	4.550	16.000
475	-3.000	4.550	16.000
476	-3.000	5.050	16.000
477	-2.000	5.100	16.000
478	-2.000	4.550	16.000
479	25.000	0.000	16.000
480	25.000	5.200	16.000
481	25.000	5.200	9.000
482	25.000	5.200	10.000
483	25.000	5.200	11.000
484	25.000	5.200	12.000
485	25.000	5.200	13.000
486	25.000	5.200	14.000
487	25.000	5.200	15.000
488	25.000	4.550	16.000
489	25.000	4.550	9.000
490	25.000	4.550	10.000
491	25.000	4.550	11.000
492	25.000	4.550	12.000
493	25.000	4.550	13.000
494	25.000	4.550	14.000
495	25.000	4.550	15.000
496	26.000	5.150	12.000
497	26.000	4.550	12.000
498	28.000	4.550	12.000
499	28.000	5.050	12.000
500	27.000	5.100	12.000
501	27.000	4.550	12.000
502	26.000	5.150	16.000
503	26.000	4.550	16.000
504	28.000	4.550	16.000
505	28.000	5.050	16.000
506	27.000	5.100	16.000
507	27.000	4.550	16.000

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 16	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams

Beam	Node A	Node B	Length (m)	Property	β (degrees)
1	1	231	4.550	1	0
2	3	220	6.000	2	0
3	2	6	1.035	4	0
4	5	4	0.521	4	0
5	6	7	1.035	4	0
6	7	8	1.035	4	0
7	8	9	1.035	4	0
8	9	10	1.035	4	0
9	10	11	1.035	4	0
10	11	12	1.035	4	0
11	12	13	1.035	4	0
12	13	14	1.035	4	0
13	14	15	1.035	4	0
14	15	16	1.035	4	0
15	16	5	1.035	4	0
16	17	2	1.552	4	0
17	2	18	0.800	4	0
18	4	19	0.800	4	0
19	5	20	0.800	3	0
20	6	21	0.800	3	0
21	7	22	0.800	3	0
22	8	23	0.800	3	0
23	9	24	0.800	3	0
24	10	25	0.800	3	0
25	11	26	0.800	3	0
26	12	27	0.800	3	0
27	13	28	0.800	3	0
28	14	29	0.800	3	0
29	15	30	0.800	3	0
30	16	31	0.800	3	0
31	17	32	0.800	4	0
32	18	21	1.035	4	0
33	20	19	0.521	4	0
34	21	22	1.035	4	0
35	22	23	1.035	4	0
36	23	24	1.035	4	0
37	24	25	1.035	4	0
38	25	26	1.035	4	0
39	26	27	1.035	4	0
40	27	28	1.035	4	0
41	28	29	1.035	4	0
42	29	30	1.035	4	0
43	30	31	1.035	4	0
44	31	20	1.035	4	0
45	32	18	1.552	4	0
46	19	5	1.062	3	0
47	20	16	1.463	3	0
48	31	15	1.463	3	0
49	30	14	1.463	3	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 17	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
50	29	13	1.463	3	0
51	28	12	1.463	3	0
52	27	11	1.463	3	0
53	26	10	1.463	3	0
54	25	9	1.463	3	0
55	24	8	1.463	3	0
56	23	7	1.463	3	0
57	22	6	1.463	3	0
58	21	2	1.463	3	0
59	18	17	1.921	3	0
60	33	35	1.035	4	0
61	34	4	0.521	4	0
62	35	36	1.035	4	0
63	36	37	1.035	4	0
64	37	38	1.035	4	0
65	38	39	1.035	4	0
66	39	40	1.035	4	0
67	40	41	1.035	4	0
68	41	42	1.035	4	0
69	42	43	1.035	4	0
70	43	44	1.035	4	0
71	44	45	1.035	4	0
72	45	34	1.035	4	0
73	46	33	1.552	4	0
74	33	47	0.800	4	0
75	34	48	0.800	3	0
76	35	49	0.800	3	0
77	36	50	0.800	3	0
78	37	51	0.800	3	0
79	38	52	0.800	3	0
80	39	53	0.800	3	0
81	40	54	0.800	3	0
82	41	55	0.800	3	0
83	42	56	0.800	3	0
84	43	57	0.800	3	0
85	44	58	0.800	3	0
86	45	59	0.800	3	0
87	46	60	0.800	4	0
88	47	49	1.035	4	0
89	48	19	0.521	4	0
90	49	50	1.035	4	0
91	50	51	1.035	4	0
92	51	52	1.035	4	0
93	52	53	1.035	4	0
94	53	54	1.035	4	0
95	54	55	1.035	4	0
96	55	56	1.035	4	0
97	56	57	1.035	4	0
98	57	58	1.035	4	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 18	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
99	58	59	1.035	4	0
100	59	48	1.035	4	0
101	60	47	1.552	4	0
102	19	34	1.062	3	0
103	48	45	1.463	3	0
104	59	44	1.463	3	0
105	58	43	1.463	3	0
106	57	42	1.463	3	0
107	56	41	1.463	3	0
108	55	40	1.463	3	0
109	54	39	1.463	3	0
110	53	38	1.463	3	0
111	52	37	1.463	3	0
112	51	36	1.463	3	0
113	50	35	1.463	3	0
114	49	33	1.463	3	0
115	47	46	1.921	3	0
119	63	67	1.035	4	0
120	66	65	0.521	4	0
121	67	68	1.035	4	0
122	68	69	1.035	4	0
123	69	70	1.035	4	0
124	70	71	1.035	4	0
125	71	72	1.035	4	0
126	72	73	1.035	4	0
127	73	74	1.035	4	0
128	74	75	1.035	4	0
129	75	76	1.035	4	0
130	76	77	1.035	4	0
131	77	66	1.035	4	0
132	78	63	1.552	4	0
133	63	79	0.800	4	0
134	65	80	0.800	4	0
135	66	81	0.800	3	0
136	67	82	0.800	3	0
137	68	83	0.800	3	0
138	69	84	0.800	3	0
139	70	85	0.800	3	0
140	71	86	0.800	3	0
141	72	87	0.800	3	0
142	73	88	0.800	3	0
143	74	89	0.800	3	0
144	75	90	0.800	3	0
145	76	91	0.800	3	0
146	77	92	0.800	3	0
147	78	93	0.800	4	0
148	79	82	1.035	4	0
149	81	80	0.521	4	0
150	82	83	1.035	4	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 19	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
151	83	84	1.035	4	0
152	84	85	1.035	4	0
153	85	86	1.035	4	0
154	86	87	1.035	4	0
155	87	88	1.035	4	0
156	88	89	1.035	4	0
157	89	90	1.035	4	0
158	90	91	1.035	4	0
159	91	92	1.035	4	0
160	92	81	1.035	4	0
161	93	79	1.552	4	0
162	80	66	1.062	3	0
163	81	77	1.463	3	0
164	92	76	1.463	3	0
165	91	75	1.463	3	0
166	90	74	1.463	3	0
167	89	73	1.463	3	0
168	88	72	1.463	3	0
169	87	71	1.463	3	0
170	86	70	1.463	3	0
171	85	69	1.463	3	0
172	84	68	1.463	3	0
173	83	67	1.463	3	0
174	82	63	1.463	3	0
175	79	78	1.921	3	0
176	94	96	1.035	4	0
177	95	65	0.521	4	0
178	96	97	1.035	4	0
179	97	98	1.035	4	0
180	98	99	1.035	4	0
181	99	100	1.035	4	0
182	100	101	1.035	4	0
183	101	102	1.035	4	0
184	102	103	1.035	4	0
185	103	104	1.035	4	0
186	104	105	1.035	4	0
187	105	106	1.035	4	0
188	106	95	1.035	4	0
189	107	94	1.552	4	0
190	94	108	0.800	4	0
191	95	109	0.800	3	0
192	96	110	0.800	3	0
193	97	111	0.800	3	0
194	98	112	0.800	3	0
195	99	113	0.800	3	0
196	100	114	0.800	3	0
197	101	115	0.800	3	0
198	102	116	0.800	3	0
199	103	117	0.800	3	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 20	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
200	104	118	0.800	3	0
201	105	119	0.800	3	0
202	106	120	0.800	3	0
203	107	121	0.800	4	0
204	108	110	1.035	4	0
205	109	80	0.521	4	0
206	110	111	1.035	4	0
207	111	112	1.035	4	0
208	112	113	1.035	4	0
209	113	114	1.035	4	0
210	114	115	1.035	4	0
211	115	116	1.035	4	0
212	116	117	1.035	4	0
213	117	118	1.035	4	0
214	118	119	1.035	4	0
215	119	120	1.035	4	0
216	120	109	1.035	4	0
217	121	108	1.552	4	0
218	80	95	1.062	3	0
219	109	106	1.463	3	0
220	120	105	1.463	3	0
221	119	104	1.463	3	0
222	118	103	1.463	3	0
223	117	102	1.463	3	0
224	116	101	1.463	3	0
225	115	100	1.463	3	0
226	114	99	1.463	3	0
227	113	98	1.463	3	0
228	112	97	1.463	3	0
229	111	96	1.463	3	0
230	110	94	1.463	3	0
231	108	107	1.921	3	0
233	123	232	4.550	1	0
234	125	221	6.000	2	0
235	124	128	1.035	4	0
236	127	126	0.521	4	0
237	128	129	1.035	4	0
238	129	130	1.035	4	0
239	130	131	1.035	4	0
240	131	132	1.035	4	0
241	132	133	1.035	4	0
242	133	134	1.035	4	0
243	134	135	1.035	4	0
244	135	136	1.035	4	0
245	136	137	1.035	4	0
246	137	138	1.035	4	0
247	138	127	1.035	4	0
248	139	124	1.552	4	0
249	124	140	0.800	4	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 21	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
250	126	141	0.800	4	0
251	127	142	0.800	3	0
252	128	143	0.800	3	0
253	129	144	0.800	3	0
254	130	145	0.800	3	0
255	131	146	0.800	3	0
256	132	147	0.800	3	0
257	133	148	0.800	3	0
258	134	149	0.800	3	0
259	135	150	0.800	3	0
260	136	151	0.800	3	0
261	137	152	0.800	3	0
262	138	153	0.800	3	0
263	139	154	0.800	4	0
264	140	143	1.035	4	0
265	142	141	0.521	4	0
266	143	144	1.035	4	0
267	144	145	1.035	4	0
268	145	146	1.035	4	0
269	146	147	1.035	4	0
270	147	148	1.035	4	0
271	148	149	1.035	4	0
272	149	150	1.035	4	0
273	150	151	1.035	4	0
274	151	152	1.035	4	0
275	152	153	1.035	4	0
276	153	142	1.035	4	0
277	154	140	1.552	4	0
278	141	127	1.062	3	0
279	142	138	1.463	3	0
280	153	137	1.463	3	0
281	152	136	1.463	3	0
282	151	135	1.463	3	0
283	150	134	1.463	3	0
284	149	133	1.463	3	0
285	148	132	1.463	3	0
286	147	131	1.463	3	0
287	146	130	1.463	3	0
288	145	129	1.463	3	0
289	144	128	1.463	3	0
290	143	124	1.463	3	0
291	140	139	1.921	3	0
292	155	157	1.035	4	0
293	156	126	0.521	4	0
294	157	158	1.035	4	0
295	158	159	1.035	4	0
296	159	160	1.035	4	0
297	160	161	1.035	4	0
298	161	162	1.035	4	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 22	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
299	162	163	1.035	4	0
300	163	164	1.035	4	0
301	164	165	1.035	4	0
302	165	166	1.035	4	0
303	166	167	1.035	4	0
304	167	156	1.035	4	0
305	168	155	1.552	4	0
306	155	169	0.800	4	0
307	156	170	0.800	3	0
308	157	171	0.800	3	0
309	158	172	0.800	3	0
310	159	173	0.800	3	0
311	160	174	0.800	3	0
312	161	175	0.800	3	0
313	162	176	0.800	3	0
314	163	177	0.800	3	0
315	164	178	0.800	3	0
316	165	179	0.800	3	0
317	166	180	0.800	3	0
318	167	181	0.800	3	0
319	168	182	0.800	4	0
320	169	171	1.035	4	0
321	170	141	0.521	4	0
322	171	172	1.035	4	0
323	172	173	1.035	4	0
324	173	174	1.035	4	0
325	174	175	1.035	4	0
326	175	176	1.035	4	0
327	176	177	1.035	4	0
328	177	178	1.035	4	0
329	178	179	1.035	4	0
330	179	180	1.035	4	0
331	180	181	1.035	4	0
332	181	170	1.035	4	0
333	182	169	1.552	4	0
334	141	156	1.062	3	0
335	170	167	1.463	3	0
336	181	166	1.463	3	0
337	180	165	1.463	3	0
338	179	164	1.463	3	0
339	178	163	1.463	3	0
340	177	162	1.463	3	0
341	176	161	1.463	3	0
342	175	160	1.463	3	0
343	174	159	1.463	3	0
344	173	158	1.463	3	0
345	172	157	1.463	3	0
346	171	155	1.463	3	0
347	169	168	1.921	3	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 23	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
349	18	184	1.000	5	0
350	2	187	1.000	5	0
351	184	185	1.000	5	0
352	185	186	1.000	5	0
353	186	79	1.000	5	0
354	187	188	1.000	5	0
355	188	189	1.000	5	0
356	189	63	1.000	5	0
357	187	184	0.800	6	0
358	188	185	0.800	6	0
359	189	186	0.800	6	0
360	18	187	1.281	6	0
361	184	188	1.281	6	0
362	185	189	1.281	6	0
363	186	63	1.281	6	0
364	79	190	1.000	5	0
365	63	191	1.000	5	0
366	190	192	1.000	5	0
367	192	193	1.000	5	0
368	193	140	1.000	5	0
369	191	194	1.000	5	0
370	194	195	1.000	5	0
371	195	124	1.000	5	0
372	191	190	0.800	6	0
373	194	192	0.800	6	0
374	195	193	0.800	6	0
375	79	191	1.281	6	0
376	190	194	1.281	6	0
377	192	195	1.281	6	0
378	193	124	1.281	6	0
379	19	196	1.000	5	0
380	4	197	1.000	5	0
381	196	198	1.000	5	0
382	198	199	1.000	5	0
383	199	80	1.000	5	0
384	197	200	1.000	5	0
385	200	201	1.000	5	0
386	201	65	1.000	5	0
387	197	196	0.800	6	0
388	200	198	0.800	6	0
389	201	199	0.800	6	0
390	19	197	1.281	6	0
391	196	200	1.281	6	0
392	198	201	1.281	6	0
393	199	65	1.281	6	0
394	80	202	1.000	5	0
395	65	203	1.000	5	0
396	202	204	1.000	5	0
397	204	205	1.000	5	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 24	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
398	205	141	1.000	5	0
399	203	206	1.000	5	0
400	206	207	1.000	5	0
401	207	126	1.000	5	0
402	203	202	0.800	6	0
403	206	204	0.800	6	0
404	207	205	0.800	6	0
405	80	203	1.281	6	0
406	202	206	1.281	6	0
407	204	207	1.281	6	0
408	205	126	1.281	6	0
409	47	208	1.000	5	0
410	33	209	1.000	5	0
411	208	210	1.000	5	0
412	210	211	1.000	5	0
413	211	108	1.000	5	0
414	209	212	1.000	5	0
415	212	213	1.000	5	0
416	213	94	1.000	5	0
417	209	208	0.800	6	0
418	212	210	0.800	6	0
419	213	211	0.800	6	0
420	47	209	1.281	6	0
421	208	212	1.281	6	0
422	210	213	1.281	6	0
423	211	94	1.281	6	0
424	108	214	1.000	5	0
425	94	215	1.000	5	0
426	214	216	1.000	5	0
427	216	217	1.000	5	0
428	217	169	1.000	5	0
429	215	218	1.000	5	0
430	218	219	1.000	5	0
431	219	155	1.000	5	0
432	215	214	0.800	6	0
433	218	216	0.800	6	0
434	219	217	0.800	6	0
435	108	215	1.281	6	0
436	214	218	1.281	6	0
437	216	219	1.281	6	0
438	217	155	1.281	6	0
439	220	4	3.750	2	0
440	221	126	3.750	2	0
441	222	2	1.200	1	0
442	223	124	1.200	1	0
443	222	224	1.000	7	0
444	224	225	1.000	7	0
445	225	226	1.000	7	0
446	226	227	1.000	7	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 25	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
447	227	228	1.000	7	0
448	228	229	1.000	7	0
449	229	230	1.000	7	0
450	230	223	1.000	7	0
451	231	222	0.650	1	0
452	232	223	0.650	1	0
453	231	233	1.000	7	0
454	233	234	1.000	7	0
455	234	235	1.000	7	0
456	235	236	1.000	7	0
457	236	237	1.000	7	0
458	237	238	1.000	7	0
459	238	239	1.000	7	0
460	239	232	1.000	7	0
461	233	224	0.650	7	0
462	234	225	0.650	7	0
463	235	226	0.650	7	0
464	236	227	0.650	7	0
465	237	228	0.650	7	0
466	238	229	0.650	7	0
467	239	230	0.650	7	0
468	231	224	1.193	7	0
469	233	225	1.193	7	0
470	234	226	1.193	7	0
471	235	227	1.193	7	0
472	236	228	1.193	7	0
473	237	229	1.193	7	0
474	238	230	1.193	7	0
475	239	223	1.193	7	0
476	222	242	1.001	8	0
477	231	244	1.000	8	0
478	241	240	0.500	8	0
479	242	243	1.001	8	0
480	243	240	1.001	8	0
481	244	245	1.000	8	0
482	245	241	1.000	8	0
483	245	243	0.550	8	0
484	244	242	0.600	8	0
485	240	245	1.118	8	0
486	243	244	1.141	8	0
487	242	231	1.166	8	0
488	227	246	1.001	8	0
489	236	247	1.000	8	0
490	248	249	0.500	8	0
491	246	250	1.001	8	0
492	250	249	1.001	8	0
493	247	251	1.000	8	0
494	251	248	1.000	8	0
495	251	250	0.550	8	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 26	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
496	247	246	0.600	8	0
497	249	251	1.118	8	0
498	250	247	1.141	8	0
499	246	236	1.166	8	0
500	223	252	1.001	8	0
501	232	253	1.000	8	0
502	254	255	0.500	8	0
503	252	256	1.001	8	0
504	256	255	1.001	8	0
505	253	257	1.000	8	0
506	257	254	1.000	8	0
507	257	256	0.550	8	0
508	253	252	0.600	8	0
509	255	257	1.118	8	0
510	256	253	1.141	8	0
511	252	232	1.166	8	0
520	258	269	4.550	1	0
521	259	270	4.550	1	0
522	260	33	1.200	1	0
523	261	155	1.200	1	0
524	260	262	1.000	7	0
525	262	263	1.000	7	0
526	263	264	1.000	7	0
527	264	265	1.000	7	0
528	265	266	1.000	7	0
529	266	267	1.000	7	0
530	267	268	1.000	7	0
531	268	261	1.000	7	0
532	269	260	0.650	1	0
533	270	261	0.650	1	0
534	269	271	1.000	7	0
535	271	272	1.000	7	0
536	272	273	1.000	7	0
537	273	274	1.000	7	0
538	274	275	1.000	7	0
539	275	276	1.000	7	0
540	276	277	1.000	7	0
541	277	270	1.000	7	0
542	271	262	0.650	7	0
543	272	263	0.650	7	0
544	273	264	0.650	7	0
545	274	265	0.650	7	0
546	275	266	0.650	7	0
547	276	267	0.650	7	0
548	277	268	0.650	7	0
549	269	262	1.193	7	0
550	271	263	1.193	7	0
551	272	264	1.193	7	0
552	273	265	1.193	7	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 27	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
553	274	266	1.193	7	0
554	275	267	1.193	7	0
555	276	268	1.193	7	0
556	277	261	1.193	7	0
557	260	280	1.001	8	0
558	269	282	1.000	8	0
559	279	278	0.500	8	0
560	280	281	1.001	8	0
561	281	278	1.001	8	0
562	282	283	1.000	8	0
563	283	279	1.000	8	0
564	283	281	0.550	8	0
565	282	280	0.600	8	0
566	278	283	1.118	8	0
567	281	282	1.141	8	0
568	280	269	1.166	8	0
569	265	284	1.001	8	0
570	274	285	1.000	8	0
571	286	287	0.500	8	0
572	284	288	1.001	8	0
573	288	287	1.001	8	0
574	285	289	1.000	8	0
575	289	286	1.000	8	0
576	289	288	0.550	8	0
577	285	284	0.600	8	0
578	287	289	1.118	8	0
579	288	285	1.141	8	0
580	284	274	1.166	8	0
581	261	290	1.001	8	0
582	270	291	1.000	8	0
583	292	293	0.500	8	0
584	290	294	1.001	8	0
585	294	293	1.001	8	0
586	291	295	1.000	8	0
587	295	292	1.000	8	0
588	295	294	0.550	8	0
589	291	290	0.600	8	0
590	293	295	1.118	8	0
591	294	291	1.141	8	0
592	290	270	1.166	8	0
593	296	299	1.035	4	0
594	298	297	0.521	4	0
595	299	300	1.035	4	0
596	300	301	1.035	4	0
597	301	302	1.035	4	0
598	302	303	1.035	4	0
599	303	304	1.035	4	0
600	304	305	1.035	4	0
601	305	306	1.035	4	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 28	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
602	306	307	1.035	4	0
603	307	308	1.035	4	0
604	308	309	1.035	4	0
605	309	298	1.035	4	0
606	310	296	1.552	4	0
607	296	311	0.800	4	0
608	297	312	0.800	4	0
609	298	313	0.800	3	0
610	299	314	0.800	3	0
611	300	315	0.800	3	0
612	301	316	0.800	3	0
613	302	317	0.800	3	0
614	303	318	0.800	3	0
615	304	319	0.800	3	0
616	305	320	0.800	3	0
617	306	321	0.800	3	0
618	307	322	0.800	3	0
619	308	323	0.800	3	0
620	309	324	0.800	3	0
621	310	325	0.800	4	0
622	311	314	1.035	4	0
623	313	312	0.521	4	0
624	314	315	1.035	4	0
625	315	316	1.035	4	0
626	316	317	1.035	4	0
627	317	318	1.035	4	0
628	318	319	1.035	4	0
629	319	320	1.035	4	0
630	320	321	1.035	4	0
631	321	322	1.035	4	0
632	322	323	1.035	4	0
633	323	324	1.035	4	0
634	324	313	1.035	4	0
635	325	311	1.552	4	0
636	312	298	1.062	3	0
637	313	309	1.463	3	0
638	324	308	1.463	3	0
639	323	307	1.463	3	0
640	322	306	1.463	3	0
641	321	305	1.463	3	0
642	320	304	1.463	3	0
643	319	303	1.463	3	0
644	318	302	1.463	3	0
645	317	301	1.463	3	0
646	316	300	1.463	3	0
647	315	299	1.463	3	0
648	314	296	1.463	3	0
649	311	310	1.921	3	0
650	326	328	1.035	4	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 29	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
651	327	297	0.521	4	0
652	328	329	1.035	4	0
653	329	330	1.035	4	0
654	330	331	1.035	4	0
655	331	332	1.035	4	0
656	332	333	1.035	4	0
657	333	334	1.035	4	0
658	334	335	1.035	4	0
659	335	336	1.035	4	0
660	336	337	1.035	4	0
661	337	338	1.035	4	0
662	338	327	1.035	4	0
663	339	326	1.552	4	0
664	326	340	0.800	4	0
665	327	341	0.800	3	0
666	328	342	0.800	3	0
667	329	343	0.800	3	0
668	330	344	0.800	3	0
669	331	345	0.800	3	0
670	332	346	0.800	3	0
671	333	347	0.800	3	0
672	334	348	0.800	3	0
673	335	349	0.800	3	0
674	336	350	0.800	3	0
675	337	351	0.800	3	0
676	338	352	0.800	3	0
677	339	353	0.800	4	0
678	340	342	1.035	4	0
679	341	312	0.521	4	0
680	342	343	1.035	4	0
681	343	344	1.035	4	0
682	344	345	1.035	4	0
683	345	346	1.035	4	0
684	346	347	1.035	4	0
685	347	348	1.035	4	0
686	348	349	1.035	4	0
687	349	350	1.035	4	0
688	350	351	1.035	4	0
689	351	352	1.035	4	0
690	352	341	1.035	4	0
691	353	340	1.552	4	0
692	312	327	1.062	3	0
693	341	338	1.463	3	0
694	352	337	1.463	3	0
695	351	336	1.463	3	0
696	350	335	1.463	3	0
697	349	334	1.463	3	0
698	348	333	1.463	3	0
699	347	332	1.463	3	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 30	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
700	346	331	1.463	3	0
701	345	330	1.463	3	0
702	344	329	1.463	3	0
703	343	328	1.463	3	0
704	342	326	1.463	3	0
705	340	339	1.921	3	0
706	354	459	4.550	1	0
707	356	450	6.000	2	0
708	355	359	1.035	4	0
709	358	357	0.521	4	0
710	359	360	1.035	4	0
711	360	361	1.035	4	0
712	361	362	1.035	4	0
713	362	363	1.035	4	0
714	363	364	1.035	4	0
715	364	365	1.035	4	0
716	365	366	1.035	4	0
717	366	367	1.035	4	0
718	367	368	1.035	4	0
719	368	369	1.035	4	0
720	369	358	1.035	4	0
721	370	355	1.552	4	0
722	355	371	0.800	4	0
723	357	372	0.800	4	0
724	358	373	0.800	3	0
725	359	374	0.800	3	0
726	360	375	0.800	3	0
727	361	376	0.800	3	0
728	362	377	0.800	3	0
729	363	378	0.800	3	0
730	364	379	0.800	3	0
731	365	380	0.800	3	0
732	366	381	0.800	3	0
733	367	382	0.800	3	0
734	368	383	0.800	3	0
735	369	384	0.800	3	0
736	370	385	0.800	4	0
737	371	374	1.035	4	0
738	373	372	0.521	4	0
739	374	375	1.035	4	0
740	375	376	1.035	4	0
741	376	377	1.035	4	0
742	377	378	1.035	4	0
743	378	379	1.035	4	0
744	379	380	1.035	4	0
745	380	381	1.035	4	0
746	381	382	1.035	4	0
747	382	383	1.035	4	0
748	383	384	1.035	4	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 31	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
749	384	373	1.035	4	0
750	385	371	1.552	4	0
751	372	358	1.062	3	0
752	373	369	1.463	3	0
753	384	368	1.463	3	0
754	383	367	1.463	3	0
755	382	366	1.463	3	0
756	381	365	1.463	3	0
757	380	364	1.463	3	0
758	379	363	1.463	3	0
759	378	362	1.463	3	0
760	377	361	1.463	3	0
761	376	360	1.463	3	0
762	375	359	1.463	3	0
763	374	355	1.463	3	0
764	371	370	1.921	3	0
765	386	388	1.035	4	0
766	387	357	0.521	4	0
767	388	389	1.035	4	0
768	389	390	1.035	4	0
769	390	391	1.035	4	0
770	391	392	1.035	4	0
771	392	393	1.035	4	0
772	393	394	1.035	4	0
773	394	395	1.035	4	0
774	395	396	1.035	4	0
775	396	397	1.035	4	0
776	397	398	1.035	4	0
777	398	387	1.035	4	0
778	399	386	1.552	4	0
779	386	400	0.800	4	0
780	387	401	0.800	3	0
781	388	402	0.800	3	0
782	389	403	0.800	3	0
783	390	404	0.800	3	0
784	391	405	0.800	3	0
785	392	406	0.800	3	0
786	393	407	0.800	3	0
787	394	408	0.800	3	0
788	395	409	0.800	3	0
789	396	410	0.800	3	0
790	397	411	0.800	3	0
791	398	412	0.800	3	0
792	399	413	0.800	4	0
793	400	402	1.035	4	0
794	401	372	0.521	4	0
795	402	403	1.035	4	0
796	403	404	1.035	4	0
797	404	405	1.035	4	0

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 32	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
798	405	406	1.035	4	0
799	406	407	1.035	4	0
800	407	408	1.035	4	0
801	408	409	1.035	4	0
802	409	410	1.035	4	0
803	410	411	1.035	4	0
804	411	412	1.035	4	0
805	412	401	1.035	4	0
806	413	400	1.552	4	0
807	372	387	1.062	3	0
808	401	398	1.463	3	0
809	412	397	1.463	3	0
810	411	396	1.463	3	0
811	410	395	1.463	3	0
812	409	394	1.463	3	0
813	408	393	1.463	3	0
814	407	392	1.463	3	0
815	406	391	1.463	3	0
816	405	390	1.463	3	0
817	404	389	1.463	3	0
818	403	388	1.463	3	0
819	402	386	1.463	3	0
820	400	399	1.921	3	0
821	140	414	1.000	5	0
822	124	417	1.000	5	0
823	414	415	1.000	5	0
824	415	416	1.000	5	0
825	416	311	1.000	5	0
826	417	418	1.000	5	0
827	418	419	1.000	5	0
828	419	296	1.000	5	0
829	417	414	0.800	6	0
830	418	415	0.800	6	0
831	419	416	0.800	6	0
832	140	417	1.281	6	0
833	414	418	1.281	6	0
834	415	419	1.281	6	0
835	416	296	1.281	6	0
836	311	420	1.000	5	0
837	296	421	1.000	5	0
838	420	422	1.000	5	0
839	422	423	1.000	5	0
840	423	371	1.000	5	0
841	421	424	1.000	5	0
842	424	425	1.000	5	0
843	425	355	1.000	5	0
844	421	420	0.800	6	0
845	424	422	0.800	6	0
846	425	423	0.800	6	0

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 33	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
847	311	421	1.281	6	0
848	420	424	1.281	6	0
849	422	425	1.281	6	0
850	423	355	1.281	6	0
851	141	426	1.000	5	0
852	126	427	1.000	5	0
853	426	428	1.000	5	0
854	428	429	1.000	5	0
855	429	312	1.000	5	0
856	427	430	1.000	5	0
857	430	431	1.000	5	0
858	431	297	1.000	5	0
859	427	426	0.800	6	0
860	430	428	0.800	6	0
861	431	429	0.800	6	0
862	141	427	1.281	6	0
863	426	430	1.281	6	0
864	428	431	1.281	6	0
865	429	297	1.281	6	0
866	312	432	1.000	5	0
867	297	433	1.000	5	0
868	432	434	1.000	5	0
869	434	435	1.000	5	0
870	435	372	1.000	5	0
871	433	436	1.000	5	0
872	436	437	1.000	5	0
873	437	357	1.000	5	0
874	433	432	0.800	6	0
875	436	434	0.800	6	0
876	437	435	0.800	6	0
877	312	433	1.281	6	0
878	432	436	1.281	6	0
879	434	437	1.281	6	0
880	435	357	1.281	6	0
881	169	438	1.000	5	0
882	155	439	1.000	5	0
883	438	440	1.000	5	0
884	440	441	1.000	5	0
885	441	340	1.000	5	0
886	439	442	1.000	5	0
887	442	443	1.000	5	0
888	443	326	1.000	5	0
889	439	438	0.800	6	0
890	442	440	0.800	6	0
891	443	441	0.800	6	0
892	169	439	1.281	6	0
893	438	442	1.281	6	0
894	440	443	1.281	6	0
895	441	326	1.281	6	0

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 34	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
896	340	444	1.000	5	0
897	326	445	1.000	5	0
898	444	446	1.000	5	0
899	446	447	1.000	5	0
900	447	400	1.000	5	0
901	445	448	1.000	5	0
902	448	449	1.000	5	0
903	449	386	1.000	5	0
904	445	444	0.800	6	0
905	448	446	0.800	6	0
906	449	447	0.800	6	0
907	340	445	1.281	6	0
908	444	448	1.281	6	0
909	446	449	1.281	6	0
910	447	386	1.281	6	0
911	450	357	3.750	2	0
912	451	355	1.200	1	0
913	223	452	1.000	7	0
914	452	453	1.000	7	0
915	453	454	1.000	7	0
916	454	455	1.000	7	0
917	455	456	1.000	7	0
918	456	457	1.000	7	0
919	457	458	1.000	7	0
920	458	451	1.000	7	0
921	459	451	0.650	1	0
922	232	460	1.000	7	0
923	460	461	1.000	7	0
924	461	462	1.000	7	0
925	462	463	1.000	7	0
926	463	464	1.000	7	0
927	464	465	1.000	7	0
928	465	466	1.000	7	0
929	466	459	1.000	7	0
930	460	452	0.650	7	0
931	461	453	0.650	7	0
932	462	454	0.650	7	0
933	463	455	0.650	7	0
934	464	456	0.650	7	0
935	465	457	0.650	7	0
936	466	458	0.650	7	0
937	232	452	1.193	7	0
938	460	453	1.193	7	0
939	461	454	1.193	7	0
940	462	455	1.193	7	0
941	463	456	1.193	7	0
942	464	457	1.193	7	0
943	465	458	1.193	7	0
944	466	451	1.193	7	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 35	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
945	455	467	1.001	8	0
946	463	468	1.000	8	0
947	469	470	0.500	8	0
948	467	471	1.001	8	0
949	471	470	1.001	8	0
950	468	472	1.000	8	0
951	472	469	1.000	8	0
952	472	471	0.550	8	0
953	468	467	0.600	8	0
954	470	472	1.118	8	0
955	471	468	1.141	8	0
956	467	463	1.166	8	0
957	451	473	1.001	8	0
958	459	474	1.000	8	0
959	475	476	0.500	8	0
960	473	477	1.001	8	0
961	477	476	1.001	8	0
962	474	478	1.000	8	0
963	478	475	1.000	8	0
964	478	477	0.550	8	0
965	474	473	0.600	8	0
966	476	478	1.118	8	0
967	477	474	1.141	8	0
968	473	459	1.166	8	0
969	479	488	4.550	1	0
970	480	386	1.200	1	0
971	261	481	1.000	7	0
972	481	482	1.000	7	0
973	482	483	1.000	7	0
974	483	484	1.000	7	0
975	484	485	1.000	7	0
976	485	486	1.000	7	0
977	486	487	1.000	7	0
978	487	480	1.000	7	0
979	488	480	0.650	1	0
980	270	489	1.000	7	0
981	489	490	1.000	7	0
982	490	491	1.000	7	0
983	491	492	1.000	7	0
984	492	493	1.000	7	0
985	493	494	1.000	7	0
986	494	495	1.000	7	0
987	495	488	1.000	7	0
988	489	481	0.650	7	0
989	490	482	0.650	7	0
990	491	483	0.650	7	0
991	492	484	0.650	7	0
992	493	485	0.650	7	0
993	494	486	0.650	7	0

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 36	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Beams Cont...

Beam	Node A	Node B	Length (m)	Property	β (degrees)
994	495	487	0.650	7	0
995	270	481	1.193	7	0
996	489	482	1.193	7	0
997	490	483	1.193	7	0
998	491	484	1.193	7	0
999	492	485	1.193	7	0
1000	493	486	1.193	7	0
1001	494	487	1.193	7	0
1002	495	480	1.193	7	0
1003	484	496	1.001	8	0
1004	492	497	1.000	8	0
1005	498	499	0.500	8	0
1006	496	500	1.001	8	0
1007	500	499	1.001	8	0
1008	497	501	1.000	8	0
1009	501	498	1.000	8	0
1010	501	500	0.550	8	0
1011	497	496	0.600	8	0
1012	499	501	1.118	8	0
1013	500	497	1.141	8	0
1014	496	492	1.166	8	0
1015	480	502	1.001	8	0
1016	488	503	1.000	8	0
1017	504	505	0.500	8	0
1018	502	506	1.001	8	0
1019	506	505	1.001	8	0
1020	503	507	1.000	8	0
1021	507	504	1.000	8	0
1022	507	506	0.550	8	0
1023	503	502	0.600	8	0
1024	505	507	1.118	8	0
1025	506	503	1.141	8	0
1026	502	488	1.166	8	0

Section Properties

Prop	Section	Area (cm^2)	I_{yy} (cm^4)	I_{zz} (cm^4)	J (cm^4)	Material
1	Rect 0.30x0.30	900.000	67.5E+3	67.5E+3	114E+3	CONCRETE
2	H150X150X7	39.650	563.000	1.62E+3	11.601	STEEL
3	PIP48.6X3.2	4.564	11.800	11.800	23.635	STEEL
4	PIP89.1X3.2	8.636	79.800	79.800	159.522	STEEL
5	PIP89.1X3.2	8.636	79.800	79.800	159.522	STEEL
6	PIP48.6X3.2	4.564	11.800	11.800	23.635	STEEL
7	PIP48.6X3.2	4.564	11.800	11.800	23.635	STEEL
8	PIP48.6X3.2	4.564	11.800	11.800	23.635	STEEL

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 37	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Materials

Mat	Name	E (kN/mm^2)	ν	Density (kg/m^3)	α (/°C)
1	STEEL	205.000	0.300	7.83E+3	12E -6
2	STAINLESSSTEEL	197.930	0.300	7.83E+3	18E -6
3	ALUMINUM	68.948	0.330	2.71E+3	23E -6
4	CONCRETE	21.718	0.170	2.4E+3	10E -6

Supports

Node	X (kN/mm)	Y (kN/mm)	Z (kN/mm)	rX (kN-m/deg)	rY (kN-m/deg)	rZ (kN-m/deg)
1	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
3	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
123	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
125	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
258	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
259	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
354	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
356	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
479	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

Releases

There is no data of this type.

Basic Load Cases

Number	Name
1	SELF WEIGHT
2	METAL SHEET ROOF DL
3	PURLIN DL
4	ROOF LL
5	WL

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
6	DEAD LOADS	1	SELF WEIGHT	1.00
		2	METAL SHEET ROOF DL	1.00
		3	PURLIN DL	1.00
7	LIVE LOADS	4	ROOF LL	1.00
8	WIND LOADS	5	WL	1.00
9	DL+LL	6	DEAD LOADS	1.00
		7	LIVE LOADS	1.00
10	DL+0.75(LL+WL)	6	DEAD LOADS	1.00
		7	LIVE LOADS	0.75
		8	WIND LOADS	0.75

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 38	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Loading

There is no data of this type.

Node Displacement Summary

	Node	L/C	X (mm)	Y (mm)	Z (mm)	Resultant (mm)	rX (rad)	rY (rad)	rZ (rad)
Max X	251	10:DL+0.75(LL	**63.419**	-324.685	12.215	331.046	0.000	0.006	0.162
Min X	227	10:DL+0.75(LL	**-41.638**	-1.066	-0.007	41.652	0.000	0.006	0.157
Max Y	255	10:DL+0.75(LL	8.614	**5.461**	-1.169	10.265	-0.000	-0.000	-0.002
Min Y	248	10:DL+0.75(LL	63.418	**-486.558**	18.324	491.016	0.000	0.006	0.162
Max Z	249	10:DL+0.75(LL	-17.500	-486.558	**18.325**	487.217	0.000	0.006	0.162
Min Z	57	10:DL+0.75(LL	9.511	0.762	**-4.490**	10.545	-0.000	-0.000	0.000
Max rX	197	9:DL+LL	-0.002	-0.918	-0.153	0.931	**0.001**	0.000	0.000
Min rX	366	10:DL+0.75(LL	11.298	-5.653	-3.448	13.096	**-0.001**	0.000	0.001
Max rY	235	10:DL+0.75(LL	45.101	-0.890	-0.070	45.110	0.000	**0.015**	0.130
Min rY	239	10:DL+0.75(LL	22.306	-0.255	0.031	22.307	-0.000	**-0.015**	0.027
Max rZ	246	10:DL+0.75(LL	-33.630	-162.776	6.108	166.326	0.000	0.006	**0.163**
Min rZ	284	9:DL+LL	30.751	-112.675	3.975	116.863	-0.000	-0.004	**-0.113**
Max Rst	248	10:DL+0.75(LL	63.418	-486.558	18.324	**491.016**	0.000	0.006	0.162

Reactions

		Horizontal	Vertical	Horizontal	Moment		
Node	L/C	FX (kg)	FY (kg)	FZ (kg)	MX (kNm)	MY (kNm)	MZ (kNm)
1	9:DL+LL	-89.632	2.29E+3	23.407	0.446	0.335	1.268
	10:DL+0.75(LL	-344.758	2.88E+3	32.992	0.642	-0.571	12.836
3	9:DL+LL	-0.000	2.02E+3	3.295	0.109	-0.000	-0.000
	10:DL+0.75(LL	-43.644	1.86E+3	2.942	0.097	-0.003	2.062
123	9:DL+LL	-134.440	1.76E+3	-1.924	-0.008	0.572	2.125
	10:DL+0.75(LL	-493.291	2.7E+3	-0.729	0.026	0.868	18.095
125	9:DL+LL	0.000	2.6E+3	-0.264	-0.011	-0.000	-0.000
	10:DL+0.75(LL	-55.132	2.33E+3	-0.241	-0.010	0.000	2.654
258	9:DL+LL	89.626	1.31E+3	23.495	0.445	-0.335	-1.268
	10:DL+0.75(LL	-180.227	519.272	10.245	0.175	-1.183	10.507
259	9:DL+LL	134.445	1.75E+3	-1.940	-0.010	-0.572	-2.126
	10:DL+0.75(LL	-246.141	490.567	-3.527	-0.055	-0.174	14.172
354	9:DL+LL	-83.978	965.850	-21.227	-0.364	0.283	1.275
	10:DL+0.75(LL	-347.309	1.56E+3	-32.022	-0.550	1.502	13.167
356	9:DL+LL	0.000	1.49E+3	-3.549	-0.119	0.000	-0.000
	10:DL+0.75(LL	-44.450	1.33E+3	-3.173	-0.106	0.003	2.102
479	9:DL+LL	83.979	966.244	-21.293	-0.367	-0.283	-1.275
	10:DL+0.75(LL	-195.147	173.686	-6.487	-0.112	0.991	10.851

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 39	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
1	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
2	H150X150X	H150X150X	0.187	1.000	0.187	AISC- H1-3	10	39.650	1.62E+3	563.000	11.500
3	PIP89.1X3.2	PIP89.1X3.2	0.241	1.000	0.241	AISC- H2-1	8	8.636	79.800	79.800	159.600
4	PIP89.1X3.2	PIP89.1X3.2	0.569	1.000	0.569	AISC- H1-3	10	8.636	79.800	79.800	159.600
5	PIP89.1X3.2	PIP89.1X3.2	0.162	1.000	0.162	AISC- H2-1	10	8.636	79.800	79.800	159.600
6	PIP89.1X3.2	PIP89.1X3.2	0.199	1.000	0.199	AISC- H2-1	10	8.636	79.800	79.800	159.600
7	PIP89.1X3.2	PIP89.1X3.2	0.220	1.000	0.220	AISC- H2-1	10	8.636	79.800	79.800	159.600
8	PIP89.1X3.2	PIP89.1X3.2	0.229	1.000	0.229	AISC- H2-1	10	8.636	79.800	79.800	159.600
9	PIP89.1X3.2	PIP89.1X3.2	0.227	1.000	0.227	AISC- H2-1	10	8.636	79.800	79.800	159.600
10	PIP89.1X3.2	PIP89.1X3.2	0.212	1.000	0.212	AISC- H2-1	10	8.636	79.800	79.800	159.600
11	PIP89.1X3.2	PIP89.1X3.2	0.185	1.000	0.185	AISC- H2-1	10	8.636	79.800	79.800	159.600
12	PIP89.1X3.2	PIP89.1X3.2	0.151	1.000	0.151	AISC- H2-1	8	8.636	79.800	79.800	159.600
13	PIP89.1X3.2	PIP89.1X3.2	0.134	1.000	0.134	AISC- H2-1	8	8.636	79.800	79.800	159.600
14	PIP89.1X3.2	PIP89.1X3.2	0.111	1.000	0.111	AISC- H2-1	8	8.636	79.800	79.800	159.600
15	PIP89.1X3.2	PIP89.1X3.2	0.163	1.000	0.163	AISC- H1-3	10	8.636	79.800	79.800	159.600
16	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H1-3	8	8.636	79.800	79.800	159.600
17	PIP89.1X3.2	PIP89.1X3.2	0.319	1.000	0.319	AISC- H1-3	8	8.636	79.800	79.800	159.600
18	PIP89.1X3.2	PIP89.1X3.2	0.347	1.000	0.347	AISC- H1-2	10	8.636	79.800	79.800	159.600
19	PIP48.6X3.2	PIP48.6X3.2	0.292	1.000	0.292	AISC- H1-1	10	4.564	11.800	11.800	23.600
20	PIP48.6X3.2	PIP48.6X3.2	0.170	1.000	0.170	AISC- H2-1	10	4.564	11.800	11.800	23.600
21	PIP48.6X3.2	PIP48.6X3.2	0.117	1.000	0.117	AISC- H2-1	10	4.564	11.800	11.800	23.600
22	PIP48.6X3.2	PIP48.6X3.2	0.081	1.000	0.081	AISC- H2-1	10	4.564	11.800	11.800	23.600
23	PIP48.6X3.2	PIP48.6X3.2	0.044	1.000	0.044	AISC- H2-1	10	4.564	11.800	11.800	23.600
24	PIP48.6X3.2	PIP48.6X3.2	0.012	1.000	0.012	AISC- H1-3	10	4.564	11.800	11.800	23.600
25	PIP48.6X3.2	PIP48.6X3.2	0.039	1.000	0.039	AISC- H1-3	10	4.564	11.800	11.800	23.600
26	PIP48.6X3.2	PIP48.6X3.2	0.079	1.000	0.079	AISC- H1-3	10	4.564	11.800	11.800	23.600
27	PIP48.6X3.2	PIP48.6X3.2	0.120	1.000	0.120	AISC- H1-3	10	4.564	11.800	11.800	23.600
28	PIP48.6X3.2	PIP48.6X3.2	0.160	1.000	0.160	AISC- H1-3	10	4.564	11.800	11.800	23.600
29	PIP48.6X3.2	PIP48.6X3.2	0.201	1.000	0.201	AISC- H1-3	10	4.564	11.800	11.800	23.600
30	PIP48.6X3.2	PIP48.6X3.2	0.237	1.000	0.237	AISC- H1-3	10	4.564	11.800	11.800	23.600
31	PIP89.1X3.2	PIP89.1X3.2	0.053	1.000	0.053	AISC- H1-3	8	8.636	79.800	79.800	159.600
32	PIP89.1X3.2	PIP89.1X3.2	0.167	1.000	0.167	AISC- H1-3	8	8.636	79.800	79.800	159.600
33	PIP89.1X3.2	PIP89.1X3.2	0.243	1.000	0.243	AISC- H2-1	9	8.636	79.800	79.800	159.600
34	PIP89.1X3.2	PIP89.1X3.2	0.116	1.000	0.116	AISC- H1-3	8	8.636	79.800	79.800	159.600
35	PIP89.1X3.2	PIP89.1X3.2	0.159	1.000	0.159	AISC- H1-3	10	8.636	79.800	79.800	159.600
36	PIP89.1X3.2	PIP89.1X3.2	0.198	1.000	0.198	AISC- H1-1	10	8.636	79.800	79.800	159.600
37	PIP89.1X3.2	PIP89.1X3.2	0.227	1.000	0.227	AISC- H1-1	10	8.636	79.800	79.800	159.600
38	PIP89.1X3.2	PIP89.1X3.2	0.241	1.000	0.241	AISC- H1-1	10	8.636	79.800	79.800	159.600
39	PIP89.1X3.2	PIP89.1X3.2	0.240	1.000	0.240	AISC- H1-1	10	8.636	79.800	79.800	159.600
40	PIP89.1X3.2	PIP89.1X3.2	0.223	1.000	0.223	AISC- H1-1	10	8.636	79.800	79.800	159.600
41	PIP89.1X3.2	PIP89.1X3.2	0.192	1.000	0.192	AISC- H1-1	10	8.636	79.800	79.800	159.600
42	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H1-3	8	8.636	79.800	79.800	159.600
43	PIP89.1X3.2	PIP89.1X3.2	0.146	1.000	0.146	AISC- H1-3	8	8.636	79.800	79.800	159.600
44	PIP89.1X3.2	PIP89.1X3.2	0.127	1.000	0.127	AISC- H1-3	8	8.636	79.800	79.800	159.600
45	PIP89.1X3.2	PIP89.1X3.2	0.099	1.000	0.099	AISC- H1-3	10	8.636	79.800	79.800	159.600
46	PIP48.6X3.2	PIP48.6X3.2	0.205	1.000	0.205	AISC- H2-1	10	4.564	11.800	11.800	23.600
47	PIP48.6X3.2	PIP48.6X3.2	0.251	1.000	0.251	AISC- H2-1	10	4.564	11.800	11.800	23.600
48	PIP48.6X3.2	PIP48.6X3.2	0.209	1.000	0.209	AISC- H2-1	10	4.564	11.800	11.800	23.600
49	PIP48.6X3.2	PIP48.6X3.2	0.167	1.000	0.167	AISC- H2-1	10	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 40	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
50	PIP48.6X3.2	PIP48.6X3.2	0.129	1.000	0.129	AISC- H2-1	10	4.564	11.800	11.800	23.600
51	PIP48.6X3.2	PIP48.6X3.2	0.092	1.000	0.092	AISC- H2-1	10	4.564	11.800	11.800	23.600
52	PIP48.6X3.2	PIP48.6X3.2	0.055	1.000	0.055	AISC- H2-1	10	4.564	11.800	11.800	23.600
53	PIP48.6X3.2	PIP48.6X3.2	0.019	1.000	0.019	AISC- H2-1	10	4.564	11.800	11.800	23.600
54	PIP48.6X3.2	PIP48.6X3.2	0.059	1.000	0.059	AISC- H1-3	10	4.564	11.800	11.800	23.600
55	PIP48.6X3.2	PIP48.6X3.2	0.115	1.000	0.115	AISC- H1-3	10	4.564	11.800	11.800	23.600
56	PIP48.6X3.2	PIP48.6X3.2	0.170	1.000	0.170	AISC- H1-1	10	4.564	11.800	11.800	23.600
57	PIP48.6X3.2	PIP48.6X3.2	0.231	1.000	0.231	AISC- H1-1	10	4.564	11.800	11.800	23.600
58	PIP48.6X3.2	PIP48.6X3.2	0.275	1.000	0.275	AISC- H1-1	10	4.564	11.800	11.800	23.600
59	PIP48.6X3.2	PIP48.6X3.2	0.059	1.000	0.059	AISC- H2-1	9	4.564	11.800	11.800	23.600
60	PIP89.1X3.2	PIP89.1X3.2	0.342	1.000	0.342	AISC- H1-3	10	8.636	79.800	79.800	159.600
61	PIP89.1X3.2	PIP89.1X3.2	0.363	1.000	0.363	AISC- H2-1	8	8.636	79.800	79.800	159.600
62	PIP89.1X3.2	PIP89.1X3.2	0.156	1.000	0.156	AISC- H1-3	8	8.636	79.800	79.800	159.600
63	PIP89.1X3.2	PIP89.1X3.2	0.169	1.000	0.169	AISC- H1-3	8	8.636	79.800	79.800	159.600
64	PIP89.1X3.2	PIP89.1X3.2	0.173	1.000	0.173	AISC- H1-1	8	8.636	79.800	79.800	159.600
65	PIP89.1X3.2	PIP89.1X3.2	0.178	1.000	0.178	AISC- H1-1	8	8.636	79.800	79.800	159.600
66	PIP89.1X3.2	PIP89.1X3.2	0.179	1.000	0.179	AISC- H1-1	8	8.636	79.800	79.800	159.600
67	PIP89.1X3.2	PIP89.1X3.2	0.177	1.000	0.177	AISC- H1-1	8	8.636	79.800	79.800	159.600
68	PIP89.1X3.2	PIP89.1X3.2	0.174	1.000	0.174	AISC- H1-3	8	8.636	79.800	79.800	159.600
69	PIP89.1X3.2	PIP89.1X3.2	0.161	1.000	0.161	AISC- H1-3	8	8.636	79.800	79.800	159.600
70	PIP89.1X3.2	PIP89.1X3.2	0.142	1.000	0.142	AISC- H1-3	8	8.636	79.800	79.800	159.600
71	PIP89.1X3.2	PIP89.1X3.2	0.149	1.000	0.149	AISC- H1-3	10	8.636	79.800	79.800	159.600
72	PIP89.1X3.2	PIP89.1X3.2	0.185	1.000	0.185	AISC- H1-3	10	8.636	79.800	79.800	159.600
73	PIP89.1X3.2	PIP89.1X3.2	0.206	1.000	0.206	AISC- H1-3	10	8.636	79.800	79.800	159.600
74	PIP89.1X3.2	PIP89.1X3.2	0.395	1.000	0.395	AISC- H1-3	10	8.636	79.800	79.800	159.600
75	PIP48.6X3.2	PIP48.6X3.2	0.206	1.000	0.206	AISC- H1-3	9	4.564	11.800	11.800	23.600
76	PIP48.6X3.2	PIP48.6X3.2	0.129	1.000	0.129	AISC- H1-3	8	4.564	11.800	11.800	23.600
77	PIP48.6X3.2	PIP48.6X3.2	0.077	1.000	0.077	AISC- H1-3	8	4.564	11.800	11.800	23.600
78	PIP48.6X3.2	PIP48.6X3.2	0.052	1.000	0.052	AISC- H1-3	8	4.564	11.800	11.800	23.600
79	PIP48.6X3.2	PIP48.6X3.2	0.031	1.000	0.031	AISC- H1-3	8	4.564	11.800	11.800	23.600
80	PIP48.6X3.2	PIP48.6X3.2	0.011	1.000	0.011	AISC- H1-3	8	4.564	11.800	11.800	23.600
81	PIP48.6X3.2	PIP48.6X3.2	0.031	1.000	0.031	AISC- H1-3	9	4.564	11.800	11.800	23.600
82	PIP48.6X3.2	PIP48.6X3.2	0.058	1.000	0.058	AISC- H1-3	9	4.564	11.800	11.800	23.600
83	PIP48.6X3.2	PIP48.6X3.2	0.085	1.000	0.085	AISC- H1-3	9	4.564	11.800	11.800	23.600
84	PIP48.6X3.2	PIP48.6X3.2	0.112	1.000	0.112	AISC- H1-3	9	4.564	11.800	11.800	23.600
85	PIP48.6X3.2	PIP48.6X3.2	0.141	1.000	0.141	AISC- H1-3	9	4.564	11.800	11.800	23.600
86	PIP48.6X3.2	PIP48.6X3.2	0.164	1.000	0.164	AISC- H1-3	9	4.564	11.800	11.800	23.600
87	PIP89.1X3.2	PIP89.1X3.2	0.059	1.000	0.059	AISC- H1-3	10	8.636	79.800	79.800	159.600
88	PIP89.1X3.2	PIP89.1X3.2	0.166	1.000	0.166	AISC- H2-1	8	8.636	79.800	79.800	159.600
89	PIP89.1X3.2	PIP89.1X3.2	0.253	1.000	0.253	AISC- H2-1	10	8.636	79.800	79.800	159.600
90	PIP89.1X3.2	PIP89.1X3.2	0.111	1.000	0.111	AISC- H2-1	8	8.636	79.800	79.800	159.600
91	PIP89.1X3.2	PIP89.1X3.2	0.123	1.000	0.123	AISC- H2-1	8	8.636	79.800	79.800	159.600
92	PIP89.1X3.2	PIP89.1X3.2	0.140	1.000	0.140	AISC- H2-1	8	8.636	79.800	79.800	159.600
93	PIP89.1X3.2	PIP89.1X3.2	0.154	1.000	0.154	AISC- H2-1	8	8.636	79.800	79.800	159.600
94	PIP89.1X3.2	PIP89.1X3.2	0.163	1.000	0.163	AISC- H2-1	8	8.636	79.800	79.800	159.600
95	PIP89.1X3.2	PIP89.1X3.2	0.169	1.000	0.169	AISC- H2-1	8	8.636	79.800	79.800	159.600
96	PIP89.1X3.2	PIP89.1X3.2	0.169	1.000	0.169	AISC- H2-1	8	8.636	79.800	79.800	159.600
97	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H2-1	8	8.636	79.800	79.800	159.600
98	PIP89.1X3.2	PIP89.1X3.2	0.154	1.000	0.154	AISC- H2-1	8	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 41	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
99	PIP89.1X3.2	PIP89.1X3.2	0.139	1.000	0.139	AISC- H2-1	8	8.636	79.800	79.800	159.600
100	PIP89.1X3.2	PIP89.1X3.2	0.148	1.000	0.148	AISC- H2-1	10	8.636	79.800	79.800	159.600
101	PIP89.1X3.2	PIP89.1X3.2	0.074	1.000	0.074	AISC- H2-1	9	8.636	79.800	79.800	159.600
102	PIP48.6X3.2	PIP48.6X3.2	0.141	1.000	0.141	AISC- H2-1	9	4.564	11.800	11.800	23.600
103	PIP48.6X3.2	PIP48.6X3.2	0.186	1.000	0.186	AISC- H1-1	8	4.564	11.800	11.800	23.600
104	PIP48.6X3.2	PIP48.6X3.2	0.156	1.000	0.156	AISC- H1-3	8	4.564	11.800	11.800	23.600
105	PIP48.6X3.2	PIP48.6X3.2	0.125	1.000	0.125	AISC- H1-3	8	4.564	11.800	11.800	23.600
106	PIP48.6X3.2	PIP48.6X3.2	0.094	1.000	0.094	AISC- H1-3	8	4.564	11.800	11.800	23.600
107	PIP48.6X3.2	PIP48.6X3.2	0.066	1.000	0.066	AISC- H2-1	9	4.564	11.800	11.800	23.600
108	PIP48.6X3.2	PIP48.6X3.2	0.042	1.000	0.042	AISC- H2-1	9	4.564	11.800	11.800	23.600
109	PIP48.6X3.2	PIP48.6X3.2	0.018	1.000	0.018	AISC- H2-1	10	4.564	11.800	11.800	23.600
110	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H2-1	8	4.564	11.800	11.800	23.600
111	PIP48.6X3.2	PIP48.6X3.2	0.068	1.000	0.068	AISC- H1-3	9	4.564	11.800	11.800	23.600
112	PIP48.6X3.2	PIP48.6X3.2	0.101	1.000	0.101	AISC- H1-3	9	4.564	11.800	11.800	23.600
113	PIP48.6X3.2	PIP48.6X3.2	0.159	1.000	0.159	AISC- H1-3	9	4.564	11.800	11.800	23.600
114	PIP48.6X3.2	PIP48.6X3.2	0.219	1.000	0.219	AISC- H1-3	9	4.564	11.800	11.800	23.600
115	PIP48.6X3.2	PIP48.6X3.2	0.074	1.000	0.074	AISC- H2-1	10	4.564	11.800	11.800	23.600
119	PIP89.1X3.2	PIP89.1X3.2	0.103	1.000	0.103	AISC- H2-1	10	8.636	79.800	79.800	159.600
120	PIP89.1X3.2	PIP89.1X3.2	0.214	1.000	0.214	AISC- H1-3	9	8.636	79.800	79.800	159.600
121	PIP89.1X3.2	PIP89.1X3.2	0.121	1.000	0.121	AISC- H2-1	10	8.636	79.800	79.800	159.600
122	PIP89.1X3.2	PIP89.1X3.2	0.160	1.000	0.160	AISC- H2-1	10	8.636	79.800	79.800	159.600
123	PIP89.1X3.2	PIP89.1X3.2	0.185	1.000	0.185	AISC- H2-1	10	8.636	79.800	79.800	159.600
124	PIP89.1X3.2	PIP89.1X3.2	0.197	1.000	0.197	AISC- H2-1	10	8.636	79.800	79.800	159.600
125	PIP89.1X3.2	PIP89.1X3.2	0.196	1.000	0.196	AISC- H2-1	10	8.636	79.800	79.800	159.600
126	PIP89.1X3.2	PIP89.1X3.2	0.185	1.000	0.185	AISC- H2-1	10	8.636	79.800	79.800	159.600
127	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H2-1	10	8.636	79.800	79.800	159.600
128	PIP89.1X3.2	PIP89.1X3.2	0.133	1.000	0.133	AISC- H2-1	10	8.636	79.800	79.800	159.600
129	PIP89.1X3.2	PIP89.1X3.2	0.104	1.000	0.104	AISC- H2-1	8	8.636	79.800	79.800	159.600
130	PIP89.1X3.2	PIP89.1X3.2	0.073	1.000	0.073	AISC- H2-1	8	8.636	79.800	79.800	159.600
131	PIP89.1X3.2	PIP89.1X3.2	0.106	1.000	0.106	AISC- H1-3	9	8.636	79.800	79.800	159.600
132	PIP89.1X3.2	PIP89.1X3.2	0.035	1.000	0.035	AISC- H1-3	10	8.636	79.800	79.800	159.600
133	PIP89.1X3.2	PIP89.1X3.2	0.050	1.000	0.050	AISC- H2-1	10	8.636	79.800	79.800	159.600
134	PIP89.1X3.2	PIP89.1X3.2	0.104	1.000	0.104	AISC- H1-3	10	8.636	79.800	79.800	159.600
135	PIP48.6X3.2	PIP48.6X3.2	0.223	1.000	0.223	AISC- H1-3	10	4.564	11.800	11.800	23.600
136	PIP48.6X3.2	PIP48.6X3.2	0.144	1.000	0.144	AISC- H2-1	10	4.564	11.800	11.800	23.600
137	PIP48.6X3.2	PIP48.6X3.2	0.104	1.000	0.104	AISC- H2-1	10	4.564	11.800	11.800	23.600
138	PIP48.6X3.2	PIP48.6X3.2	0.074	1.000	0.074	AISC- H2-1	10	4.564	11.800	11.800	23.600
139	PIP48.6X3.2	PIP48.6X3.2	0.043	1.000	0.043	AISC- H2-1	10	4.564	11.800	11.800	23.600
140	PIP48.6X3.2	PIP48.6X3.2	0.019	1.000	0.019	AISC- H2-1	8	4.564	11.800	11.800	23.600
141	PIP48.6X3.2	PIP48.6X3.2	0.027	1.000	0.027	AISC- H1-3	9	4.564	11.800	11.800	23.600
142	PIP48.6X3.2	PIP48.6X3.2	0.061	1.000	0.061	AISC- H1-3	10	4.564	11.800	11.800	23.600
143	PIP48.6X3.2	PIP48.6X3.2	0.095	1.000	0.095	AISC- H1-3	10	4.564	11.800	11.800	23.600
144	PIP48.6X3.2	PIP48.6X3.2	0.129	1.000	0.129	AISC- H1-3	10	4.564	11.800	11.800	23.600
145	PIP48.6X3.2	PIP48.6X3.2	0.163	1.000	0.163	AISC- H1-3	10	4.564	11.800	11.800	23.600
146	PIP48.6X3.2	PIP48.6X3.2	0.196	1.000	0.196	AISC- H1-3	10	4.564	11.800	11.800	23.600
147	PIP89.1X3.2	PIP89.1X3.2	0.033	1.000	0.033	AISC- H1-3	10	8.636	79.800	79.800	159.600
148	PIP89.1X3.2	PIP89.1X3.2	0.101	1.000	0.101	AISC- H2-1	10	8.636	79.800	79.800	159.600
149	PIP89.1X3.2	PIP89.1X3.2	0.177	1.000	0.177	AISC- H2-1	9	8.636	79.800	79.800	159.600
150	PIP89.1X3.2	PIP89.1X3.2	0.077	1.000	0.077	AISC- H1-3	10	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 42	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
151	PIP89.1X3.2	PIP89.1X3.2	0.132	1.000	0.132	AISC- H1-3	10	8.636	79.800	79.800	159.600
152	PIP89.1X3.2	PIP89.1X3.2	0.175	1.000	0.175	AISC- H1-3	10	8.636	79.800	79.800	159.600
153	PIP89.1X3.2	PIP89.1X3.2	0.200	1.000	0.200	AISC- H1-1	10	8.636	79.800	79.800	159.600
154	PIP89.1X3.2	PIP89.1X3.2	0.216	1.000	0.216	AISC- H1-1	10	8.636	79.800	79.800	159.600
155	PIP89.1X3.2	PIP89.1X3.2	0.218	1.000	0.218	AISC- H1-1	10	8.636	79.800	79.800	159.600
156	PIP89.1X3.2	PIP89.1X3.2	0.206	1.000	0.206	AISC- H1-1	10	8.636	79.800	79.800	159.600
157	PIP89.1X3.2	PIP89.1X3.2	0.180	1.000	0.180	AISC- H1-1	10	8.636	79.800	79.800	159.600
158	PIP89.1X3.2	PIP89.1X3.2	0.146	1.000	0.146	AISC- H1-3	10	8.636	79.800	79.800	159.600
159	PIP89.1X3.2	PIP89.1X3.2	0.117	1.000	0.117	AISC- H1-3	8	8.636	79.800	79.800	159.600
160	PIP89.1X3.2	PIP89.1X3.2	0.084	1.000	0.084	AISC- H1-3	8	8.636	79.800	79.800	159.600
161	PIP89.1X3.2	PIP89.1X3.2	0.087	1.000	0.087	AISC- H1-3	10	8.636	79.800	79.800	159.600
162	PIP48.6X3.2	PIP48.6X3.2	0.163	1.000	0.163	AISC- H2-1	10	4.564	11.800	11.800	23.600
163	PIP48.6X3.2	PIP48.6X3.2	0.200	1.000	0.200	AISC- H2-1	10	4.564	11.800	11.800	23.600
164	PIP48.6X3.2	PIP48.6X3.2	0.164	1.000	0.164	AISC- H2-1	10	4.564	11.800	11.800	23.600
165	PIP48.6X3.2	PIP48.6X3.2	0.134	1.000	0.134	AISC- H2-1	10	4.564	11.800	11.800	23.600
166	PIP48.6X3.2	PIP48.6X3.2	0.103	1.000	0.103	AISC- H2-1	10	4.564	11.800	11.800	23.600
167	PIP48.6X3.2	PIP48.6X3.2	0.071	1.000	0.071	AISC- H2-1	10	4.564	11.800	11.800	23.600
168	PIP48.6X3.2	PIP48.6X3.2	0.039	1.000	0.039	AISC- H2-1	10	4.564	11.800	11.800	23.600
169	PIP48.6X3.2	PIP48.6X3.2	0.028	1.000	0.028	AISC- H1-3	8	4.564	11.800	11.800	23.600
170	PIP48.6X3.2	PIP48.6X3.2	0.062	1.000	0.062	AISC- H1-3	10	4.564	11.800	11.800	23.600
171	PIP48.6X3.2	PIP48.6X3.2	0.110	1.000	0.110	AISC- H1-3	10	4.564	11.800	11.800	23.600
172	PIP48.6X3.2	PIP48.6X3.2	0.156	1.000	0.156	AISC- H1-3	10	4.564	11.800	11.800	23.600
173	PIP48.6X3.2	PIP48.6X3.2	0.208	1.000	0.208	AISC- H1-1	10	4.564	11.800	11.800	23.600
174	PIP48.6X3.2	PIP48.6X3.2	0.227	1.000	0.227	AISC- H1-1	10	4.564	11.800	11.800	23.600
175	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H2-1	10	4.564	11.800	11.800	23.600
176	PIP89.1X3.2	PIP89.1X3.2	0.078	1.000	0.078	AISC- H1-3	8	8.636	79.800	79.800	159.600
177	PIP89.1X3.2	PIP89.1X3.2	0.214	1.000	0.214	AISC- H1-3	9	8.636	79.800	79.800	159.600
178	PIP89.1X3.2	PIP89.1X3.2	0.097	1.000	0.097	AISC- H1-3	8	8.636	79.800	79.800	159.600
179	PIP89.1X3.2	PIP89.1X3.2	0.128	1.000	0.128	AISC- H1-3	8	8.636	79.800	79.800	159.600
180	PIP89.1X3.2	PIP89.1X3.2	0.150	1.000	0.150	AISC- H1-3	8	8.636	79.800	79.800	159.600
181	PIP89.1X3.2	PIP89.1X3.2	0.163	1.000	0.163	AISC- H1-3	8	8.636	79.800	79.800	159.600
182	PIP89.1X3.2	PIP89.1X3.2	0.168	1.000	0.168	AISC- H1-3	8	8.636	79.800	79.800	159.600
183	PIP89.1X3.2	PIP89.1X3.2	0.164	1.000	0.164	AISC- H1-3	8	8.636	79.800	79.800	159.600
184	PIP89.1X3.2	PIP89.1X3.2	0.154	1.000	0.154	AISC- H1-3	8	8.636	79.800	79.800	159.600
185	PIP89.1X3.2	PIP89.1X3.2	0.138	1.000	0.138	AISC- H1-3	8	8.636	79.800	79.800	159.600
186	PIP89.1X3.2	PIP89.1X3.2	0.113	1.000	0.113	AISC- H1-3	8	8.636	79.800	79.800	159.600
187	PIP89.1X3.2	PIP89.1X3.2	0.098	1.000	0.098	AISC- H1-3	10	8.636	79.800	79.800	159.600
188	PIP89.1X3.2	PIP89.1X3.2	0.107	1.000	0.107	AISC- H1-3	10	8.636	79.800	79.800	159.600
189	PIP89.1X3.2	PIP89.1X3.2	0.022	1.000	0.022	AISC- H2-1	8	8.636	79.800	79.800	159.600
190	PIP89.1X3.2	PIP89.1X3.2	0.042	1.000	0.042	AISC- H1-3	8	8.636	79.800	79.800	159.600
191	PIP48.6X3.2	PIP48.6X3.2	0.149	1.000	0.149	AISC- H1-3	9	4.564	11.800	11.800	23.600
192	PIP48.6X3.2	PIP48.6X3.2	0.108	1.000	0.108	AISC- H1-3	8	4.564	11.800	11.800	23.600
193	PIP48.6X3.2	PIP48.6X3.2	0.082	1.000	0.082	AISC- H1-3	8	4.564	11.800	11.800	23.600
194	PIP48.6X3.2	PIP48.6X3.2	0.062	1.000	0.062	AISC- H1-3	8	4.564	11.800	11.800	23.600
195	PIP48.6X3.2	PIP48.6X3.2	0.041	1.000	0.041	AISC- H1-3	8	4.564	11.800	11.800	23.600
196	PIP48.6X3.2	PIP48.6X3.2	0.020	1.000	0.020	AISC- H1-3	8	4.564	11.800	11.800	23.600
197	PIP48.6X3.2	PIP48.6X3.2	0.027	1.000	0.027	AISC- H1-3	9	4.564	11.800	11.800	23.600
198	PIP48.6X3.2	PIP48.6X3.2	0.047	1.000	0.047	AISC- H1-3	9	4.564	11.800	11.800	23.600
199	PIP48.6X3.2	PIP48.6X3.2	0.068	1.000	0.068	AISC- H1-3	9	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 43	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
200	PIP48.6X3.2	PIP48.6X3.2	0.089	1.000	0.089	AISC- H1-3	9	4.564	11.800	11.800	23.600
201	PIP48.6X3.2	PIP48.6X3.2	0.110	1.000	0.110	AISC- H1-3	9	4.564	11.800	11.800	23.600
202	PIP48.6X3.2	PIP48.6X3.2	0.130	1.000	0.130	AISC- H1-3	9	4.564	11.800	11.800	23.600
203	PIP89.1X3.2	PIP89.1X3.2	0.024	1.000	0.024	AISC- H2-1	8	8.636	79.800	79.800	159.600
204	PIP89.1X3.2	PIP89.1X3.2	0.069	1.000	0.069	AISC- H1-3	8	8.636	79.800	79.800	159.600
205	PIP89.1X3.2	PIP89.1X3.2	0.177	1.000	0.177	AISC- H2-1	9	8.636	79.800	79.800	159.600
206	PIP89.1X3.2	PIP89.1X3.2	0.052	1.000	0.052	AISC- H2-1	8	8.636	79.800	79.800	159.600
207	PIP89.1X3.2	PIP89.1X3.2	0.088	1.000	0.088	AISC- H2-1	8	8.636	79.800	79.800	159.600
208	PIP89.1X3.2	PIP89.1X3.2	0.117	1.000	0.117	AISC- H2-1	8	8.636	79.800	79.800	159.600
209	PIP89.1X3.2	PIP89.1X3.2	0.139	1.000	0.139	AISC- H2-1	8	8.636	79.800	79.800	159.600
210	PIP89.1X3.2	PIP89.1X3.2	0.153	1.000	0.153	AISC- H2-1	8	8.636	79.800	79.800	159.600
211	PIP89.1X3.2	PIP89.1X3.2	0.159	1.000	0.159	AISC- H2-1	8	8.636	79.800	79.800	159.600
212	PIP89.1X3.2	PIP89.1X3.2	0.158	1.000	0.158	AISC- H2-1	8	8.636	79.800	79.800	159.600
213	PIP89.1X3.2	PIP89.1X3.2	0.149	1.000	0.149	AISC- H2-1	8	8.636	79.800	79.800	159.600
214	PIP89.1X3.2	PIP89.1X3.2	0.133	1.000	0.133	AISC- H2-1	8	8.636	79.800	79.800	159.600
215	PIP89.1X3.2	PIP89.1X3.2	0.109	1.000	0.109	AISC- H2-1	8	8.636	79.800	79.800	159.600
216	PIP89.1X3.2	PIP89.1X3.2	0.091	1.000	0.091	AISC- H2-1	10	8.636	79.800	79.800	159.600
217	PIP89.1X3.2	PIP89.1X3.2	0.064	1.000	0.064	AISC- H2-1	8	8.636	79.800	79.800	159.600
218	PIP48.6X3.2	PIP48.6X3.2	0.114	1.000	0.114	AISC- H1-3	8	4.564	11.800	11.800	23.600
219	PIP48.6X3.2	PIP48.6X3.2	0.162	1.000	0.162	AISC- H1-3	8	4.564	11.800	11.800	23.600
220	PIP48.6X3.2	PIP48.6X3.2	0.131	1.000	0.131	AISC- H1-3	8	4.564	11.800	11.800	23.600
221	PIP48.6X3.2	PIP48.6X3.2	0.103	1.000	0.103	AISC- H1-3	8	4.564	11.800	11.800	23.600
222	PIP48.6X3.2	PIP48.6X3.2	0.074	1.000	0.074	AISC- H1-3	8	4.564	11.800	11.800	23.600
223	PIP48.6X3.2	PIP48.6X3.2	0.052	1.000	0.052	AISC- H2-1	9	4.564	11.800	11.800	23.600
224	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H2-1	9	4.564	11.800	11.800	23.600
225	PIP48.6X3.2	PIP48.6X3.2	0.021	1.000	0.021	AISC- H2-1	8	4.564	11.800	11.800	23.600
226	PIP48.6X3.2	PIP48.6X3.2	0.040	1.000	0.040	AISC- H2-1	8	4.564	11.800	11.800	23.600
227	PIP48.6X3.2	PIP48.6X3.2	0.060	1.000	0.060	AISC- H2-1	8	4.564	11.800	11.800	23.600
228	PIP48.6X3.2	PIP48.6X3.2	0.080	1.000	0.080	AISC- H1-3	9	4.564	11.800	11.800	23.600
229	PIP48.6X3.2	PIP48.6X3.2	0.112	1.000	0.112	AISC- H1-3	9	4.564	11.800	11.800	23.600
230	PIP48.6X3.2	PIP48.6X3.2	0.123	1.000	0.123	AISC- H1-3	9	4.564	11.800	11.800	23.600
231	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H1-3	8	4.564	11.800	11.800	23.600
233	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
234	H150X150X	H150X150X	0.228	1.000	0.228	AISC- H1-3	10	39.650	1.62E+3	563.000	11.500
235	PIP89.1X3.2	PIP89.1X3.2	0.380	1.000	0.380	AISC- H2-1	8	8.636	79.800	79.800	159.600
236	PIP89.1X3.2	PIP89.1X3.2	0.546	1.000	0.546	AISC- H1-3	10	8.636	79.800	79.800	159.600
237	PIP89.1X3.2	PIP89.1X3.2	0.170	1.000	0.170	AISC- H2-1	8	8.636	79.800	79.800	159.600
238	PIP89.1X3.2	PIP89.1X3.2	0.187	1.000	0.187	AISC- H2-1	10	8.636	79.800	79.800	159.600
239	PIP89.1X3.2	PIP89.1X3.2	0.209	1.000	0.209	AISC- H2-1	10	8.636	79.800	79.800	159.600
240	PIP89.1X3.2	PIP89.1X3.2	0.216	1.000	0.216	AISC- H2-1	10	8.636	79.800	79.800	159.600
241	PIP89.1X3.2	PIP89.1X3.2	0.211	1.000	0.211	AISC- H2-1	10	8.636	79.800	79.800	159.600
242	PIP89.1X3.2	PIP89.1X3.2	0.198	1.000	0.198	AISC- H2-1	10	8.636	79.800	79.800	159.600
243	PIP89.1X3.2	PIP89.1X3.2	0.174	1.000	0.174	AISC- H2-1	10	8.636	79.800	79.800	159.600
244	PIP89.1X3.2	PIP89.1X3.2	0.137	1.000	0.137	AISC- H2-1	10	8.636	79.800	79.800	159.600
245	PIP89.1X3.2	PIP89.1X3.2	0.105	1.000	0.105	AISC- H2-1	8	8.636	79.800	79.800	159.600
246	PIP89.1X3.2	PIP89.1X3.2	0.071	1.000	0.071	AISC- H2-1	8	8.636	79.800	79.800	159.600
247	PIP89.1X3.2	PIP89.1X3.2	0.103	1.000	0.103	AISC- H1-3	10	8.636	79.800	79.800	159.600
248	PIP89.1X3.2	PIP89.1X3.2	0.239	1.000	0.239	AISC- H2-1	8	8.636	79.800	79.800	159.600
249	PIP89.1X3.2	PIP89.1X3.2	0.484	1.000	0.484	AISC- H1-3	8	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 44	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
250	PIP89.1X3.2	PIP89.1X3.2	0.371	1.000	0.371	AISC- H1-2	10	8.636	79.800	79.800	159.600
251	PIP48.6X3.2	PIP48.6X3.2	0.274	1.000	0.274	AISC- H1-3	10	4.564	11.800	11.800	23.600
252	PIP48.6X3.2	PIP48.6X3.2	0.133	1.000	0.133	AISC- H2-1	10	4.564	11.800	11.800	23.600
253	PIP48.6X3.2	PIP48.6X3.2	0.098	1.000	0.098	AISC- H2-1	10	4.564	11.800	11.800	23.600
254	PIP48.6X3.2	PIP48.6X3.2	0.066	1.000	0.066	AISC- H2-1	10	4.564	11.800	11.800	23.600
255	PIP48.6X3.2	PIP48.6X3.2	0.035	1.000	0.035	AISC- H2-1	10	4.564	11.800	11.800	23.600
256	PIP48.6X3.2	PIP48.6X3.2	0.012	1.000	0.012	AISC- H1-3	10	4.564	11.800	11.800	23.600
257	PIP48.6X3.2	PIP48.6X3.2	0.036	1.000	0.036	AISC- H1-3	10	4.564	11.800	11.800	23.600
258	PIP48.6X3.2	PIP48.6X3.2	0.070	1.000	0.070	AISC- H1-3	10	4.564	11.800	11.800	23.600
259	PIP48.6X3.2	PIP48.6X3.2	0.104	1.000	0.104	AISC- H1-3	10	4.564	11.800	11.800	23.600
260	PIP48.6X3.2	PIP48.6X3.2	0.138	1.000	0.138	AISC- H1-3	10	4.564	11.800	11.800	23.600
261	PIP48.6X3.2	PIP48.6X3.2	0.172	1.000	0.172	AISC- H1-3	10	4.564	11.800	11.800	23.600
262	PIP48.6X3.2	PIP48.6X3.2	0.202	1.000	0.202	AISC- H1-3	10	4.564	11.800	11.800	23.600
263	PIP89.1X3.2	PIP89.1X3.2	0.071	1.000	0.071	AISC- H1-3	8	8.636	79.800	79.800	159.600
264	PIP89.1X3.2	PIP89.1X3.2	0.159	1.000	0.159	AISC- H1-3	8	8.636	79.800	79.800	159.600
265	PIP89.1X3.2	PIP89.1X3.2	0.187	1.000	0.187	AISC- H2-1	9	8.636	79.800	79.800	159.600
266	PIP89.1X3.2	PIP89.1X3.2	0.107	1.000	0.107	AISC- H1-3	8	8.636	79.800	79.800	159.600
267	PIP89.1X3.2	PIP89.1X3.2	0.148	1.000	0.148	AISC- H1-3	10	8.636	79.800	79.800	159.600
268	PIP89.1X3.2	PIP89.1X3.2	0.183	1.000	0.183	AISC- H1-1	10	8.636	79.800	79.800	159.600
269	PIP89.1X3.2	PIP89.1X3.2	0.208	1.000	0.208	AISC- H1-1	10	8.636	79.800	79.800	159.600
270	PIP89.1X3.2	PIP89.1X3.2	0.219	1.000	0.219	AISC- H1-1	10	8.636	79.800	79.800	159.600
271	PIP89.1X3.2	PIP89.1X3.2	0.216	1.000	0.216	AISC- H1-1	10	8.636	79.800	79.800	159.600
272	PIP89.1X3.2	PIP89.1X3.2	0.200	1.000	0.200	AISC- H1-1	10	8.636	79.800	79.800	159.600
273	PIP89.1X3.2	PIP89.1X3.2	0.174	1.000	0.174	AISC- H1-3	10	8.636	79.800	79.800	159.600
274	PIP89.1X3.2	PIP89.1X3.2	0.138	1.000	0.138	AISC- H1-3	8	8.636	79.800	79.800	159.600
275	PIP89.1X3.2	PIP89.1X3.2	0.107	1.000	0.107	AISC- H1-3	8	8.636	79.800	79.800	159.600
276	PIP89.1X3.2	PIP89.1X3.2	0.089	1.000	0.089	AISC- H1-3	8	8.636	79.800	79.800	159.600
277	PIP89.1X3.2	PIP89.1X3.2	0.067	1.000	0.067	AISC- H2-1	10	8.636	79.800	79.800	159.600
278	PIP48.6X3.2	PIP48.6X3.2	0.173	1.000	0.173	AISC- H2-1	10	4.564	11.800	11.800	23.600
279	PIP48.6X3.2	PIP48.6X3.2	0.204	1.000	0.204	AISC- H2-1	10	4.564	11.800	11.800	23.600
280	PIP48.6X3.2	PIP48.6X3.2	0.176	1.000	0.176	AISC- H2-1	10	4.564	11.800	11.800	23.600
281	PIP48.6X3.2	PIP48.6X3.2	0.144	1.000	0.144	AISC- H2-1	10	4.564	11.800	11.800	23.600
282	PIP48.6X3.2	PIP48.6X3.2	0.114	1.000	0.114	AISC- H2-1	10	4.564	11.800	11.800	23.600
283	PIP48.6X3.2	PIP48.6X3.2	0.082	1.000	0.082	AISC- H2-1	10	4.564	11.800	11.800	23.600
284	PIP48.6X3.2	PIP48.6X3.2	0.050	1.000	0.050	AISC- H2-1	10	4.564	11.800	11.800	23.600
285	PIP48.6X3.2	PIP48.6X3.2	0.018	1.000	0.018	AISC- H2-1	10	4.564	11.800	11.800	23.600
286	PIP48.6X3.2	PIP48.6X3.2	0.047	1.000	0.047	AISC- H1-3	10	4.564	11.800	11.800	23.600
287	PIP48.6X3.2	PIP48.6X3.2	0.094	1.000	0.094	AISC- H1-3	10	4.564	11.800	11.800	23.600
288	PIP48.6X3.2	PIP48.6X3.2	0.144	1.000	0.144	AISC- H1-3	10	4.564	11.800	11.800	23.600
289	PIP48.6X3.2	PIP48.6X3.2	0.180	1.000	0.180	AISC- H1-1	10	4.564	11.800	11.800	23.600
290	PIP48.6X3.2	PIP48.6X3.2	0.312	1.000	0.312	AISC- H1-1	8	4.564	11.800	11.800	23.600
291	PIP48.6X3.2	PIP48.6X3.2	0.039	1.000	0.039	AISC- H1-3	8	4.564	11.800	11.800	23.600
292	PIP89.1X3.2	PIP89.1X3.2	0.419	1.000	0.419	AISC- H1-3	10	8.636	79.800	79.800	159.600
293	PIP89.1X3.2	PIP89.1X3.2	0.420	1.000	0.420	AISC- H1-3	8	8.636	79.800	79.800	159.600
294	PIP89.1X3.2	PIP89.1X3.2	0.182	1.000	0.182	AISC- H1-3	8	8.636	79.800	79.800	159.600
295	PIP89.1X3.2	PIP89.1X3.2	0.167	1.000	0.167	AISC- H1-1	8	8.636	79.800	79.800	159.600
296	PIP89.1X3.2	PIP89.1X3.2	0.184	1.000	0.184	AISC- H1-1	8	8.636	79.800	79.800	159.600
297	PIP89.1X3.2	PIP89.1X3.2	0.190	1.000	0.190	AISC- H1-1	8	8.636	79.800	79.800	159.600
298	PIP89.1X3.2	PIP89.1X3.2	0.189	1.000	0.189	AISC- H1-1	8	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 45	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
299	PIP89.1X3.2	PIP89.1X3.2	0.180	1.000	0.180	AISC- H1-1	8	8.636	79.800	79.800	159.600
300	PIP89.1X3.2	PIP89.1X3.2	0.168	1.000	0.168	AISC- H1-3	8	8.636	79.800	79.800	159.600
301	PIP89.1X3.2	PIP89.1X3.2	0.145	1.000	0.145	AISC- H1-3	8	8.636	79.800	79.800	159.600
302	PIP89.1X3.2	PIP89.1X3.2	0.113	1.000	0.113	AISC- H1-3	8	8.636	79.800	79.800	159.600
303	PIP89.1X3.2	PIP89.1X3.2	0.089	1.000	0.089	AISC- H1-3	10	8.636	79.800	79.800	159.600
304	PIP89.1X3.2	PIP89.1X3.2	0.106	1.000	0.106	AISC- H1-3	10	8.636	79.800	79.800	159.600
305	PIP89.1X3.2	PIP89.1X3.2	0.259	1.000	0.259	AISC- H1-3	10	8.636	79.800	79.800	159.600
306	PIP89.1X3.2	PIP89.1X3.2	0.484	1.000	0.484	AISC- H1-3	10	8.636	79.800	79.800	159.600
307	PIP48.6X3.2	PIP48.6X3.2	0.162	1.000	0.162	AISC- H1-3	9	4.564	11.800	11.800	23.600
308	PIP48.6X3.2	PIP48.6X3.2	0.098	1.000	0.098	AISC- H1-3	8	4.564	11.800	11.800	23.600
309	PIP48.6X3.2	PIP48.6X3.2	0.073	1.000	0.073	AISC- H1-3	8	4.564	11.800	11.800	23.600
310	PIP48.6X3.2	PIP48.6X3.2	0.046	1.000	0.046	AISC- H1-3	8	4.564	11.800	11.800	23.600
311	PIP48.6X3.2	PIP48.6X3.2	0.027	1.000	0.027	AISC- H1-3	8	4.564	11.800	11.800	23.600
312	PIP48.6X3.2	PIP48.6X3.2	0.007	1.000	0.007	AISC- H2-1	8	4.564	11.800	11.800	23.600
313	PIP48.6X3.2	PIP48.6X3.2	0.025	1.000	0.025	AISC- H1-3	9	4.564	11.800	11.800	23.600
314	PIP48.6X3.2	PIP48.6X3.2	0.045	1.000	0.045	AISC- H1-3	9	4.564	11.800	11.800	23.600
315	PIP48.6X3.2	PIP48.6X3.2	0.066	1.000	0.066	AISC- H1-3	9	4.564	11.800	11.800	23.600
316	PIP48.6X3.2	PIP48.6X3.2	0.087	1.000	0.087	AISC- H1-3	9	4.564	11.800	11.800	23.600
317	PIP48.6X3.2	PIP48.6X3.2	0.108	1.000	0.108	AISC- H1-3	9	4.564	11.800	11.800	23.600
318	PIP48.6X3.2	PIP48.6X3.2	0.125	1.000	0.125	AISC- H1-3	9	4.564	11.800	11.800	23.600
319	PIP89.1X3.2	PIP89.1X3.2	0.071	1.000	0.071	AISC- H2-1	8	8.636	79.800	79.800	159.600
320	PIP89.1X3.2	PIP89.1X3.2	0.156	1.000	0.156	AISC- H2-1	8	8.636	79.800	79.800	159.600
321	PIP89.1X3.2	PIP89.1X3.2	0.187	1.000	0.187	AISC- H2-1	10	8.636	79.800	79.800	159.600
322	PIP89.1X3.2	PIP89.1X3.2	0.100	1.000	0.100	AISC- H2-1	8	8.636	79.800	79.800	159.600
323	PIP89.1X3.2	PIP89.1X3.2	0.123	1.000	0.123	AISC- H2-1	8	8.636	79.800	79.800	159.600
324	PIP89.1X3.2	PIP89.1X3.2	0.148	1.000	0.148	AISC- H2-1	8	8.636	79.800	79.800	159.600
325	PIP89.1X3.2	PIP89.1X3.2	0.163	1.000	0.163	AISC- H2-1	8	8.636	79.800	79.800	159.600
326	PIP89.1X3.2	PIP89.1X3.2	0.172	1.000	0.172	AISC- H2-1	8	8.636	79.800	79.800	159.600
327	PIP89.1X3.2	PIP89.1X3.2	0.172	1.000	0.172	AISC- H2-1	8	8.636	79.800	79.800	159.600
328	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H2-1	8	8.636	79.800	79.800	159.600
329	PIP89.1X3.2	PIP89.1X3.2	0.150	1.000	0.150	AISC- H2-1	8	8.636	79.800	79.800	159.600
330	PIP89.1X3.2	PIP89.1X3.2	0.128	1.000	0.128	AISC- H2-1	8	8.636	79.800	79.800	159.600
331	PIP89.1X3.2	PIP89.1X3.2	0.099	1.000	0.099	AISC- H2-1	8	8.636	79.800	79.800	159.600
332	PIP89.1X3.2	PIP89.1X3.2	0.086	1.000	0.086	AISC- H2-1	10	8.636	79.800	79.800	159.600
333	PIP89.1X3.2	PIP89.1X3.2	0.064	1.000	0.064	AISC- H2-1	9	8.636	79.800	79.800	159.600
334	PIP48.6X3.2	PIP48.6X3.2	0.116	1.000	0.116	AISC- H1-3	8	4.564	11.800	11.800	23.600
335	PIP48.6X3.2	PIP48.6X3.2	0.177	1.000	0.177	AISC- H1-1	8	4.564	11.800	11.800	23.600
336	PIP48.6X3.2	PIP48.6X3.2	0.155	1.000	0.155	AISC- H1-3	8	4.564	11.800	11.800	23.600
337	PIP48.6X3.2	PIP48.6X3.2	0.125	1.000	0.125	AISC- H1-3	8	4.564	11.800	11.800	23.600
338	PIP48.6X3.2	PIP48.6X3.2	0.097	1.000	0.097	AISC- H1-3	8	4.564	11.800	11.800	23.600
339	PIP48.6X3.2	PIP48.6X3.2	0.068	1.000	0.068	AISC- H1-3	8	4.564	11.800	11.800	23.600
340	PIP48.6X3.2	PIP48.6X3.2	0.039	1.000	0.039	AISC- H1-3	8	4.564	11.800	11.800	23.600
341	PIP48.6X3.2	PIP48.6X3.2	0.012	1.000	0.012	AISC- H2-1	9	4.564	11.800	11.800	23.600
342	PIP48.6X3.2	PIP48.6X3.2	0.027	1.000	0.027	AISC- H2-1	8	4.564	11.800	11.800	23.600
343	PIP48.6X3.2	PIP48.6X3.2	0.053	1.000	0.053	AISC- H1-3	9	4.564	11.800	11.800	23.600
344	PIP48.6X3.2	PIP48.6X3.2	0.077	1.000	0.077	AISC- H1-3	9	4.564	11.800	11.800	23.600
345	PIP48.6X3.2	PIP48.6X3.2	0.128	1.000	0.128	AISC- H1-3	9	4.564	11.800	11.800	23.600
346	PIP48.6X3.2	PIP48.6X3.2	0.258	1.000	0.258	AISC- H2-1	8	4.564	11.800	11.800	23.600
347	PIP48.6X3.2	PIP48.6X3.2	0.061	1.000	0.061	AISC- H2-1	10	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 46	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
349	PIP89.1X3.2	PIP89.1X3.2	0.240	1.000	0.240	AISC- H1-3	8	8.636	79.800	79.800	159.600
350	PIP89.1X3.2	PIP89.1X3.2	0.347	1.000	0.347	AISC- H1-3	8	8.636	79.800	79.800	159.600
351	PIP89.1X3.2	PIP89.1X3.2	0.148	1.000	0.148	AISC- H1-3	8	8.636	79.800	79.800	159.600
352	PIP89.1X3.2	PIP89.1X3.2	0.215	1.000	0.215	AISC- H1-3	8	8.636	79.800	79.800	159.600
353	PIP89.1X3.2	PIP89.1X3.2	0.358	1.000	0.358	AISC- H1-3	8	8.636	79.800	79.800	159.600
354	PIP89.1X3.2	PIP89.1X3.2	0.160	1.000	0.160	AISC- H2-1	8	8.636	79.800	79.800	159.600
355	PIP89.1X3.2	PIP89.1X3.2	0.177	1.000	0.177	AISC- H2-1	8	8.636	79.800	79.800	159.600
356	PIP89.1X3.2	PIP89.1X3.2	0.348	1.000	0.348	AISC- H2-1	8	8.636	79.800	79.800	159.600
357	PIP48.6X3.2	PIP48.6X3.2	0.105	1.000	0.105	AISC- H1-3	10	4.564	11.800	11.800	23.600
358	PIP48.6X3.2	PIP48.6X3.2	0.086	1.000	0.086	AISC- H1-3	10	4.564	11.800	11.800	23.600
359	PIP48.6X3.2	PIP48.6X3.2	0.078	1.000	0.078	AISC- H1-3	10	4.564	11.800	11.800	23.600
360	PIP48.6X3.2	PIP48.6X3.2	0.110	1.000	0.110	AISC- H2-1	10	4.564	11.800	11.800	23.600
361	PIP48.6X3.2	PIP48.6X3.2	0.082	1.000	0.082	AISC- H2-1	10	4.564	11.800	11.800	23.600
362	PIP48.6X3.2	PIP48.6X3.2	0.090	1.000	0.090	AISC- H2-1	10	4.564	11.800	11.800	23.600
363	PIP48.6X3.2	PIP48.6X3.2	0.137	1.000	0.137	AISC- H2-1	8	4.564	11.800	11.800	23.600
364	PIP89.1X3.2	PIP89.1X3.2	0.315	1.000	0.315	AISC- H1-3	8	8.636	79.800	79.800	159.600
365	PIP89.1X3.2	PIP89.1X3.2	0.366	1.000	0.366	AISC- H2-1	8	8.636	79.800	79.800	159.600
366	PIP89.1X3.2	PIP89.1X3.2	0.147	1.000	0.147	AISC- H1-3	8	8.636	79.800	79.800	159.600
367	PIP89.1X3.2	PIP89.1X3.2	0.161	1.000	0.161	AISC- H2-1	8	8.636	79.800	79.800	159.600
368	PIP89.1X3.2	PIP89.1X3.2	0.358	1.000	0.358	AISC- H2-1	8	8.636	79.800	79.800	159.600
369	PIP89.1X3.2	PIP89.1X3.2	0.187	1.000	0.187	AISC- H2-1	8	8.636	79.800	79.800	159.600
370	PIP89.1X3.2	PIP89.1X3.2	0.144	1.000	0.144	AISC- H1-3	8	8.636	79.800	79.800	159.600
371	PIP89.1X3.2	PIP89.1X3.2	0.304	1.000	0.304	AISC- H1-3	8	8.636	79.800	79.800	159.600
372	PIP48.6X3.2	PIP48.6X3.2	0.124	1.000	0.124	AISC- H2-1	10	4.564	11.800	11.800	23.600
373	PIP48.6X3.2	PIP48.6X3.2	0.121	1.000	0.121	AISC- H2-1	10	4.564	11.800	11.800	23.600
374	PIP48.6X3.2	PIP48.6X3.2	0.135	1.000	0.135	AISC- H2-1	10	4.564	11.800	11.800	23.600
375	PIP48.6X3.2	PIP48.6X3.2	0.216	1.000	0.216	AISC- H1-1	10	4.564	11.800	11.800	23.600
376	PIP48.6X3.2	PIP48.6X3.2	0.193	1.000	0.193	AISC- H1-1	10	4.564	11.800	11.800	23.600
377	PIP48.6X3.2	PIP48.6X3.2	0.178	1.000	0.178	AISC- H1-1	10	4.564	11.800	11.800	23.600
378	PIP48.6X3.2	PIP48.6X3.2	0.197	1.000	0.197	AISC- H1-1	10	4.564	11.800	11.800	23.600
379	PIP89.1X3.2	PIP89.1X3.2	0.151	1.000	0.151	AISC- H1-3	8	8.636	79.800	79.800	159.600
380	PIP89.1X3.2	PIP89.1X3.2	0.145	1.000	0.145	AISC- H1-3	8	8.636	79.800	79.800	159.600
381	PIP89.1X3.2	PIP89.1X3.2	0.113	1.000	0.113	AISC- H1-3	10	8.636	79.800	79.800	159.600
382	PIP89.1X3.2	PIP89.1X3.2	0.223	1.000	0.223	AISC- H1-3	10	8.636	79.800	79.800	159.600
383	PIP89.1X3.2	PIP89.1X3.2	0.334	1.000	0.334	AISC- H1-3	10	8.636	79.800	79.800	159.600
384	PIP89.1X3.2	PIP89.1X3.2	0.072	1.000	0.072	AISC- H2-1	10	8.636	79.800	79.800	159.600
385	PIP89.1X3.2	PIP89.1X3.2	0.175	1.000	0.175	AISC- H2-1	10	8.636	79.800	79.800	159.600
386	PIP89.1X3.2	PIP89.1X3.2	0.287	1.000	0.287	AISC- H2-1	10	8.636	79.800	79.800	159.600
387	PIP48.6X3.2	PIP48.6X3.2	0.108	1.000	0.108	AISC- H1-3	9	4.564	11.800	11.800	23.600
388	PIP48.6X3.2	PIP48.6X3.2	0.090	1.000	0.090	AISC- H1-3	9	4.564	11.800	11.800	23.600
389	PIP48.6X3.2	PIP48.6X3.2	0.101	1.000	0.101	AISC- H1-3	9	4.564	11.800	11.800	23.600
390	PIP48.6X3.2	PIP48.6X3.2	0.098	1.000	0.098	AISC- H2-1	10	4.564	11.800	11.800	23.600
391	PIP48.6X3.2	PIP48.6X3.2	0.094	1.000	0.094	AISC- H2-1	9	4.564	11.800	11.800	23.600
392	PIP48.6X3.2	PIP48.6X3.2	0.105	1.000	0.105	AISC- H2-1	10	4.564	11.800	11.800	23.600
393	PIP48.6X3.2	PIP48.6X3.2	0.127	1.000	0.127	AISC- H2-1	10	4.564	11.800	11.800	23.600
394	PIP89.1X3.2	PIP89.1X3.2	0.267	1.000	0.267	AISC- H1-3	10	8.636	79.800	79.800	159.600
395	PIP89.1X3.2	PIP89.1X3.2	0.320	1.000	0.320	AISC- H2-1	10	8.636	79.800	79.800	159.600
396	PIP89.1X3.2	PIP89.1X3.2	0.121	1.000	0.121	AISC- H1-3	8	8.636	79.800	79.800	159.600
397	PIP89.1X3.2	PIP89.1X3.2	0.164	1.000	0.164	AISC- H2-1	10	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 47	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
398	PIP89.1X3.2	PIP89.1X3.2	0.330	1.000	0.330	AISC- H2-1	10	8.636	79.800	79.800	159.600
399	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H2-1	10	8.636	79.800	79.800	159.600
400	PIP89.1X3.2	PIP89.1X3.2	0.133	1.000	0.133	AISC- H1-3	8	8.636	79.800	79.800	159.600
401	PIP89.1X3.2	PIP89.1X3.2	0.268	1.000	0.268	AISC- H1-3	10	8.636	79.800	79.800	159.600
402	PIP48.6X3.2	PIP48.6X3.2	0.168	1.000	0.168	AISC- H2-1	9	4.564	11.800	11.800	23.600
403	PIP48.6X3.2	PIP48.6X3.2	0.164	1.000	0.164	AISC- H2-1	9	4.564	11.800	11.800	23.600
404	PIP48.6X3.2	PIP48.6X3.2	0.167	1.000	0.167	AISC- H2-1	9	4.564	11.800	11.800	23.600
405	PIP48.6X3.2	PIP48.6X3.2	0.259	1.000	0.259	AISC- H1-1	10	4.564	11.800	11.800	23.600
406	PIP48.6X3.2	PIP48.6X3.2	0.244	1.000	0.244	AISC- H1-1	9	4.564	11.800	11.800	23.600
407	PIP48.6X3.2	PIP48.6X3.2	0.244	1.000	0.244	AISC- H1-1	9	4.564	11.800	11.800	23.600
408	PIP48.6X3.2	PIP48.6X3.2	0.240	1.000	0.240	AISC- H1-1	10	4.564	11.800	11.800	23.600
409	PIP89.1X3.2	PIP89.1X3.2	0.239	1.000	0.239	AISC- H2-1	8	8.636	79.800	79.800	159.600
410	PIP89.1X3.2	PIP89.1X3.2	0.346	1.000	0.346	AISC- H2-1	8	8.636	79.800	79.800	159.600
411	PIP89.1X3.2	PIP89.1X3.2	0.145	1.000	0.145	AISC- H2-1	8	8.636	79.800	79.800	159.600
412	PIP89.1X3.2	PIP89.1X3.2	0.211	1.000	0.211	AISC- H2-1	8	8.636	79.800	79.800	159.600
413	PIP89.1X3.2	PIP89.1X3.2	0.352	1.000	0.352	AISC- H2-1	8	8.636	79.800	79.800	159.600
414	PIP89.1X3.2	PIP89.1X3.2	0.161	1.000	0.161	AISC- H1-3	8	8.636	79.800	79.800	159.600
415	PIP89.1X3.2	PIP89.1X3.2	0.179	1.000	0.179	AISC- H1-3	8	8.636	79.800	79.800	159.600
416	PIP89.1X3.2	PIP89.1X3.2	0.352	1.000	0.352	AISC- H1-3	8	8.636	79.800	79.800	159.600
417	PIP48.6X3.2	PIP48.6X3.2	0.088	1.000	0.088	AISC- H2-1	8	4.564	11.800	11.800	23.600
418	PIP48.6X3.2	PIP48.6X3.2	0.071	1.000	0.071	AISC- H2-1	8	4.564	11.800	11.800	23.600
419	PIP48.6X3.2	PIP48.6X3.2	0.047	1.000	0.047	AISC- H2-1	8	4.564	11.800	11.800	23.600
420	PIP48.6X3.2	PIP48.6X3.2	0.098	1.000	0.098	AISC- H1-3	8	4.564	11.800	11.800	23.600
421	PIP48.6X3.2	PIP48.6X3.2	0.076	1.000	0.076	AISC- H1-3	8	4.564	11.800	11.800	23.600
422	PIP48.6X3.2	PIP48.6X3.2	0.088	1.000	0.088	AISC- H1-3	8	4.564	11.800	11.800	23.600
423	PIP48.6X3.2	PIP48.6X3.2	0.152	1.000	0.152	AISC- H1-3	8	4.564	11.800	11.800	23.600
424	PIP89.1X3.2	PIP89.1X3.2	0.312	1.000	0.312	AISC- H2-1	8	8.636	79.800	79.800	159.600
425	PIP89.1X3.2	PIP89.1X3.2	0.371	1.000	0.371	AISC- H1-3	8	8.636	79.800	79.800	159.600
426	PIP89.1X3.2	PIP89.1X3.2	0.146	1.000	0.146	AISC- H2-1	8	8.636	79.800	79.800	159.600
427	PIP89.1X3.2	PIP89.1X3.2	0.164	1.000	0.164	AISC- H1-3	8	8.636	79.800	79.800	159.600
428	PIP89.1X3.2	PIP89.1X3.2	0.363	1.000	0.363	AISC- H1-3	8	8.636	79.800	79.800	159.600
429	PIP89.1X3.2	PIP89.1X3.2	0.190	1.000	0.190	AISC- H1-3	8	8.636	79.800	79.800	159.600
430	PIP89.1X3.2	PIP89.1X3.2	0.143	1.000	0.143	AISC- H2-1	8	8.636	79.800	79.800	159.600
431	PIP89.1X3.2	PIP89.1X3.2	0.301	1.000	0.301	AISC- H2-1	8	8.636	79.800	79.800	159.600
432	PIP48.6X3.2	PIP48.6X3.2	0.094	1.000	0.094	AISC- H1-3	8	4.564	11.800	11.800	23.600
433	PIP48.6X3.2	PIP48.6X3.2	0.098	1.000	0.098	AISC- H1-3	8	4.564	11.800	11.800	23.600
434	PIP48.6X3.2	PIP48.6X3.2	0.138	1.000	0.138	AISC- H1-3	8	4.564	11.800	11.800	23.600
435	PIP48.6X3.2	PIP48.6X3.2	0.157	1.000	0.157	AISC- H2-1	8	4.564	11.800	11.800	23.600
436	PIP48.6X3.2	PIP48.6X3.2	0.117	1.000	0.117	AISC- H2-1	8	4.564	11.800	11.800	23.600
437	PIP48.6X3.2	PIP48.6X3.2	0.106	1.000	0.106	AISC- H1-3	9	4.564	11.800	11.800	23.600
438	PIP48.6X3.2	PIP48.6X3.2	0.145	1.000	0.145	AISC- H2-1	8	4.564	11.800	11.800	23.600
439	H150X150X	H150X150X	0.124	1.000	0.124	AISC- H1-3	10	39.650	1.62E+3	563.000	11.500
440	H150X150X	H150X150X	0.146	1.000	0.146	AISC- H1-3	10	39.650	1.62E+3	563.000	11.500
441	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
442	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
443	PIP48.6X3.2	PIP48.6X3.2	1.713	1.000	1.713	AISC- H2-1	10	4.564	11.800	11.800	23.600
444	PIP48.6X3.2	PIP48.6X3.2	0.811	1.000	0.811	AISC- H2-1	10	4.564	11.800	11.800	23.600
445	PIP48.6X3.2	PIP48.6X3.2	0.797	1.000	0.797	AISC- H2-1	10	4.564	11.800	11.800	23.600
446	PIP48.6X3.2	PIP48.6X3.2	1.425	1.000	1.425	AISC- H1-3	10	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 48	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
447	PIP48.6X3.2	PIP48.6X3.2	1.637	1.000	1.637	AISC- H1-3	10	4.564	11.800	11.800	23.600
448	PIP48.6X3.2	PIP48.6X3.2	0.797	1.000	0.797	AISC- H1-3	10	4.564	11.800	11.800	23.600
449	PIP48.6X3.2	PIP48.6X3.2	0.703	1.000	0.703	AISC- H2-1	10	4.564	11.800	11.800	23.600
450	PIP48.6X3.2	PIP48.6X3.2	1.143	1.000	1.143	AISC- H2-1	10	4.564	11.800	11.800	23.600
451	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
452	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
453	PIP48.6X3.2	PIP48.6X3.2	1.173	1.000	1.173	AISC- H1-3	10	4.564	11.800	11.800	23.600
454	PIP48.6X3.2	PIP48.6X3.2	0.733	1.000	0.733	AISC- H2-1	10	4.564	11.800	11.800	23.600
455	PIP48.6X3.2	PIP48.6X3.2	0.816	1.000	0.816	AISC- H2-1	10	4.564	11.800	11.800	23.600
456	PIP48.6X3.2	PIP48.6X3.2	1.735	1.000	1.735	AISC- H2-1	10	4.564	11.800	11.800	23.600
457	PIP48.6X3.2	PIP48.6X3.2	1.515	1.000	1.515	AISC- H2-1	10	4.564	11.800	11.800	23.600
458	PIP48.6X3.2	PIP48.6X3.2	0.842	1.000	0.842	AISC- H2-1	10	4.564	11.800	11.800	23.600
459	PIP48.6X3.2	PIP48.6X3.2	0.813	1.000	0.813	AISC- H1-3	10	4.564	11.800	11.800	23.600
460	PIP48.6X3.2	PIP48.6X3.2	1.790	1.000	1.790	AISC- H1-3	10	4.564	11.800	11.800	23.600
461	PIP48.6X3.2	PIP48.6X3.2	0.816	1.000	0.816	AISC- H2-1	10	4.564	11.800	11.800	23.600
462	PIP48.6X3.2	PIP48.6X3.2	0.726	1.000	0.726	AISC- H2-1	10	4.564	11.800	11.800	23.600
463	PIP48.6X3.2	PIP48.6X3.2	0.857	1.000	0.857	AISC- H2-1	10	4.564	11.800	11.800	23.600
464	PIP48.6X3.2	PIP48.6X3.2	1.215	1.000	1.215	AISC- H2-1	10	4.564	11.800	11.800	23.600
465	PIP48.6X3.2	PIP48.6X3.2	0.851	1.000	0.851	AISC- H1-3	10	4.564	11.800	11.800	23.600
466	PIP48.6X3.2	PIP48.6X3.2	0.740	1.000	0.740	AISC- H1-3	10	4.564	11.800	11.800	23.600
467	PIP48.6X3.2	PIP48.6X3.2	0.829	1.000	0.829	AISC- H1-3	10	4.564	11.800	11.800	23.600
468	PIP48.6X3.2	PIP48.6X3.2	1.071	1.000	1.071	AISC- H1-3	10	4.564	11.800	11.800	23.600
469	PIP48.6X3.2	PIP48.6X3.2	0.923	1.000	0.923	AISC- H1-3	10	4.564	11.800	11.800	23.600
470	PIP48.6X3.2	PIP48.6X3.2	0.899	1.000	0.899	AISC- H1-3	10	4.564	11.800	11.800	23.600
471	PIP48.6X3.2	PIP48.6X3.2	1.162	1.000	1.162	AISC- H1-3	10	4.564	11.800	11.800	23.600
472	PIP48.6X3.2	PIP48.6X3.2	1.118	1.000	1.118	AISC- H2-1	10	4.564	11.800	11.800	23.600
473	PIP48.6X3.2	PIP48.6X3.2	0.883	1.000	0.883	AISC- H2-1	10	4.564	11.800	11.800	23.600
474	PIP48.6X3.2	PIP48.6X3.2	0.926	1.000	0.926	AISC- H2-1	10	4.564	11.800	11.800	23.600
475	PIP48.6X3.2	PIP48.6X3.2	1.076	1.000	1.076	AISC- H2-1	10	4.564	11.800	11.800	23.600
476	PIP48.6X3.2	PIP48.6X3.2	0.262	1.000	0.262	AISC- H2-1	10	4.564	11.800	11.800	23.600
477	PIP48.6X3.2	PIP48.6X3.2	0.115	1.000	0.115	AISC- H1-3	10	4.564	11.800	11.800	23.600
478	PIP48.6X3.2	PIP48.6X3.2	0.045	1.000	0.045	AISC- H2-1	10	4.564	11.800	11.800	23.600
479	PIP48.6X3.2	PIP48.6X3.2	0.173	1.000	0.173	AISC- H2-1	10	4.564	11.800	11.800	23.600
480	PIP48.6X3.2	PIP48.6X3.2	0.131	1.000	0.131	AISC- H2-1	10	4.564	11.800	11.800	23.600
481	PIP48.6X3.2	PIP48.6X3.2	0.034	1.000	0.034	AISC- H1-3	10	4.564	11.800	11.800	23.600
482	PIP48.6X3.2	PIP48.6X3.2	0.009	1.000	0.009	AISC- H2-1	10	4.564	11.800	11.800	23.600
483	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H2-1	10	4.564	11.800	11.800	23.600
484	PIP48.6X3.2	PIP48.6X3.2	0.053	1.000	0.053	AISC- H2-1	10	4.564	11.800	11.800	23.600
485	PIP48.6X3.2	PIP48.6X3.2	0.049	1.000	0.049	AISC- H1-3	10	4.564	11.800	11.800	23.600
486	PIP48.6X3.2	PIP48.6X3.2	0.076	1.000	0.076	AISC- H1-3	10	4.564	11.800	11.800	23.600
487	PIP48.6X3.2	PIP48.6X3.2	0.127	1.000	0.127	AISC- H1-3	10	4.564	11.800	11.800	23.600
488	PIP48.6X3.2	PIP48.6X3.2	0.751	1.000	0.751	AISC- H2-1	10	4.564	11.800	11.800	23.600
489	PIP48.6X3.2	PIP48.6X3.2	0.548	1.000	0.548	AISC- H1-3	10	4.564	11.800	11.800	23.600
490	PIP48.6X3.2	PIP48.6X3.2	0.042	1.000	0.042	AISC- H2-1	10	4.564	11.800	11.800	23.600
491	PIP48.6X3.2	PIP48.6X3.2	0.191	1.000	0.191	AISC- H2-1	10	4.564	11.800	11.800	23.600
492	PIP48.6X3.2	PIP48.6X3.2	0.143	1.000	0.143	AISC- H2-1	10	4.564	11.800	11.800	23.600
493	PIP48.6X3.2	PIP48.6X3.2	0.038	1.000	0.038	AISC- H1-3	10	4.564	11.800	11.800	23.600
494	PIP48.6X3.2	PIP48.6X3.2	0.009	1.000	0.009	AISC- H2-1	10	4.564	11.800	11.800	23.600
495	PIP48.6X3.2	PIP48.6X3.2	0.017	1.000	0.017	AISC- H2-1	10	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 49	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
496	PIP48.6X3.2	PIP48.6X3.2	0.230	1.000	0.230	AISC- H2-1	10	4.564	11.800	11.800	23.600
497	PIP48.6X3.2	PIP48.6X3.2	0.047	1.000	0.047	AISC- H1-3	10	4.564	11.800	11.800	23.600
498	PIP48.6X3.2	PIP48.6X3.2	0.088	1.000	0.088	AISC- H1-3	10	4.564	11.800	11.800	23.600
499	PIP48.6X3.2	PIP48.6X3.2	0.418	1.000	0.418	AISC- H1-3	10	4.564	11.800	11.800	23.600
500	PIP48.6X3.2	PIP48.6X3.2	0.259	1.000	0.259	AISC- H2-1	10	4.564	11.800	11.800	23.600
501	PIP48.6X3.2	PIP48.6X3.2	0.117	1.000	0.117	AISC- H1-3	10	4.564	11.800	11.800	23.600
502	PIP48.6X3.2	PIP48.6X3.2	0.045	1.000	0.045	AISC- H2-1	10	4.564	11.800	11.800	23.600
503	PIP48.6X3.2	PIP48.6X3.2	0.173	1.000	0.173	AISC- H2-1	10	4.564	11.800	11.800	23.600
504	PIP48.6X3.2	PIP48.6X3.2	0.131	1.000	0.131	AISC- H2-1	10	4.564	11.800	11.800	23.600
505	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H1-3	10	4.564	11.800	11.800	23.600
506	PIP48.6X3.2	PIP48.6X3.2	0.009	1.000	0.009	AISC- H2-1	10	4.564	11.800	11.800	23.600
507	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H2-1	10	4.564	11.800	11.800	23.600
508	PIP48.6X3.2	PIP48.6X3.2	0.053	1.000	0.053	AISC- H2-1	10	4.564	11.800	11.800	23.600
509	PIP48.6X3.2	PIP48.6X3.2	0.049	1.000	0.049	AISC- H1-3	10	4.564	11.800	11.800	23.600
510	PIP48.6X3.2	PIP48.6X3.2	0.076	1.000	0.076	AISC- H1-3	10	4.564	11.800	11.800	23.600
511	PIP48.6X3.2	PIP48.6X3.2	0.129	1.000	0.129	AISC- H1-3	10	4.564	11.800	11.800	23.600
520	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
521	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
522	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
523	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
524	PIP48.6X3.2	PIP48.6X3.2	1.189	1.000	1.189	AISC- H2-1	9	4.564	11.800	11.800	23.600
525	PIP48.6X3.2	PIP48.6X3.2	0.555	1.000	0.555	AISC- H2-1	9	4.564	11.800	11.800	23.600
526	PIP48.6X3.2	PIP48.6X3.2	0.555	1.000	0.555	AISC- H2-1	9	4.564	11.800	11.800	23.600
527	PIP48.6X3.2	PIP48.6X3.2	0.997	1.000	0.997	AISC- H1-3	9	4.564	11.800	11.800	23.600
528	PIP48.6X3.2	PIP48.6X3.2	1.147	1.000	1.147	AISC- H1-3	9	4.564	11.800	11.800	23.600
529	PIP48.6X3.2	PIP48.6X3.2	0.545	1.000	0.545	AISC- H1-3	9	4.564	11.800	11.800	23.600
530	PIP48.6X3.2	PIP48.6X3.2	0.488	1.000	0.488	AISC- H2-1	9	4.564	11.800	11.800	23.600
531	PIP48.6X3.2	PIP48.6X3.2	0.799	1.000	0.799	AISC- H2-1	9	4.564	11.800	11.800	23.600
532	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
533	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
534	PIP48.6X3.2	PIP48.6X3.2	0.778	1.000	0.778	AISC- H1-3	9	4.564	11.800	11.800	23.600
535	PIP48.6X3.2	PIP48.6X3.2	0.491	1.000	0.491	AISC- H2-1	9	4.564	11.800	11.800	23.600
536	PIP48.6X3.2	PIP48.6X3.2	0.557	1.000	0.557	AISC- H2-1	9	4.564	11.800	11.800	23.600
537	PIP48.6X3.2	PIP48.6X3.2	1.157	1.000	1.157	AISC- H2-1	9	4.564	11.800	11.800	23.600
538	PIP48.6X3.2	PIP48.6X3.2	1.011	1.000	1.011	AISC- H2-1	9	4.564	11.800	11.800	23.600
539	PIP48.6X3.2	PIP48.6X3.2	0.562	1.000	0.562	AISC- H2-1	9	4.564	11.800	11.800	23.600
540	PIP48.6X3.2	PIP48.6X3.2	0.552	1.000	0.552	AISC- H1-3	9	4.564	11.800	11.800	23.600
541	PIP48.6X3.2	PIP48.6X3.2	1.199	1.000	1.199	AISC- H1-3	9	4.564	11.800	11.800	23.600
542	PIP48.6X3.2	PIP48.6X3.2	0.559	1.000	0.559	AISC- H2-1	9	4.564	11.800	11.800	23.600
543	PIP48.6X3.2	PIP48.6X3.2	0.499	1.000	0.499	AISC- H2-1	9	4.564	11.800	11.800	23.600
544	PIP48.6X3.2	PIP48.6X3.2	0.584	1.000	0.584	AISC- H2-1	9	4.564	11.800	11.800	23.600
545	PIP48.6X3.2	PIP48.6X3.2	0.835	1.000	0.835	AISC- H2-1	9	4.564	11.800	11.800	23.600
546	PIP48.6X3.2	PIP48.6X3.2	0.582	1.000	0.582	AISC- H1-3	9	4.564	11.800	11.800	23.600
547	PIP48.6X3.2	PIP48.6X3.2	0.502	1.000	0.502	AISC- H1-3	9	4.564	11.800	11.800	23.600
548	PIP48.6X3.2	PIP48.6X3.2	0.564	1.000	0.564	AISC- H1-3	9	4.564	11.800	11.800	23.600
549	PIP48.6X3.2	PIP48.6X3.2	0.736	1.000	0.736	AISC- H1-3	9	4.564	11.800	11.800	23.600
550	PIP48.6X3.2	PIP48.6X3.2	0.636	1.000	0.636	AISC- H1-3	9	4.564	11.800	11.800	23.600
551	PIP48.6X3.2	PIP48.6X3.2	0.613	1.000	0.613	AISC- H1-3	9	4.564	11.800	11.800	23.600
552	PIP48.6X3.2	PIP48.6X3.2	0.787	1.000	0.787	AISC- H1-3	9	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 50	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
553	PIP48.6X3.2	PIP48.6X3.2	0.770	1.000	0.770	AISC- H2-1	9	4.564	11.800	11.800	23.600
554	PIP48.6X3.2	PIP48.6X3.2	0.603	1.000	0.603	AISC- H2-1	9	4.564	11.800	11.800	23.600
555	PIP48.6X3.2	PIP48.6X3.2	0.627	1.000	0.627	AISC- H2-1	9	4.564	11.800	11.800	23.600
556	PIP48.6X3.2	PIP48.6X3.2	0.729	1.000	0.729	AISC- H2-1	9	4.564	11.800	11.800	23.600
557	PIP48.6X3.2	PIP48.6X3.2	0.166	1.000	0.166	AISC- H1-3	8	4.564	11.800	11.800	23.600
558	PIP48.6X3.2	PIP48.6X3.2	0.082	1.000	0.082	AISC- H1-3	9	4.564	11.800	11.800	23.600
559	PIP48.6X3.2	PIP48.6X3.2	0.030	1.000	0.030	AISC- H1-3	8	4.564	11.800	11.800	23.600
560	PIP48.6X3.2	PIP48.6X3.2	0.111	1.000	0.111	AISC- H1-3	8	4.564	11.800	11.800	23.600
561	PIP48.6X3.2	PIP48.6X3.2	0.086	1.000	0.086	AISC- H1-3	8	4.564	11.800	11.800	23.600
562	PIP48.6X3.2	PIP48.6X3.2	0.024	1.000	0.024	AISC- H1-3	9	4.564	11.800	11.800	23.600
563	PIP48.6X3.2	PIP48.6X3.2	0.006	1.000	0.006	AISC- H2-1	9	4.564	11.800	11.800	23.600
564	PIP48.6X3.2	PIP48.6X3.2	0.020	1.000	0.020	AISC- H2-1	9	4.564	11.800	11.800	23.600
565	PIP48.6X3.2	PIP48.6X3.2	0.037	1.000	0.037	AISC- H2-1	9	4.564	11.800	11.800	23.600
566	PIP48.6X3.2	PIP48.6X3.2	0.030	1.000	0.030	AISC- H1-3	9	4.564	11.800	11.800	23.600
567	PIP48.6X3.2	PIP48.6X3.2	0.053	1.000	0.053	AISC- H1-3	9	4.564	11.800	11.800	23.600
568	PIP48.6X3.2	PIP48.6X3.2	0.088	1.000	0.088	AISC- H1-3	9	4.564	11.800	11.800	23.600
569	PIP48.6X3.2	PIP48.6X3.2	0.505	1.000	0.505	AISC- H2-1	9	4.564	11.800	11.800	23.600
570	PIP48.6X3.2	PIP48.6X3.2	0.374	1.000	0.374	AISC- H1-3	9	4.564	11.800	11.800	23.600
571	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H1-3	8	4.564	11.800	11.800	23.600
572	PIP48.6X3.2	PIP48.6X3.2	0.122	1.000	0.122	AISC- H1-3	8	4.564	11.800	11.800	23.600
573	PIP48.6X3.2	PIP48.6X3.2	0.092	1.000	0.092	AISC- H1-3	8	4.564	11.800	11.800	23.600
574	PIP48.6X3.2	PIP48.6X3.2	0.026	1.000	0.026	AISC- H1-3	9	4.564	11.800	11.800	23.600
575	PIP48.6X3.2	PIP48.6X3.2	0.005	1.000	0.005	AISC- H2-1	9	4.564	11.800	11.800	23.600
576	PIP48.6X3.2	PIP48.6X3.2	0.012	1.000	0.012	AISC- H2-1	9	4.564	11.800	11.800	23.600
577	PIP48.6X3.2	PIP48.6X3.2	0.157	1.000	0.157	AISC- H2-1	9	4.564	11.800	11.800	23.600
578	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H1-3	9	4.564	11.800	11.800	23.600
579	PIP48.6X3.2	PIP48.6X3.2	0.060	1.000	0.060	AISC- H1-3	9	4.564	11.800	11.800	23.600
580	PIP48.6X3.2	PIP48.6X3.2	0.284	1.000	0.284	AISC- H1-3	9	4.564	11.800	11.800	23.600
581	PIP48.6X3.2	PIP48.6X3.2	0.165	1.000	0.165	AISC- H1-3	8	4.564	11.800	11.800	23.600
582	PIP48.6X3.2	PIP48.6X3.2	0.084	1.000	0.084	AISC- H1-3	9	4.564	11.800	11.800	23.600
583	PIP48.6X3.2	PIP48.6X3.2	0.030	1.000	0.030	AISC- H1-3	8	4.564	11.800	11.800	23.600
584	PIP48.6X3.2	PIP48.6X3.2	0.111	1.000	0.111	AISC- H1-3	8	4.564	11.800	11.800	23.600
585	PIP48.6X3.2	PIP48.6X3.2	0.086	1.000	0.086	AISC- H1-3	8	4.564	11.800	11.800	23.600
586	PIP48.6X3.2	PIP48.6X3.2	0.024	1.000	0.024	AISC- H1-3	9	4.564	11.800	11.800	23.600
587	PIP48.6X3.2	PIP48.6X3.2	0.006	1.000	0.006	AISC- H2-1	9	4.564	11.800	11.800	23.600
588	PIP48.6X3.2	PIP48.6X3.2	0.020	1.000	0.020	AISC- H2-1	9	4.564	11.800	11.800	23.600
589	PIP48.6X3.2	PIP48.6X3.2	0.037	1.000	0.037	AISC- H2-1	9	4.564	11.800	11.800	23.600
590	PIP48.6X3.2	PIP48.6X3.2	0.030	1.000	0.030	AISC- H1-3	9	4.564	11.800	11.800	23.600
591	PIP48.6X3.2	PIP48.6X3.2	0.053	1.000	0.053	AISC- H1-3	9	4.564	11.800	11.800	23.600
592	PIP48.6X3.2	PIP48.6X3.2	0.090	1.000	0.090	AISC- H1-3	9	4.564	11.800	11.800	23.600
593	PIP89.1X3.2	PIP89.1X3.2	0.102	1.000	0.102	AISC- H2-1	10	8.636	79.800	79.800	159.600
594	PIP89.1X3.2	PIP89.1X3.2	0.224	1.000	0.224	AISC- H1-3	9	8.636	79.800	79.800	159.600
595	PIP89.1X3.2	PIP89.1X3.2	0.120	1.000	0.120	AISC- H2-1	10	8.636	79.800	79.800	159.600
596	PIP89.1X3.2	PIP89.1X3.2	0.160	1.000	0.160	AISC- H2-1	10	8.636	79.800	79.800	159.600
597	PIP89.1X3.2	PIP89.1X3.2	0.184	1.000	0.184	AISC- H2-1	10	8.636	79.800	79.800	159.600
598	PIP89.1X3.2	PIP89.1X3.2	0.197	1.000	0.197	AISC- H2-1	10	8.636	79.800	79.800	159.600
599	PIP89.1X3.2	PIP89.1X3.2	0.196	1.000	0.196	AISC- H2-1	10	8.636	79.800	79.800	159.600
600	PIP89.1X3.2	PIP89.1X3.2	0.185	1.000	0.185	AISC- H2-1	10	8.636	79.800	79.800	159.600
601	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H2-1	10	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 51	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
602	PIP89.1X3.2	PIP89.1X3.2	0.133	1.000	0.133	AISC- H2-1	10	8.636	79.800	79.800	159.600
603	PIP89.1X3.2	PIP89.1X3.2	0.104	1.000	0.104	AISC- H2-1	8	8.636	79.800	79.800	159.600
604	PIP89.1X3.2	PIP89.1X3.2	0.073	1.000	0.073	AISC- H2-1	8	8.636	79.800	79.800	159.600
605	PIP89.1X3.2	PIP89.1X3.2	0.102	1.000	0.102	AISC- H1-3	9	8.636	79.800	79.800	159.600
606	PIP89.1X3.2	PIP89.1X3.2	0.036	1.000	0.036	AISC- H1-3	10	8.636	79.800	79.800	159.600
607	PIP89.1X3.2	PIP89.1X3.2	0.034	1.000	0.034	AISC- H2-1	10	8.636	79.800	79.800	159.600
608	PIP89.1X3.2	PIP89.1X3.2	0.128	1.000	0.128	AISC- H1-3	10	8.636	79.800	79.800	159.600
609	PIP48.6X3.2	PIP48.6X3.2	0.224	1.000	0.224	AISC- H1-3	10	4.564	11.800	11.800	23.600
610	PIP48.6X3.2	PIP48.6X3.2	0.143	1.000	0.143	AISC- H2-1	10	4.564	11.800	11.800	23.600
611	PIP48.6X3.2	PIP48.6X3.2	0.104	1.000	0.104	AISC- H2-1	10	4.564	11.800	11.800	23.600
612	PIP48.6X3.2	PIP48.6X3.2	0.074	1.000	0.074	AISC- H2-1	10	4.564	11.800	11.800	23.600
613	PIP48.6X3.2	PIP48.6X3.2	0.043	1.000	0.043	AISC- H2-1	10	4.564	11.800	11.800	23.600
614	PIP48.6X3.2	PIP48.6X3.2	0.019	1.000	0.019	AISC- H2-1	8	4.564	11.800	11.800	23.600
615	PIP48.6X3.2	PIP48.6X3.2	0.026	1.000	0.026	AISC- H1-3	9	4.564	11.800	11.800	23.600
616	PIP48.6X3.2	PIP48.6X3.2	0.061	1.000	0.061	AISC- H1-3	10	4.564	11.800	11.800	23.600
617	PIP48.6X3.2	PIP48.6X3.2	0.095	1.000	0.095	AISC- H1-3	10	4.564	11.800	11.800	23.600
618	PIP48.6X3.2	PIP48.6X3.2	0.128	1.000	0.128	AISC- H1-3	10	4.564	11.800	11.800	23.600
619	PIP48.6X3.2	PIP48.6X3.2	0.163	1.000	0.163	AISC- H1-3	10	4.564	11.800	11.800	23.600
620	PIP48.6X3.2	PIP48.6X3.2	0.196	1.000	0.196	AISC- H1-3	10	4.564	11.800	11.800	23.600
621	PIP89.1X3.2	PIP89.1X3.2	0.033	1.000	0.033	AISC- H1-3	10	8.636	79.800	79.800	159.600
622	PIP89.1X3.2	PIP89.1X3.2	0.100	1.000	0.100	AISC- H2-1	10	8.636	79.800	79.800	159.600
623	PIP89.1X3.2	PIP89.1X3.2	0.177	1.000	0.177	AISC- H2-1	9	8.636	79.800	79.800	159.600
624	PIP89.1X3.2	PIP89.1X3.2	0.077	1.000	0.077	AISC- H1-3	10	8.636	79.800	79.800	159.600
625	PIP89.1X3.2	PIP89.1X3.2	0.132	1.000	0.132	AISC- H1-3	10	8.636	79.800	79.800	159.600
626	PIP89.1X3.2	PIP89.1X3.2	0.175	1.000	0.175	AISC- H1-3	10	8.636	79.800	79.800	159.600
627	PIP89.1X3.2	PIP89.1X3.2	0.200	1.000	0.200	AISC- H1-1	10	8.636	79.800	79.800	159.600
628	PIP89.1X3.2	PIP89.1X3.2	0.216	1.000	0.216	AISC- H1-1	10	8.636	79.800	79.800	159.600
629	PIP89.1X3.2	PIP89.1X3.2	0.217	1.000	0.217	AISC- H1-1	10	8.636	79.800	79.800	159.600
630	PIP89.1X3.2	PIP89.1X3.2	0.206	1.000	0.206	AISC- H1-1	10	8.636	79.800	79.800	159.600
631	PIP89.1X3.2	PIP89.1X3.2	0.180	1.000	0.180	AISC- H1-1	10	8.636	79.800	79.800	159.600
632	PIP89.1X3.2	PIP89.1X3.2	0.146	1.000	0.146	AISC- H1-3	10	8.636	79.800	79.800	159.600
633	PIP89.1X3.2	PIP89.1X3.2	0.117	1.000	0.117	AISC- H1-3	8	8.636	79.800	79.800	159.600
634	PIP89.1X3.2	PIP89.1X3.2	0.084	1.000	0.084	AISC- H1-3	8	8.636	79.800	79.800	159.600
635	PIP89.1X3.2	PIP89.1X3.2	0.087	1.000	0.087	AISC- H1-3	10	8.636	79.800	79.800	159.600
636	PIP48.6X3.2	PIP48.6X3.2	0.164	1.000	0.164	AISC- H2-1	10	4.564	11.800	11.800	23.600
637	PIP48.6X3.2	PIP48.6X3.2	0.199	1.000	0.199	AISC- H2-1	10	4.564	11.800	11.800	23.600
638	PIP48.6X3.2	PIP48.6X3.2	0.164	1.000	0.164	AISC- H2-1	10	4.564	11.800	11.800	23.600
639	PIP48.6X3.2	PIP48.6X3.2	0.134	1.000	0.134	AISC- H2-1	10	4.564	11.800	11.800	23.600
640	PIP48.6X3.2	PIP48.6X3.2	0.103	1.000	0.103	AISC- H2-1	10	4.564	11.800	11.800	23.600
641	PIP48.6X3.2	PIP48.6X3.2	0.071	1.000	0.071	AISC- H2-1	10	4.564	11.800	11.800	23.600
642	PIP48.6X3.2	PIP48.6X3.2	0.039	1.000	0.039	AISC- H2-1	10	4.564	11.800	11.800	23.600
643	PIP48.6X3.2	PIP48.6X3.2	0.028	1.000	0.028	AISC- H1-3	8	4.564	11.800	11.800	23.600
644	PIP48.6X3.2	PIP48.6X3.2	0.062	1.000	0.062	AISC- H1-3	10	4.564	11.800	11.800	23.600
645	PIP48.6X3.2	PIP48.6X3.2	0.110	1.000	0.110	AISC- H1-3	10	4.564	11.800	11.800	23.600
646	PIP48.6X3.2	PIP48.6X3.2	0.156	1.000	0.156	AISC- H1-3	10	4.564	11.800	11.800	23.600
647	PIP48.6X3.2	PIP48.6X3.2	0.208	1.000	0.208	AISC- H1-1	10	4.564	11.800	11.800	23.600
648	PIP48.6X3.2	PIP48.6X3.2	0.227	1.000	0.227	AISC- H1-1	10	4.564	11.800	11.800	23.600
649	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H2-1	10	4.564	11.800	11.800	23.600
650	PIP89.1X3.2	PIP89.1X3.2	0.076	1.000	0.076	AISC- H1-3	8	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 52	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
651	PIP89.1X3.2	PIP89.1X3.2	0.224	1.000	0.224	AISC- H1-3	9	8.636	79.800	79.800	159.600
652	PIP89.1X3.2	PIP89.1X3.2	0.097	1.000	0.097	AISC- H1-3	8	8.636	79.800	79.800	159.600
653	PIP89.1X3.2	PIP89.1X3.2	0.128	1.000	0.128	AISC- H1-3	8	8.636	79.800	79.800	159.600
654	PIP89.1X3.2	PIP89.1X3.2	0.150	1.000	0.150	AISC- H1-3	8	8.636	79.800	79.800	159.600
655	PIP89.1X3.2	PIP89.1X3.2	0.163	1.000	0.163	AISC- H1-3	8	8.636	79.800	79.800	159.600
656	PIP89.1X3.2	PIP89.1X3.2	0.167	1.000	0.167	AISC- H1-3	8	8.636	79.800	79.800	159.600
657	PIP89.1X3.2	PIP89.1X3.2	0.164	1.000	0.164	AISC- H1-3	8	8.636	79.800	79.800	159.600
658	PIP89.1X3.2	PIP89.1X3.2	0.154	1.000	0.154	AISC- H1-3	8	8.636	79.800	79.800	159.600
659	PIP89.1X3.2	PIP89.1X3.2	0.138	1.000	0.138	AISC- H1-3	8	8.636	79.800	79.800	159.600
660	PIP89.1X3.2	PIP89.1X3.2	0.113	1.000	0.113	AISC- H1-3	8	8.636	79.800	79.800	159.600
661	PIP89.1X3.2	PIP89.1X3.2	0.098	1.000	0.098	AISC- H1-3	10	8.636	79.800	79.800	159.600
662	PIP89.1X3.2	PIP89.1X3.2	0.107	1.000	0.107	AISC- H1-3	10	8.636	79.800	79.800	159.600
663	PIP89.1X3.2	PIP89.1X3.2	0.023	1.000	0.023	AISC- H2-1	8	8.636	79.800	79.800	159.600
664	PIP89.1X3.2	PIP89.1X3.2	0.031	1.000	0.031	AISC- H1-3	8	8.636	79.800	79.800	159.600
665	PIP48.6X3.2	PIP48.6X3.2	0.152	1.000	0.152	AISC- H1-3	9	4.564	11.800	11.800	23.600
666	PIP48.6X3.2	PIP48.6X3.2	0.107	1.000	0.107	AISC- H1-3	8	4.564	11.800	11.800	23.600
667	PIP48.6X3.2	PIP48.6X3.2	0.082	1.000	0.082	AISC- H1-3	8	4.564	11.800	11.800	23.600
668	PIP48.6X3.2	PIP48.6X3.2	0.062	1.000	0.062	AISC- H1-3	8	4.564	11.800	11.800	23.600
669	PIP48.6X3.2	PIP48.6X3.2	0.041	1.000	0.041	AISC- H1-3	8	4.564	11.800	11.800	23.600
670	PIP48.6X3.2	PIP48.6X3.2	0.020	1.000	0.020	AISC- H1-3	8	4.564	11.800	11.800	23.600
671	PIP48.6X3.2	PIP48.6X3.2	0.026	1.000	0.026	AISC- H1-3	9	4.564	11.800	11.800	23.600
672	PIP48.6X3.2	PIP48.6X3.2	0.047	1.000	0.047	AISC- H1-3	9	4.564	11.800	11.800	23.600
673	PIP48.6X3.2	PIP48.6X3.2	0.068	1.000	0.068	AISC- H1-3	9	4.564	11.800	11.800	23.600
674	PIP48.6X3.2	PIP48.6X3.2	0.088	1.000	0.088	AISC- H1-3	9	4.564	11.800	11.800	23.600
675	PIP48.6X3.2	PIP48.6X3.2	0.110	1.000	0.110	AISC- H1-3	9	4.564	11.800	11.800	23.600
676	PIP48.6X3.2	PIP48.6X3.2	0.129	1.000	0.129	AISC- H1-3	9	4.564	11.800	11.800	23.600
677	PIP89.1X3.2	PIP89.1X3.2	0.024	1.000	0.024	AISC- H2-1	8	8.636	79.800	79.800	159.600
678	PIP89.1X3.2	PIP89.1X3.2	0.068	1.000	0.068	AISC- H1-3	8	8.636	79.800	79.800	159.600
679	PIP89.1X3.2	PIP89.1X3.2	0.177	1.000	0.177	AISC- H2-1	9	8.636	79.800	79.800	159.600
680	PIP89.1X3.2	PIP89.1X3.2	0.052	1.000	0.052	AISC- H2-1	8	8.636	79.800	79.800	159.600
681	PIP89.1X3.2	PIP89.1X3.2	0.087	1.000	0.087	AISC- H2-1	8	8.636	79.800	79.800	159.600
682	PIP89.1X3.2	PIP89.1X3.2	0.117	1.000	0.117	AISC- H2-1	8	8.636	79.800	79.800	159.600
683	PIP89.1X3.2	PIP89.1X3.2	0.139	1.000	0.139	AISC- H2-1	8	8.636	79.800	79.800	159.600
684	PIP89.1X3.2	PIP89.1X3.2	0.153	1.000	0.153	AISC- H2-1	8	8.636	79.800	79.800	159.600
685	PIP89.1X3.2	PIP89.1X3.2	0.159	1.000	0.159	AISC- H2-1	8	8.636	79.800	79.800	159.600
686	PIP89.1X3.2	PIP89.1X3.2	0.158	1.000	0.158	AISC- H2-1	8	8.636	79.800	79.800	159.600
687	PIP89.1X3.2	PIP89.1X3.2	0.149	1.000	0.149	AISC- H2-1	8	8.636	79.800	79.800	159.600
688	PIP89.1X3.2	PIP89.1X3.2	0.132	1.000	0.132	AISC- H2-1	8	8.636	79.800	79.800	159.600
689	PIP89.1X3.2	PIP89.1X3.2	0.109	1.000	0.109	AISC- H2-1	8	8.636	79.800	79.800	159.600
690	PIP89.1X3.2	PIP89.1X3.2	0.091	1.000	0.091	AISC- H2-1	10	8.636	79.800	79.800	159.600
691	PIP89.1X3.2	PIP89.1X3.2	0.064	1.000	0.064	AISC- H2-1	8	8.636	79.800	79.800	159.600
692	PIP48.6X3.2	PIP48.6X3.2	0.114	1.000	0.114	AISC- H1-3	8	4.564	11.800	11.800	23.600
693	PIP48.6X3.2	PIP48.6X3.2	0.162	1.000	0.162	AISC- H1-3	8	4.564	11.800	11.800	23.600
694	PIP48.6X3.2	PIP48.6X3.2	0.131	1.000	0.131	AISC- H1-3	8	4.564	11.800	11.800	23.600
695	PIP48.6X3.2	PIP48.6X3.2	0.103	1.000	0.103	AISC- H1-3	8	4.564	11.800	11.800	23.600
696	PIP48.6X3.2	PIP48.6X3.2	0.074	1.000	0.074	AISC- H1-3	8	4.564	11.800	11.800	23.600
697	PIP48.6X3.2	PIP48.6X3.2	0.052	1.000	0.052	AISC- H2-1	9	4.564	11.800	11.800	23.600
698	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H2-1	9	4.564	11.800	11.800	23.600
699	PIP48.6X3.2	PIP48.6X3.2	0.021	1.000	0.021	AISC- H2-1	8	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 53	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
700	PIP48.6X3.2	PIP48.6X3.2	0.040	1.000	0.040	AISC- H2-1	8	4.564	11.800	11.800	23.600
701	PIP48.6X3.2	PIP48.6X3.2	0.060	1.000	0.060	AISC- H2-1	8	4.564	11.800	11.800	23.600
702	PIP48.6X3.2	PIP48.6X3.2	0.080	1.000	0.080	AISC- H1-3	9	4.564	11.800	11.800	23.600
703	PIP48.6X3.2	PIP48.6X3.2	0.112	1.000	0.112	AISC- H1-3	9	4.564	11.800	11.800	23.600
704	PIP48.6X3.2	PIP48.6X3.2	0.124	1.000	0.124	AISC- H1-3	9	4.564	11.800	11.800	23.600
705	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H1-3	8	4.564	11.800	11.800	23.600
706	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
707	H150X150X	H150X150X	0.157	1.000	0.157	AISC- H1-3	10	39.650	1.62E+3	563.000	11.500
708	PIP89.1X3.2	PIP89.1X3.2	0.247	1.000	0.247	AISC- H2-1	8	8.636	79.800	79.800	159.600
709	PIP89.1X3.2	PIP89.1X3.2	0.488	1.000	0.488	AISC- H1-3	10	8.636	79.800	79.800	159.600
710	PIP89.1X3.2	PIP89.1X3.2	0.151	1.000	0.151	AISC- H2-1	10	8.636	79.800	79.800	159.600
711	PIP89.1X3.2	PIP89.1X3.2	0.180	1.000	0.180	AISC- H2-1	10	8.636	79.800	79.800	159.600
712	PIP89.1X3.2	PIP89.1X3.2	0.198	1.000	0.198	AISC- H2-1	10	8.636	79.800	79.800	159.600
713	PIP89.1X3.2	PIP89.1X3.2	0.204	1.000	0.204	AISC- H2-1	10	8.636	79.800	79.800	159.600
714	PIP89.1X3.2	PIP89.1X3.2	0.201	1.000	0.201	AISC- H2-1	10	8.636	79.800	79.800	159.600
715	PIP89.1X3.2	PIP89.1X3.2	0.188	1.000	0.188	AISC- H2-1	10	8.636	79.800	79.800	159.600
716	PIP89.1X3.2	PIP89.1X3.2	0.167	1.000	0.167	AISC- H2-1	10	8.636	79.800	79.800	159.600
717	PIP89.1X3.2	PIP89.1X3.2	0.150	1.000	0.150	AISC- H2-1	8	8.636	79.800	79.800	159.600
718	PIP89.1X3.2	PIP89.1X3.2	0.133	1.000	0.133	AISC- H2-1	8	8.636	79.800	79.800	159.600
719	PIP89.1X3.2	PIP89.1X3.2	0.111	1.000	0.111	AISC- H2-1	8	8.636	79.800	79.800	159.600
720	PIP89.1X3.2	PIP89.1X3.2	0.135	1.000	0.135	AISC- H1-3	10	8.636	79.800	79.800	159.600
721	PIP89.1X3.2	PIP89.1X3.2	0.166	1.000	0.166	AISC- H1-3	8	8.636	79.800	79.800	159.600
722	PIP89.1X3.2	PIP89.1X3.2	0.313	1.000	0.313	AISC- H1-3	8	8.636	79.800	79.800	159.600
723	PIP89.1X3.2	PIP89.1X3.2	0.295	1.000	0.295	AISC- H1-3	10	8.636	79.800	79.800	159.600
724	PIP48.6X3.2	PIP48.6X3.2	0.260	1.000	0.260	AISC- H1-3	10	4.564	11.800	11.800	23.600
725	PIP48.6X3.2	PIP48.6X3.2	0.144	1.000	0.144	AISC- H2-1	10	4.564	11.800	11.800	23.600
726	PIP48.6X3.2	PIP48.6X3.2	0.099	1.000	0.099	AISC- H2-1	10	4.564	11.800	11.800	23.600
727	PIP48.6X3.2	PIP48.6X3.2	0.068	1.000	0.068	AISC- H2-1	10	4.564	11.800	11.800	23.600
728	PIP48.6X3.2	PIP48.6X3.2	0.037	1.000	0.037	AISC- H2-1	10	4.564	11.800	11.800	23.600
729	PIP48.6X3.2	PIP48.6X3.2	0.011	1.000	0.011	AISC- H1-3	10	4.564	11.800	11.800	23.600
730	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H1-3	10	4.564	11.800	11.800	23.600
731	PIP48.6X3.2	PIP48.6X3.2	0.067	1.000	0.067	AISC- H1-3	10	4.564	11.800	11.800	23.600
732	PIP48.6X3.2	PIP48.6X3.2	0.101	1.000	0.101	AISC- H1-3	10	4.564	11.800	11.800	23.600
733	PIP48.6X3.2	PIP48.6X3.2	0.135	1.000	0.135	AISC- H1-3	10	4.564	11.800	11.800	23.600
734	PIP48.6X3.2	PIP48.6X3.2	0.169	1.000	0.169	AISC- H1-3	10	4.564	11.800	11.800	23.600
735	PIP48.6X3.2	PIP48.6X3.2	0.200	1.000	0.200	AISC- H1-3	10	4.564	11.800	11.800	23.600
736	PIP89.1X3.2	PIP89.1X3.2	0.052	1.000	0.052	AISC- H1-3	8	8.636	79.800	79.800	159.600
737	PIP89.1X3.2	PIP89.1X3.2	0.166	1.000	0.166	AISC- H1-3	8	8.636	79.800	79.800	159.600
738	PIP89.1X3.2	PIP89.1X3.2	0.186	1.000	0.186	AISC- H2-1	9	8.636	79.800	79.800	159.600
739	PIP89.1X3.2	PIP89.1X3.2	0.117	1.000	0.117	AISC- H1-3	8	8.636	79.800	79.800	159.600
740	PIP89.1X3.2	PIP89.1X3.2	0.144	1.000	0.144	AISC- H1-3	10	8.636	79.800	79.800	159.600
741	PIP89.1X3.2	PIP89.1X3.2	0.181	1.000	0.181	AISC- H1-3	10	8.636	79.800	79.800	159.600
742	PIP89.1X3.2	PIP89.1X3.2	0.201	1.000	0.201	AISC- H1-1	10	8.636	79.800	79.800	159.600
743	PIP89.1X3.2	PIP89.1X3.2	0.213	1.000	0.213	AISC- H1-1	10	8.636	79.800	79.800	159.600
744	PIP89.1X3.2	PIP89.1X3.2	0.213	1.000	0.213	AISC- H1-1	10	8.636	79.800	79.800	159.600
745	PIP89.1X3.2	PIP89.1X3.2	0.200	1.000	0.200	AISC- H1-1	10	8.636	79.800	79.800	159.600
746	PIP89.1X3.2	PIP89.1X3.2	0.180	1.000	0.180	AISC- H1-3	10	8.636	79.800	79.800	159.600
747	PIP89.1X3.2	PIP89.1X3.2	0.164	1.000	0.164	AISC- H1-3	8	8.636	79.800	79.800	159.600
748	PIP89.1X3.2	PIP89.1X3.2	0.146	1.000	0.146	AISC- H1-3	8	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 54	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
749	PIP89.1X3.2	PIP89.1X3.2	0.125	1.000	0.125	AISC- H1-3	8	8.636	79.800	79.800	159.600
750	PIP89.1X3.2	PIP89.1X3.2	0.084	1.000	0.084	AISC- H1-3	10	8.636	79.800	79.800	159.600
751	PIP48.6X3.2	PIP48.6X3.2	0.170	1.000	0.170	AISC- H2-1	10	4.564	11.800	11.800	23.600
752	PIP48.6X3.2	PIP48.6X3.2	0.208	1.000	0.208	AISC- H2-1	10	4.564	11.800	11.800	23.600
753	PIP48.6X3.2	PIP48.6X3.2	0.176	1.000	0.176	AISC- H2-1	10	4.564	11.800	11.800	23.600
754	PIP48.6X3.2	PIP48.6X3.2	0.144	1.000	0.144	AISC- H2-1	10	4.564	11.800	11.800	23.600
755	PIP48.6X3.2	PIP48.6X3.2	0.112	1.000	0.112	AISC- H2-1	10	4.564	11.800	11.800	23.600
756	PIP48.6X3.2	PIP48.6X3.2	0.079	1.000	0.079	AISC- H2-1	10	4.564	11.800	11.800	23.600
757	PIP48.6X3.2	PIP48.6X3.2	0.047	1.000	0.047	AISC- H2-1	10	4.564	11.800	11.800	23.600
758	PIP48.6X3.2	PIP48.6X3.2	0.014	1.000	0.014	AISC- H2-1	10	4.564	11.800	11.800	23.600
759	PIP48.6X3.2	PIP48.6X3.2	0.052	1.000	0.052	AISC- H1-3	10	4.564	11.800	11.800	23.600
760	PIP48.6X3.2	PIP48.6X3.2	0.101	1.000	0.101	AISC- H1-3	10	4.564	11.800	11.800	23.600
761	PIP48.6X3.2	PIP48.6X3.2	0.150	1.000	0.150	AISC- H1-3	10	4.564	11.800	11.800	23.600
762	PIP48.6X3.2	PIP48.6X3.2	0.195	1.000	0.195	AISC- H1-1	10	4.564	11.800	11.800	23.600
763	PIP48.6X3.2	PIP48.6X3.2	0.255	1.000	0.255	AISC- H1-1	8	4.564	11.800	11.800	23.600
764	PIP48.6X3.2	PIP48.6X3.2	0.040	1.000	0.040	AISC- H2-1	10	4.564	11.800	11.800	23.600
765	PIP89.1X3.2	PIP89.1X3.2	0.310	1.000	0.310	AISC- H1-3	10	8.636	79.800	79.800	159.600
766	PIP89.1X3.2	PIP89.1X3.2	0.366	1.000	0.366	AISC- H2-1	8	8.636	79.800	79.800	159.600
767	PIP89.1X3.2	PIP89.1X3.2	0.159	1.000	0.159	AISC- H1-3	8	8.636	79.800	79.800	159.600
768	PIP89.1X3.2	PIP89.1X3.2	0.171	1.000	0.171	AISC- H1-3	8	8.636	79.800	79.800	159.600
769	PIP89.1X3.2	PIP89.1X3.2	0.174	1.000	0.174	AISC- H1-1	8	8.636	79.800	79.800	159.600
770	PIP89.1X3.2	PIP89.1X3.2	0.178	1.000	0.178	AISC- H1-1	8	8.636	79.800	79.800	159.600
771	PIP89.1X3.2	PIP89.1X3.2	0.179	1.000	0.179	AISC- H1-1	8	8.636	79.800	79.800	159.600
772	PIP89.1X3.2	PIP89.1X3.2	0.176	1.000	0.176	AISC- H1-1	8	8.636	79.800	79.800	159.600
773	PIP89.1X3.2	PIP89.1X3.2	0.173	1.000	0.173	AISC- H1-3	8	8.636	79.800	79.800	159.600
774	PIP89.1X3.2	PIP89.1X3.2	0.161	1.000	0.161	AISC- H1-3	8	8.636	79.800	79.800	159.600
775	PIP89.1X3.2	PIP89.1X3.2	0.142	1.000	0.142	AISC- H1-3	8	8.636	79.800	79.800	159.600
776	PIP89.1X3.2	PIP89.1X3.2	0.131	1.000	0.131	AISC- H1-3	10	8.636	79.800	79.800	159.600
777	PIP89.1X3.2	PIP89.1X3.2	0.154	1.000	0.154	AISC- H1-3	10	8.636	79.800	79.800	159.600
778	PIP89.1X3.2	PIP89.1X3.2	0.194	1.000	0.194	AISC- H1-3	10	8.636	79.800	79.800	159.600
779	PIP89.1X3.2	PIP89.1X3.2	0.357	1.000	0.357	AISC- H2-1	10	8.636	79.800	79.800	159.600
780	PIP48.6X3.2	PIP48.6X3.2	0.156	1.000	0.156	AISC- H1-3	9	4.564	11.800	11.800	23.600
781	PIP48.6X3.2	PIP48.6X3.2	0.124	1.000	0.124	AISC- H1-3	8	4.564	11.800	11.800	23.600
782	PIP48.6X3.2	PIP48.6X3.2	0.076	1.000	0.076	AISC- H1-3	8	4.564	11.800	11.800	23.600
783	PIP48.6X3.2	PIP48.6X3.2	0.051	1.000	0.051	AISC- H1-3	8	4.564	11.800	11.800	23.600
784	PIP48.6X3.2	PIP48.6X3.2	0.031	1.000	0.031	AISC- H1-3	8	4.564	11.800	11.800	23.600
785	PIP48.6X3.2	PIP48.6X3.2	0.011	1.000	0.011	AISC- H1-3	10	4.564	11.800	11.800	23.600
786	PIP48.6X3.2	PIP48.6X3.2	0.025	1.000	0.025	AISC- H1-3	9	4.564	11.800	11.800	23.600
787	PIP48.6X3.2	PIP48.6X3.2	0.046	1.000	0.046	AISC- H1-3	9	4.564	11.800	11.800	23.600
788	PIP48.6X3.2	PIP48.6X3.2	0.067	1.000	0.067	AISC- H1-3	9	4.564	11.800	11.800	23.600
789	PIP48.6X3.2	PIP48.6X3.2	0.087	1.000	0.087	AISC- H1-3	9	4.564	11.800	11.800	23.600
790	PIP48.6X3.2	PIP48.6X3.2	0.109	1.000	0.109	AISC- H1-3	9	4.564	11.800	11.800	23.600
791	PIP48.6X3.2	PIP48.6X3.2	0.127	1.000	0.127	AISC- H1-3	9	4.564	11.800	11.800	23.600
792	PIP89.1X3.2	PIP89.1X3.2	0.052	1.000	0.052	AISC- H2-1	8	8.636	79.800	79.800	159.600
793	PIP89.1X3.2	PIP89.1X3.2	0.165	1.000	0.165	AISC- H2-1	8	8.636	79.800	79.800	159.600
794	PIP89.1X3.2	PIP89.1X3.2	0.198	1.000	0.198	AISC- H2-1	10	8.636	79.800	79.800	159.600
795	PIP89.1X3.2	PIP89.1X3.2	0.111	1.000	0.111	AISC- H2-1	8	8.636	79.800	79.800	159.600
796	PIP89.1X3.2	PIP89.1X3.2	0.125	1.000	0.125	AISC- H2-1	8	8.636	79.800	79.800	159.600
797	PIP89.1X3.2	PIP89.1X3.2	0.141	1.000	0.141	AISC- H2-1	8	8.636	79.800	79.800	159.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 55	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
798	PIP89.1X3.2	PIP89.1X3.2	0.154	1.000	0.154	AISC- H2-1	8	8.636	79.800	79.800	159.600
799	PIP89.1X3.2	PIP89.1X3.2	0.163	1.000	0.163	AISC- H2-1	8	8.636	79.800	79.800	159.600
800	PIP89.1X3.2	PIP89.1X3.2	0.168	1.000	0.168	AISC- H2-1	8	8.636	79.800	79.800	159.600
801	PIP89.1X3.2	PIP89.1X3.2	0.169	1.000	0.169	AISC- H2-1	8	8.636	79.800	79.800	159.600
802	PIP89.1X3.2	PIP89.1X3.2	0.164	1.000	0.164	AISC- H2-1	8	8.636	79.800	79.800	159.600
803	PIP89.1X3.2	PIP89.1X3.2	0.154	1.000	0.154	AISC- H2-1	8	8.636	79.800	79.800	159.600
804	PIP89.1X3.2	PIP89.1X3.2	0.138	1.000	0.138	AISC- H2-1	8	8.636	79.800	79.800	159.600
805	PIP89.1X3.2	PIP89.1X3.2	0.130	1.000	0.130	AISC- H2-1	10	8.636	79.800	79.800	159.600
806	PIP89.1X3.2	PIP89.1X3.2	0.063	1.000	0.063	AISC- H2-1	9	8.636	79.800	79.800	159.600
807	PIP48.6X3.2	PIP48.6X3.2	0.116	1.000	0.116	AISC- H1-3	8	4.564	11.800	11.800	23.600
808	PIP48.6X3.2	PIP48.6X3.2	0.185	1.000	0.185	AISC- H1-1	8	4.564	11.800	11.800	23.600
809	PIP48.6X3.2	PIP48.6X3.2	0.156	1.000	0.156	AISC- H1-3	8	4.564	11.800	11.800	23.600
810	PIP48.6X3.2	PIP48.6X3.2	0.125	1.000	0.125	AISC- H1-3	8	4.564	11.800	11.800	23.600
811	PIP48.6X3.2	PIP48.6X3.2	0.094	1.000	0.094	AISC- H1-3	8	4.564	11.800	11.800	23.600
812	PIP48.6X3.2	PIP48.6X3.2	0.063	1.000	0.063	AISC- H1-3	8	4.564	11.800	11.800	23.600
813	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H1-3	8	4.564	11.800	11.800	23.600
814	PIP48.6X3.2	PIP48.6X3.2	0.012	1.000	0.012	AISC- H2-1	9	4.564	11.800	11.800	23.600
815	PIP48.6X3.2	PIP48.6X3.2	0.033	1.000	0.033	AISC- H2-1	8	4.564	11.800	11.800	23.600
816	PIP48.6X3.2	PIP48.6X3.2	0.054	1.000	0.054	AISC- H2-1	8	4.564	11.800	11.800	23.600
817	PIP48.6X3.2	PIP48.6X3.2	0.079	1.000	0.079	AISC- H2-1	8	4.564	11.800	11.800	23.600
818	PIP48.6X3.2	PIP48.6X3.2	0.126	1.000	0.126	AISC- H1-3	9	4.564	11.800	11.800	23.600
819	PIP48.6X3.2	PIP48.6X3.2	0.203	1.000	0.203	AISC- H2-1	8	4.564	11.800	11.800	23.600
820	PIP48.6X3.2	PIP48.6X3.2	0.054	1.000	0.054	AISC- H2-1	10	4.564	11.800	11.800	23.600
821	PIP89.1X3.2	PIP89.1X3.2	0.320	1.000	0.320	AISC- H2-1	8	8.636	79.800	79.800	159.600
822	PIP89.1X3.2	PIP89.1X3.2	0.351	1.000	0.351	AISC- H1-3	8	8.636	79.800	79.800	159.600
823	PIP89.1X3.2	PIP89.1X3.2	0.135	1.000	0.135	AISC- H1-3	8	8.636	79.800	79.800	159.600
824	PIP89.1X3.2	PIP89.1X3.2	0.194	1.000	0.194	AISC- H1-3	8	8.636	79.800	79.800	159.600
825	PIP89.1X3.2	PIP89.1X3.2	0.355	1.000	0.355	AISC- H1-3	8	8.636	79.800	79.800	159.600
826	PIP89.1X3.2	PIP89.1X3.2	0.196	1.000	0.196	AISC- H1-3	8	8.636	79.800	79.800	159.600
827	PIP89.1X3.2	PIP89.1X3.2	0.149	1.000	0.149	AISC- H1-3	8	8.636	79.800	79.800	159.600
828	PIP89.1X3.2	PIP89.1X3.2	0.329	1.000	0.329	AISC- H2-1	8	8.636	79.800	79.800	159.600
829	PIP48.6X3.2	PIP48.6X3.2	0.140	1.000	0.140	AISC- H1-3	10	4.564	11.800	11.800	23.600
830	PIP48.6X3.2	PIP48.6X3.2	0.136	1.000	0.136	AISC- H1-3	10	4.564	11.800	11.800	23.600
831	PIP48.6X3.2	PIP48.6X3.2	0.136	1.000	0.136	AISC- H1-3	10	4.564	11.800	11.800	23.600
832	PIP48.6X3.2	PIP48.6X3.2	0.172	1.000	0.172	AISC- H2-1	10	4.564	11.800	11.800	23.600
833	PIP48.6X3.2	PIP48.6X3.2	0.140	1.000	0.140	AISC- H2-1	10	4.564	11.800	11.800	23.600
834	PIP48.6X3.2	PIP48.6X3.2	0.144	1.000	0.144	AISC- H2-1	10	4.564	11.800	11.800	23.600
835	PIP48.6X3.2	PIP48.6X3.2	0.185	1.000	0.185	AISC- H2-1	10	4.564	11.800	11.800	23.600
836	PIP89.1X3.2	PIP89.1X3.2	0.333	1.000	0.333	AISC- H1-3	8	8.636	79.800	79.800	159.600
837	PIP89.1X3.2	PIP89.1X3.2	0.373	1.000	0.373	AISC- H2-1	8	8.636	79.800	79.800	159.600
838	PIP89.1X3.2	PIP89.1X3.2	0.181	1.000	0.181	AISC- H1-3	8	8.636	79.800	79.800	159.600
839	PIP89.1X3.2	PIP89.1X3.2	0.133	1.000	0.133	AISC- H1-3	8	8.636	79.800	79.800	159.600
840	PIP89.1X3.2	PIP89.1X3.2	0.215	1.000	0.215	AISC- H2-1	8	8.636	79.800	79.800	159.600
841	PIP89.1X3.2	PIP89.1X3.2	0.209	1.000	0.209	AISC- H2-1	8	8.636	79.800	79.800	159.600
842	PIP89.1X3.2	PIP89.1X3.2	0.159	1.000	0.159	AISC- H2-1	8	8.636	79.800	79.800	159.600
843	PIP89.1X3.2	PIP89.1X3.2	0.324	1.000	0.324	AISC- H2-1	8	8.636	79.800	79.800	159.600
844	PIP48.6X3.2	PIP48.6X3.2	0.073	1.000	0.073	AISC- H2-1	10	4.564	11.800	11.800	23.600
845	PIP48.6X3.2	PIP48.6X3.2	0.065	1.000	0.065	AISC- H2-1	10	4.564	11.800	11.800	23.600
846	PIP48.6X3.2	PIP48.6X3.2	0.072	1.000	0.072	AISC- H2-1	10	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 56	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
847	PIP48.6X3.2	PIP48.6X3.2	0.153	1.000	0.153	AISC- H1-3	10	4.564	11.800	11.800	23.600
848	PIP48.6X3.2	PIP48.6X3.2	0.125	1.000	0.125	AISC- H1-3	10	4.564	11.800	11.800	23.600
849	PIP48.6X3.2	PIP48.6X3.2	0.120	1.000	0.120	AISC- H1-3	10	4.564	11.800	11.800	23.600
850	PIP48.6X3.2	PIP48.6X3.2	0.172	1.000	0.172	AISC- H1-3	10	4.564	11.800	11.800	23.600
851	PIP89.1X3.2	PIP89.1X3.2	0.268	1.000	0.268	AISC- H2-1	10	8.636	79.800	79.800	159.600
852	PIP89.1X3.2	PIP89.1X3.2	0.332	1.000	0.332	AISC- H1-3	10	8.636	79.800	79.800	159.600
853	PIP89.1X3.2	PIP89.1X3.2	0.123	1.000	0.123	AISC- H1-3	8	8.636	79.800	79.800	159.600
854	PIP89.1X3.2	PIP89.1X3.2	0.167	1.000	0.167	AISC- H1-3	10	8.636	79.800	79.800	159.600
855	PIP89.1X3.2	PIP89.1X3.2	0.333	1.000	0.333	AISC- H1-3	10	8.636	79.800	79.800	159.600
856	PIP89.1X3.2	PIP89.1X3.2	0.173	1.000	0.173	AISC- H1-3	10	8.636	79.800	79.800	159.600
857	PIP89.1X3.2	PIP89.1X3.2	0.124	1.000	0.124	AISC- H1-3	8	8.636	79.800	79.800	159.600
858	PIP89.1X3.2	PIP89.1X3.2	0.261	1.000	0.261	AISC- H2-1	10	8.636	79.800	79.800	159.600
859	PIP48.6X3.2	PIP48.6X3.2	0.196	1.000	0.196	AISC- H1-3	9	4.564	11.800	11.800	23.600
860	PIP48.6X3.2	PIP48.6X3.2	0.178	1.000	0.178	AISC- H1-3	9	4.564	11.800	11.800	23.600
861	PIP48.6X3.2	PIP48.6X3.2	0.190	1.000	0.190	AISC- H1-3	9	4.564	11.800	11.800	23.600
862	PIP48.6X3.2	PIP48.6X3.2	0.197	1.000	0.197	AISC- H2-1	10	4.564	11.800	11.800	23.600
863	PIP48.6X3.2	PIP48.6X3.2	0.180	1.000	0.180	AISC- H2-1	9	4.564	11.800	11.800	23.600
864	PIP48.6X3.2	PIP48.6X3.2	0.179	1.000	0.179	AISC- H2-1	9	4.564	11.800	11.800	23.600
865	PIP48.6X3.2	PIP48.6X3.2	0.194	1.000	0.194	AISC- H2-1	10	4.564	11.800	11.800	23.600
866	PIP89.1X3.2	PIP89.1X3.2	0.291	1.000	0.291	AISC- H1-3	10	8.636	79.800	79.800	159.600
867	PIP89.1X3.2	PIP89.1X3.2	0.319	1.000	0.319	AISC- H2-1	10	8.636	79.800	79.800	159.600
868	PIP89.1X3.2	PIP89.1X3.2	0.175	1.000	0.175	AISC- H1-3	10	8.636	79.800	79.800	159.600
869	PIP89.1X3.2	PIP89.1X3.2	0.074	1.000	0.074	AISC- H1-3	10	8.636	79.800	79.800	159.600
870	PIP89.1X3.2	PIP89.1X3.2	0.151	1.000	0.151	AISC- H1-3	8	8.636	79.800	79.800	159.600
871	PIP89.1X3.2	PIP89.1X3.2	0.216	1.000	0.216	AISC- H2-1	10	8.636	79.800	79.800	159.600
872	PIP89.1X3.2	PIP89.1X3.2	0.105	1.000	0.105	AISC- H2-1	10	8.636	79.800	79.800	159.600
873	PIP89.1X3.2	PIP89.1X3.2	0.149	1.000	0.149	AISC- H1-3	8	8.636	79.800	79.800	159.600
874	PIP48.6X3.2	PIP48.6X3.2	0.086	1.000	0.086	AISC- H2-1	9	4.564	11.800	11.800	23.600
875	PIP48.6X3.2	PIP48.6X3.2	0.085	1.000	0.085	AISC- H2-1	9	4.564	11.800	11.800	23.600
876	PIP48.6X3.2	PIP48.6X3.2	0.088	1.000	0.088	AISC- H2-1	10	4.564	11.800	11.800	23.600
877	PIP48.6X3.2	PIP48.6X3.2	0.165	1.000	0.165	AISC- H1-3	10	4.564	11.800	11.800	23.600
878	PIP48.6X3.2	PIP48.6X3.2	0.138	1.000	0.138	AISC- H1-3	10	4.564	11.800	11.800	23.600
879	PIP48.6X3.2	PIP48.6X3.2	0.130	1.000	0.130	AISC- H1-3	9	4.564	11.800	11.800	23.600
880	PIP48.6X3.2	PIP48.6X3.2	0.126	1.000	0.126	AISC- H1-3	9	4.564	11.800	11.800	23.600
881	PIP89.1X3.2	PIP89.1X3.2	0.323	1.000	0.323	AISC- H1-3	8	8.636	79.800	79.800	159.600
882	PIP89.1X3.2	PIP89.1X3.2	0.345	1.000	0.345	AISC- H2-1	8	8.636	79.800	79.800	159.600
883	PIP89.1X3.2	PIP89.1X3.2	0.135	1.000	0.135	AISC- H2-1	8	8.636	79.800	79.800	159.600
884	PIP89.1X3.2	PIP89.1X3.2	0.191	1.000	0.191	AISC- H2-1	8	8.636	79.800	79.800	159.600
885	PIP89.1X3.2	PIP89.1X3.2	0.349	1.000	0.349	AISC- H2-1	8	8.636	79.800	79.800	159.600
886	PIP89.1X3.2	PIP89.1X3.2	0.193	1.000	0.193	AISC- H2-1	8	8.636	79.800	79.800	159.600
887	PIP89.1X3.2	PIP89.1X3.2	0.149	1.000	0.149	AISC- H2-1	8	8.636	79.800	79.800	159.600
888	PIP89.1X3.2	PIP89.1X3.2	0.332	1.000	0.332	AISC- H1-3	8	8.636	79.800	79.800	159.600
889	PIP48.6X3.2	PIP48.6X3.2	0.111	1.000	0.111	AISC- H2-1	8	4.564	11.800	11.800	23.600
890	PIP48.6X3.2	PIP48.6X3.2	0.091	1.000	0.091	AISC- H2-1	8	4.564	11.800	11.800	23.600
891	PIP48.6X3.2	PIP48.6X3.2	0.080	1.000	0.080	AISC- H2-1	8	4.564	11.800	11.800	23.600
892	PIP48.6X3.2	PIP48.6X3.2	0.183	1.000	0.183	AISC- H1-3	8	4.564	11.800	11.800	23.600
893	PIP48.6X3.2	PIP48.6X3.2	0.125	1.000	0.125	AISC- H1-3	8	4.564	11.800	11.800	23.600
894	PIP48.6X3.2	PIP48.6X3.2	0.135	1.000	0.135	AISC- H1-3	8	4.564	11.800	11.800	23.600
895	PIP48.6X3.2	PIP48.6X3.2	0.195	1.000	0.195	AISC- H1-3	8	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 57	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
896	PIP89.1X3.2	PIP89.1X3.2	0.328	1.000	0.328	AISC- H2-1	8	8.636	79.800	79.800	159.600
897	PIP89.1X3.2	PIP89.1X3.2	0.378	1.000	0.378	AISC- H1-3	8	8.636	79.800	79.800	159.600
898	PIP89.1X3.2	PIP89.1X3.2	0.178	1.000	0.178	AISC- H2-1	8	8.636	79.800	79.800	159.600
899	PIP89.1X3.2	PIP89.1X3.2	0.132	1.000	0.132	AISC- H2-1	8	8.636	79.800	79.800	159.600
900	PIP89.1X3.2	PIP89.1X3.2	0.215	1.000	0.215	AISC- H1-3	8	8.636	79.800	79.800	159.600
901	PIP89.1X3.2	PIP89.1X3.2	0.213	1.000	0.213	AISC- H1-3	8	8.636	79.800	79.800	159.600
902	PIP89.1X3.2	PIP89.1X3.2	0.162	1.000	0.162	AISC- H1-3	8	8.636	79.800	79.800	159.600
903	PIP89.1X3.2	PIP89.1X3.2	0.325	1.000	0.325	AISC- H1-3	8	8.636	79.800	79.800	159.600
904	PIP48.6X3.2	PIP48.6X3.2	0.059	1.000	0.059	AISC- H1-3	8	4.564	11.800	11.800	23.600
905	PIP48.6X3.2	PIP48.6X3.2	0.052	1.000	0.052	AISC- H1-3	8	4.564	11.800	11.800	23.600
906	PIP48.6X3.2	PIP48.6X3.2	0.062	1.000	0.062	AISC- H1-3	8	4.564	11.800	11.800	23.600
907	PIP48.6X3.2	PIP48.6X3.2	0.128	1.000	0.128	AISC- H2-1	8	4.564	11.800	11.800	23.600
908	PIP48.6X3.2	PIP48.6X3.2	0.088	1.000	0.088	AISC- H2-1	8	4.564	11.800	11.800	23.600
909	PIP48.6X3.2	PIP48.6X3.2	0.067	1.000	0.067	AISC- H1-3	9	4.564	11.800	11.800	23.600
910	PIP48.6X3.2	PIP48.6X3.2	0.117	1.000	0.117	AISC- H2-1	8	4.564	11.800	11.800	23.600
911	H150X150X	H150X150X	0.117	1.000	0.117	AISC- H1-3	10	39.650	1.62E+3	563.000	11.500
912	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
913	PIP48.6X3.2	PIP48.6X3.2	1.547	1.000	1.547	AISC- H2-1	10	4.564	11.800	11.800	23.600
914	PIP48.6X3.2	PIP48.6X3.2	0.736	1.000	0.736	AISC- H2-1	10	4.564	11.800	11.800	23.600
915	PIP48.6X3.2	PIP48.6X3.2	0.720	1.000	0.720	AISC- H2-1	10	4.564	11.800	11.800	23.600
916	PIP48.6X3.2	PIP48.6X3.2	1.275	1.000	1.275	AISC- H1-3	10	4.564	11.800	11.800	23.600
917	PIP48.6X3.2	PIP48.6X3.2	1.463	1.000	1.463	AISC- H1-3	10	4.564	11.800	11.800	23.600
918	PIP48.6X3.2	PIP48.6X3.2	0.715	1.000	0.715	AISC- H1-3	10	4.564	11.800	11.800	23.600
919	PIP48.6X3.2	PIP48.6X3.2	0.618	1.000	0.618	AISC- H2-1	10	4.564	11.800	11.800	23.600
920	PIP48.6X3.2	PIP48.6X3.2	1.005	1.000	1.005	AISC- H2-1	10	4.564	11.800	11.800	23.600
921	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
922	PIP48.6X3.2	PIP48.6X3.2	1.069	1.000	1.069	AISC- H1-3	10	4.564	11.800	11.800	23.600
923	PIP48.6X3.2	PIP48.6X3.2	0.654	1.000	0.654	AISC- H2-1	10	4.564	11.800	11.800	23.600
924	PIP48.6X3.2	PIP48.6X3.2	0.731	1.000	0.731	AISC- H2-1	10	4.564	11.800	11.800	23.600
925	PIP48.6X3.2	PIP48.6X3.2	1.560	1.000	1.560	AISC- H2-1	10	4.564	11.800	11.800	23.600
926	PIP48.6X3.2	PIP48.6X3.2	1.360	1.000	1.360	AISC- H2-1	10	4.564	11.800	11.800	23.600
927	PIP48.6X3.2	PIP48.6X3.2	0.758	1.000	0.758	AISC- H2-1	10	4.564	11.800	11.800	23.600
928	PIP48.6X3.2	PIP48.6X3.2	0.715	1.000	0.715	AISC- H1-3	10	4.564	11.800	11.800	23.600
929	PIP48.6X3.2	PIP48.6X3.2	1.592	1.000	1.592	AISC- H1-3	10	4.564	11.800	11.800	23.600
930	PIP48.6X3.2	PIP48.6X3.2	0.735	1.000	0.735	AISC- H2-1	10	4.564	11.800	11.800	23.600
931	PIP48.6X3.2	PIP48.6X3.2	0.654	1.000	0.654	AISC- H2-1	10	4.564	11.800	11.800	23.600
932	PIP48.6X3.2	PIP48.6X3.2	0.772	1.000	0.772	AISC- H2-1	10	4.564	11.800	11.800	23.600
933	PIP48.6X3.2	PIP48.6X3.2	1.089	1.000	1.089	AISC- H2-1	10	4.564	11.800	11.800	23.600
934	PIP48.6X3.2	PIP48.6X3.2	0.758	1.000	0.758	AISC- H1-3	10	4.564	11.800	11.800	23.600
935	PIP48.6X3.2	PIP48.6X3.2	0.660	1.000	0.660	AISC- H1-3	10	4.564	11.800	11.800	23.600
936	PIP48.6X3.2	PIP48.6X3.2	0.739	1.000	0.739	AISC- H1-3	10	4.564	11.800	11.800	23.600
937	PIP48.6X3.2	PIP48.6X3.2	0.966	1.000	0.966	AISC- H1-3	10	4.564	11.800	11.800	23.600
938	PIP48.6X3.2	PIP48.6X3.2	0.834	1.000	0.834	AISC- H1-3	10	4.564	11.800	11.800	23.600
939	PIP48.6X3.2	PIP48.6X3.2	0.813	1.000	0.813	AISC- H1-3	10	4.564	11.800	11.800	23.600
940	PIP48.6X3.2	PIP48.6X3.2	1.049	1.000	1.049	AISC- H1-3	10	4.564	11.800	11.800	23.600
941	PIP48.6X3.2	PIP48.6X3.2	0.996	1.000	0.996	AISC- H2-1	10	4.564	11.800	11.800	23.600
942	PIP48.6X3.2	PIP48.6X3.2	0.786	1.000	0.786	AISC- H2-1	10	4.564	11.800	11.800	23.600
943	PIP48.6X3.2	PIP48.6X3.2	0.826	1.000	0.826	AISC- H2-1	10	4.564	11.800	11.800	23.600
944	PIP48.6X3.2	PIP48.6X3.2	0.960	1.000	0.960	AISC- H2-1	10	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED	Job No Cet-Jk-2012-01	Sheet No 58	Rev 01
Software licensed to odcthailand	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
945	PIP48.6X3.2	PIP48.6X3.2	0.678	1.000	0.678	AISC- H2-1	10	4.564	11.800	11.800	23.600
946	PIP48.6X3.2	PIP48.6X3.2	0.489	1.000	0.489	AISC- H1-3	10	4.564	11.800	11.800	23.600
947	PIP48.6X3.2	PIP48.6X3.2	0.038	1.000	0.038	AISC- H2-1	10	4.564	11.800	11.800	23.600
948	PIP48.6X3.2	PIP48.6X3.2	0.180	1.000	0.180	AISC- H2-1	10	4.564	11.800	11.800	23.600
949	PIP48.6X3.2	PIP48.6X3.2	0.134	1.000	0.134	AISC- H2-1	10	4.564	11.800	11.800	23.600
950	PIP48.6X3.2	PIP48.6X3.2	0.036	1.000	0.036	AISC- H1-3	10	4.564	11.800	11.800	23.600
951	PIP48.6X3.2	PIP48.6X3.2	0.005	1.000	0.005	AISC- H2-1	10	4.564	11.800	11.800	23.600
952	PIP48.6X3.2	PIP48.6X3.2	0.013	1.000	0.013	AISC- H2-1	10	4.564	11.800	11.800	23.600
953	PIP48.6X3.2	PIP48.6X3.2	0.206	1.000	0.206	AISC- H2-1	10	4.564	11.800	11.800	23.600
954	PIP48.6X3.2	PIP48.6X3.2	0.047	1.000	0.047	AISC- H1-3	10	4.564	11.800	11.800	23.600
955	PIP48.6X3.2	PIP48.6X3.2	0.082	1.000	0.082	AISC- H1-3	10	4.564	11.800	11.800	23.600
956	PIP48.6X3.2	PIP48.6X3.2	0.371	1.000	0.371	AISC- H1-3	10	4.564	11.800	11.800	23.600
957	PIP48.6X3.2	PIP48.6X3.2	0.239	1.000	0.239	AISC- H2-1	10	4.564	11.800	11.800	23.600
958	PIP48.6X3.2	PIP48.6X3.2	0.102	1.000	0.102	AISC- H1-3	10	4.564	11.800	11.800	23.600
959	PIP48.6X3.2	PIP48.6X3.2	0.041	1.000	0.041	AISC- H2-1	10	4.564	11.800	11.800	23.600
960	PIP48.6X3.2	PIP48.6X3.2	0.160	1.000	0.160	AISC- H2-1	10	4.564	11.800	11.800	23.600
961	PIP48.6X3.2	PIP48.6X3.2	0.124	1.000	0.124	AISC- H2-1	10	4.564	11.800	11.800	23.600
962	PIP48.6X3.2	PIP48.6X3.2	0.028	1.000	0.028	AISC- H1-3	10	4.564	11.800	11.800	23.600
963	PIP48.6X3.2	PIP48.6X3.2	0.006	1.000	0.006	AISC- H2-1	10	4.564	11.800	11.800	23.600
964	PIP48.6X3.2	PIP48.6X3.2	0.026	1.000	0.026	AISC- H2-1	10	4.564	11.800	11.800	23.600
965	PIP48.6X3.2	PIP48.6X3.2	0.046	1.000	0.046	AISC- H2-1	10	4.564	11.800	11.800	23.600
966	PIP48.6X3.2	PIP48.6X3.2	0.049	1.000	0.049	AISC- H1-3	10	4.564	11.800	11.800	23.600
967	PIP48.6X3.2	PIP48.6X3.2	0.065	1.000	0.065	AISC- H1-3	10	4.564	11.800	11.800	23.600
968	PIP48.6X3.2	PIP48.6X3.2	0.110	1.000	0.110	AISC- H1-3	10	4.564	11.800	11.800	23.600
969	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
970	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
971	PIP48.6X3.2	PIP48.6X3.2	1.016	1.000	1.016	AISC- H2-1	9	4.564	11.800	11.800	23.600
972	PIP48.6X3.2	PIP48.6X3.2	0.476	1.000	0.476	AISC- H2-1	9	4.564	11.800	11.800	23.600
973	PIP48.6X3.2	PIP48.6X3.2	0.475	1.000	0.475	AISC- H2-1	9	4.564	11.800	11.800	23.600
974	PIP48.6X3.2	PIP48.6X3.2	0.843	1.000	0.843	AISC- H1-3	9	4.564	11.800	11.800	23.600
975	PIP48.6X3.2	PIP48.6X3.2	0.974	1.000	0.974	AISC- H1-3	9	4.564	11.800	11.800	23.600
976	PIP48.6X3.2	PIP48.6X3.2	0.464	1.000	0.464	AISC- H1-3	9	4.564	11.800	11.800	23.600
977	PIP48.6X3.2	PIP48.6X3.2	0.409	1.000	0.409	AISC- H2-1	9	4.564	11.800	11.800	23.600
978	PIP48.6X3.2	PIP48.6X3.2	0.671	1.000	0.671	AISC- H2-1	9	4.564	11.800	11.800	23.600
979	Rect 0.30x0.	N/A						900.000	67.5E+3	67.5E+3	114E+3
980	PIP48.6X3.2	PIP48.6X3.2	0.669	1.000	0.669	AISC- H1-3	9	4.564	11.800	11.800	23.600
981	PIP48.6X3.2	PIP48.6X3.2	0.412	1.000	0.412	AISC- H2-1	9	4.564	11.800	11.800	23.600
982	PIP48.6X3.2	PIP48.6X3.2	0.470	1.000	0.470	AISC- H2-1	9	4.564	11.800	11.800	23.600
983	PIP48.6X3.2	PIP48.6X3.2	0.979	1.000	0.979	AISC- H2-1	9	4.564	11.800	11.800	23.600
984	PIP48.6X3.2	PIP48.6X3.2	0.859	1.000	0.859	AISC- H2-1	9	4.564	11.800	11.800	23.600
985	PIP48.6X3.2	PIP48.6X3.2	0.479	1.000	0.479	AISC- H2-1	9	4.564	11.800	11.800	23.600
986	PIP48.6X3.2	PIP48.6X3.2	0.461	1.000	0.461	AISC- H1-3	9	4.564	11.800	11.800	23.600
987	PIP48.6X3.2	PIP48.6X3.2	1.008	1.000	1.008	AISC- H1-3	9	4.564	11.800	11.800	23.600
988	PIP48.6X3.2	PIP48.6X3.2	0.475	1.000	0.475	AISC- H2-1	9	4.564	11.800	11.800	23.600
989	PIP48.6X3.2	PIP48.6X3.2	0.424	1.000	0.424	AISC- H2-1	9	4.564	11.800	11.800	23.600
990	PIP48.6X3.2	PIP48.6X3.2	0.496	1.000	0.496	AISC- H2-1	9	4.564	11.800	11.800	23.600
991	PIP48.6X3.2	PIP48.6X3.2	0.707	1.000	0.707	AISC- H2-1	9	4.564	11.800	11.800	23.600
992	PIP48.6X3.2	PIP48.6X3.2	0.492	1.000	0.492	AISC- H1-3	9	4.564	11.800	11.800	23.600
993	PIP48.6X3.2	PIP48.6X3.2	0.424	1.000	0.424	AISC- H1-3	9	4.564	11.800	11.800	23.600

CET ENGINEERING COMPANY LIMITED Software licensed to odcthailand	Job No Cet-Jk-2012-01	Sheet No 59	Rev 01
	Part Truss 1/2/3		
Job Title Cet-Jk-2012-01	Ref 01		
	By PAP	Date 16-Jul-12	Chd PAB
Client Jk	File Je Pai Khaosaming.std	Date/Time 16-Jul-2012 13:24	

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm^2)	Iz (cm^4)	Iy (cm^4)	Ix (cm^4)
994	PIP48.6X3.2	PIP48.6X3.2	0.477	1.000	0.477	AISC- H1-3	9	4.564	11.800	11.800	23.600
995	PIP48.6X3.2	PIP48.6X3.2	0.627	1.000	0.627	AISC- H1-3	9	4.564	11.800	11.800	23.600
996	PIP48.6X3.2	PIP48.6X3.2	0.541	1.000	0.541	AISC- H1-3	9	4.564	11.800	11.800	23.600
997	PIP48.6X3.2	PIP48.6X3.2	0.522	1.000	0.522	AISC- H1-3	9	4.564	11.800	11.800	23.600
998	PIP48.6X3.2	PIP48.6X3.2	0.670	1.000	0.670	AISC- H1-3	9	4.564	11.800	11.800	23.600
999	PIP48.6X3.2	PIP48.6X3.2	0.651	1.000	0.651	AISC- H2-1	9	4.564	11.800	11.800	23.600
1000	PIP48.6X3.2	PIP48.6X3.2	0.510	1.000	0.510	AISC- H2-1	9	4.564	11.800	11.800	23.600
1001	PIP48.6X3.2	PIP48.6X3.2	0.530	1.000	0.530	AISC- H2-1	9	4.564	11.800	11.800	23.600
1002	PIP48.6X3.2	PIP48.6X3.2	0.616	1.000	0.616	AISC- H2-1	9	4.564	11.800	11.800	23.600
1003	PIP48.6X3.2	PIP48.6X3.2	0.430	1.000	0.430	AISC- H2-1	9	4.564	11.800	11.800	23.600
1004	PIP48.6X3.2	PIP48.6X3.2	0.317	1.000	0.317	AISC- H1-3	9	4.564	11.800	11.800	23.600
1005	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H1-3	8	4.564	11.800	11.800	23.600
1006	PIP48.6X3.2	PIP48.6X3.2	0.122	1.000	0.122	AISC- H1-3	8	4.564	11.800	11.800	23.600
1007	PIP48.6X3.2	PIP48.6X3.2	0.092	1.000	0.092	AISC- H1-3	8	4.564	11.800	11.800	23.600
1008	PIP48.6X3.2	PIP48.6X3.2	0.024	1.000	0.024	AISC- H1-3	9	4.564	11.800	11.800	23.600
1009	PIP48.6X3.2	PIP48.6X3.2	0.005	1.000	0.005	AISC- H1-3	8	4.564	11.800	11.800	23.600
1010	PIP48.6X3.2	PIP48.6X3.2	0.009	1.000	0.009	AISC- H2-1	9	4.564	11.800	11.800	23.600
1011	PIP48.6X3.2	PIP48.6X3.2	0.133	1.000	0.133	AISC- H2-1	9	4.564	11.800	11.800	23.600
1012	PIP48.6X3.2	PIP48.6X3.2	0.029	1.000	0.029	AISC- H1-3	9	4.564	11.800	11.800	23.600
1013	PIP48.6X3.2	PIP48.6X3.2	0.053	1.000	0.053	AISC- H1-3	9	4.564	11.800	11.800	23.600
1014	PIP48.6X3.2	PIP48.6X3.2	0.239	1.000	0.239	AISC- H1-3	9	4.564	11.800	11.800	23.600
1015	PIP48.6X3.2	PIP48.6X3.2	0.165	1.000	0.165	AISC- H1-3	8	4.564	11.800	11.800	23.600
1016	PIP48.6X3.2	PIP48.6X3.2	0.068	1.000	0.068	AISC- H1-3	9	4.564	11.800	11.800	23.600
1017	PIP48.6X3.2	PIP48.6X3.2	0.030	1.000	0.030	AISC- H1-3	8	4.564	11.800	11.800	23.600
1018	PIP48.6X3.2	PIP48.6X3.2	0.111	1.000	0.111	AISC- H1-3	8	4.564	11.800	11.800	23.600
1019	PIP48.6X3.2	PIP48.6X3.2	0.086	1.000	0.086	AISC- H1-3	8	4.564	11.800	11.800	23.600
1020	PIP48.6X3.2	PIP48.6X3.2	0.019	1.000	0.019	AISC- H1-3	9	4.564	11.800	11.800	23.600
1021	PIP48.6X3.2	PIP48.6X3.2	0.006	1.000	0.006	AISC- H1-3	8	4.564	11.800	11.800	23.600
1022	PIP48.6X3.2	PIP48.6X3.2	0.017	1.000	0.017	AISC- H2-1	9	4.564	11.800	11.800	23.600
1023	PIP48.6X3.2	PIP48.6X3.2	0.030	1.000	0.030	AISC- H2-1	9	4.564	11.800	11.800	23.600
1024	PIP48.6X3.2	PIP48.6X3.2	0.030	1.000	0.030	AISC- H1-3	9	4.564	11.800	11.800	23.600
1025	PIP48.6X3.2	PIP48.6X3.2	0.042	1.000	0.042	AISC- H1-3	9	4.564	11.800	11.800	23.600
1026	PIP48.6X3.2	PIP48.6X3.2	0.072	1.000	0.072	AISC- H1-3	9	4.564	11.800	11.800	23.600

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39/340 Moo.3 Taladkwan Muang Nonthaburi Nonthaburi T.084-4496-777

Project :
Owner :
Location :

เกณฑ์การออกแบบ

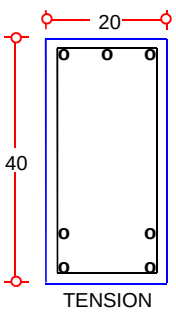
คอนกรีตเสริมเหล็ก	=	EIT 1007-34	
fc'	=	240	กก/ตร.ซม.
fc	=	108.00	กก/ตร.ซม.
USE	=	108.00	กก/ตร.ซม.
fs (RB)	=	1,200	กก/ตร.ซม.
fs (DB)	=	1,500	กก/ตร.ซม.
n	=	8.650	
USE n	=	9.000	
k RB	=	0.448	(ROUND BAR)
k DB	=	0.393	(DEFORMED BAR)
R RB	=	20.56	kg./sq.cm.
R DB	=	18.45	kg./sq.cm.
j RB	=	0.851	(ROUND BAR)
j DB	=	0.869	(DEFORMED BAR)
Vc = 0.29SQRT(fc')	=	4.49	กก/ตร.ซม.
Vcs = 0.53SQRT(fc')	=	8.21	กก/ตร.ซม.
u = 2.29SQRT(fc')/D	=	29.56	กก/ตร.ซม.สำหรับเหล็กเสริมบน
u = 3.23SQRT(fc')/D	=	41.70	กก/ตร.ซม.สำหรับเหล็กเสริมล่าง

Simple Beam **B-2**

TRY B	=	20	cm.	f's	=	1543.14	ksc.
T	=	40	cm.	Mr	=	5051.62	kg-m.
SPAN	=	6.25	m.	Vc	=	3324.57	kg
BEAM	=	192	kg./m.	M'	=	-2893.42	kg-m.
wall	=	250	kg./m.	ASR	=	4.48	cm2
Floor+LL	=	0	kg./m.	AS1	=	0.00	cm2
P	=	0	kg.	ASC	=	0.00	cm2
Wtotal	=	442	kg./m.	AST	=	4.48	cm2
M	=	2158	kg.m	V'	=	-1943.32	kg
V	=	1381	kg.	S	=	-12.93	cm.
R	=	18.45		**Asc**	=	**0.00**	cm^2
d'	=	3.00	cm.	**Ast**	=	**4.48**	cm^2
d	=	37.00	cm.				

MOMENT FACTOR
M^+ = 8

B-2



3	DB	12		**PASS_OK**
			As= 3.39	cm^2
1	ป	6	@ 20	cm.
2	DB	12	**เสริมพิเศษ**	
2	DB	12	As= 4.53	cm^2
			PASS_OK	

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CET ENGINEERING COMPANY LIMITED
Email: indy-engineer@live.com
CET ENGINEERING COMPANY LIMITED
39/340 Moo.3 Taladkwan Muang Nonthaburi Nonthaburi T.084-4496-777

		PAVEMENT	
Project :	แบบอาคาร คสล.1 ชั้น และโครงหลังคาเหล็ก	Date	16/7/2012 14:45
Owner :	นางสาวชุติญา หลิมปิชาติ	Made by / Checked / Sheet no.	
Location :	อ.เขาสมิง จ.ตราด	PAP / /	1

Formula 3.20 refer to Principles of pavement design by E.J. Yoder

fc = W*L*f/24h

fc = unit stress in the concrete in psi

W = weight of slab, psf 12.5 lb/ft^2 12.5 lb/ft^2

L = length of slab in feet

f = average coefficient of subgradebresistance,1.50

h = depth of slab in inch 6 inch

		L = 4.0 m	L = 4.3 m	L = 4.5 m	L = 5.0 m	
fc	=	10.25	11.02	11.53	12.82	psi
fc	=	145.85	156.79	164.08	182.31	ksc
fc'	=	324.11	348.42	364.63	405.14	ksc
Joint shall be provide		4.0 m	4.3 m	4.5 m	5.0 m	

Design strength of concrete shall be 350 ksc ***

W(DL)	=	74	lb/sq.ft
l	=	13.1	ft (4- 5 m)
fs	=	46,086	psi (5400 ksc)

The coefficient of friction between the slab of subgrade = 2.0, then

As req'd	=	l*W/fs	inch^2/ft
	=	0.0210	inch^2/ft
	=	0.44	cm^2/m
Wire mesh Use Ø 4 @0.20 m	=	0.63	cm^2/m OK***

Formula 3.20 refer to Principles of pavement design by E.J. Yoder

fc = W*L*f/24h

fc = unit stress in the concrete in psi

W = weight of slab, psf 12.5 lb/ft^2 12.5 lb/ft^2

L = length of slab in feet

f = average coefficient of subgradebresistance,1.50

h = depth of slab in inch 6 inch

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CET ENGINEERING COMPANY LIMITED
39/340 Moo.3 Taladkwan Muang Nonthaburi Nonthaburi T.084-4496-777

Project :	แบบอาคาร คสล.1 ชั้น และโครงหลังคาเหล็ก	PAVEMENT	
Owner :	นางสาวชุติญา หลิมปิชาติ	Date	16/7/2012 14:45
Location :	อ.เขาสมิง จ.ตราด	Made by: PAP	Checked:	Sheet no.: 2

		L = 4.0m	L = 4.3 m	L = 4.5 m	L = 5.0 m	
fc	=	10.25	11.02	11.53	12.82	psi
fc	=	145.85	156.79	164.08	182.31	ksc
fc'	=	324.11	348.42	364.63	405.14	ksc
Joint shall be provided @		4.0 m	4.3 m	4.5 m	5.0 m	

Wire mesh As req'd = $L*C_f*w*h/24fs$

Where : As = area of steel required per foot of width of slab, sq.in.

L = distance between (untied) joint,ft

Cf = Coefficient of subgrade or subbase resistance to slab movement,1.5

w = weight of concrete,lb/cuft(150 pcf for normal concrete

h = slab thicknessd,in.

fs = allowable working stress in the steel,psi

fy = 70,000 psi

fy=70ksi From A.3.2 of ACI 318-99,Tensile stress in reinforcement ,fs =0.75fy = 52,500 psi

	As req'd	=	0.024	sq.in./ft	0.502	cm^2/m
Ø 6@200	As used	=	0.067	sq.in./ft	1.413	cm^2/m
Ø 5@200	As used	=	0.046	sq.in./ft	0.981	cm^2/m
Ø 4@200	As used	=	0.030	sq.in./ft	0.628	cm^2/m ***

fy=60ksi From A.3.2 of ACI 318-99,Tensile stress in reinforcement ,fs =0.75fy = 45,000 psi

	As req'd	=	0.028	sq.in./ft	0.586	cm^2/m
Ø 6@200	As used	=	0.067	sq.in./ft	1.413	cm^2/m
Ø 5@200	As used	=	0.046	sq.in./ft	0.981	cm^2/m
Ø 4@200	As used	=	0.030	sq.in./ft	0.628	cm^2/m ***

Joints Summary

Contraction joint Shall be provide @4.00 m interval
Dowel RB25x0.30@0.30

Construction joint Shall be provide @4.00 m interval
Dowel RB25x0.30@0.30

Expansion joint Shall be provide @40.00 m interval
Dowel RB25x0.30@0.30

Longitudinal joint Shall be provide @10.00-20.00 m interval
Dowel DB16x0.30@0.30

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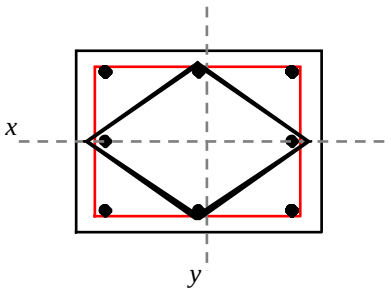
Project :	
Owner :	
Location :	

Date :	16/7/2012
Col. No :	C-1
Floor :	ALL

Bi-axial Column Design

Constant :

Yeild Stress, fy (ksc)	=	3,000
Elastic Modulus of Steel, Es (ksc)	=	2,040,000
Comp. Stress of Concrete, fc' (ksc)	=	240
Allowable Stress of Steel, fs (ksc)	=	1,500
Elastic Modulus of Concrete, Ec (ksc)	=	2.36E+05

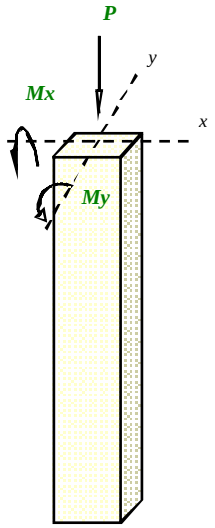


DRAWING

Column Dimension = 0.3 x 0.3 m.
Main Bars = 8 - DB12 mm.
Stirrup = 2RB6 mm. @0.2m.

Input :

Bx (m)		=	0.30	
Ty (m)		=	0.30	
Column Length, L (m)		=	6.40	
Column Load, Pcol (kg)		=	10,000	
Moment X, Mx (kg-m)		=	500	
Moment Y, My (kg-m)		=	500	
Main Bars Steel Type :	DB12	x	8	Bars
Stirrup Steel Type :	RB6		Pg = 1.005%	
Use Bars along x-Axis	Max=10	=	3	Bars
Use Bars along y-Axis	Max=10	=	3	Bars
Concrete Covering, c (m)		=	0.030	



Solve:

Ratio L/r	=	21.33
Type of Column	=	Slender Col.

Case 1 : e<ea (compression control)

Pa = ** N/A ** kg

Case 2 : ea<=e<=eb (compression control)

fa/Fa+fbx/Fbx+fby/Fby = 0.29 < 1 --- OK

Case 3 : e>eb (tension control)

Mx/Mox+My/Moy = ** N/A **

Engineer: ปณิธิ พรหมสาขา ณ สกลนคร
Licence: สย.9187

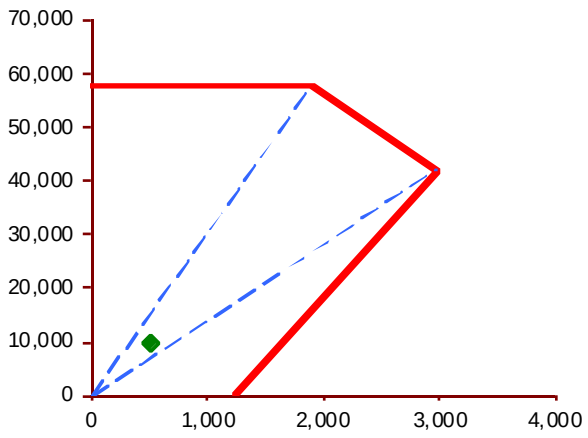
Spacing of Stirrup :

RB6 mm. @ 0.192 m.

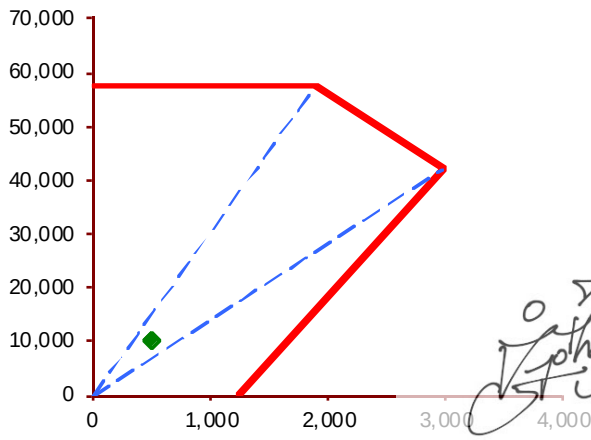
Use 2 RB6 mm. @ 0.20 m.

Interaction Diagram

X-Axis



Y-Axis



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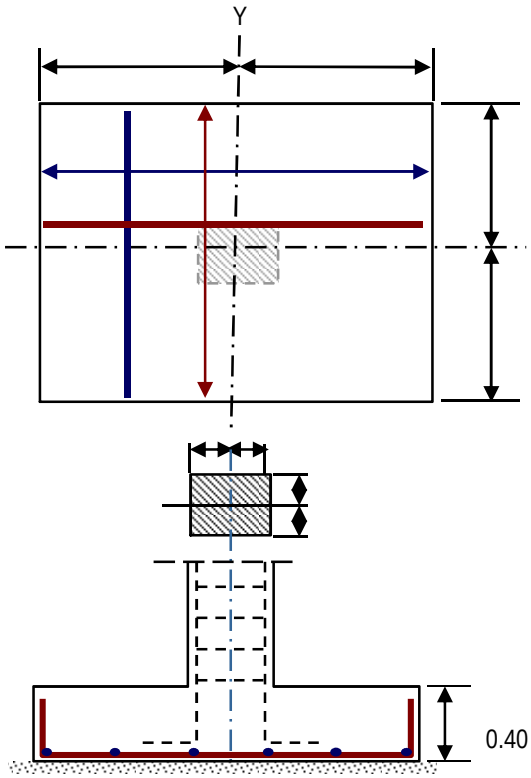
สย.9187 T.084-449-6777

ตารางคำนวณออกแบบฐานรากแผ่โดยวิธีหน่วยแรงใช้งาน

โครงการ แฟ้มข้อมูล

โดย 07/16/12 02:51 PM

ฐานรากหมายเลข F-1 ตำแหน่ง



X= 2.00 m.

Y= 2.00 m.

วัสดุ และกลสมบัติ

เหล็กชั้นคุณภาพ	SD xx หรือ SR xx	:	SD 30	
หน่วยแรงใช้งานของเหล็กเสริม, fs		:	1,500	กิโลกรัมต่อตารางเซนติเมตร
โมดูลัสยืดหยุ่นของเหล็กเสริม		:	2,040,000	กิโลกรัมต่อตารางเซนติเมตร
กำลังอัดประลัยของคอนกรีต, fc'		:	240	กิโลกรัมต่อตารางเซนติเมตร
ตัวคูณ		:	0.45	
หน่วยแรงใช้งานของคอนกรีต, fc		:	108.00	กิโลกรัมต่อตารางเซนติเมตร
โมดูลัสยืดหยุ่นของคอนกรีต	Ec = 15,210·fc'^0.5	:	235,632	กิโลกรัมต่อตารางเซนติเมตร
n	= Es/E โดยที่ Es = 2,040,000 ksc	:	9	
k	= 1/[1+fs/(n·fc)]	:	0.393	
j	= 1 - k/3	:	0.869	
R	= fc/2·j·k	:	18.45	กิโลกรัมต่อตารางเซนติเมตร

ขนาดฐานราก และตอม่อ

ความกว้างเสา (แกน X), a	:	0.30	เมตร
ความยาวเสา (แกน Y), b	:	0.30	เมตร
ความกว้างฐานราก (แกน X), B	:	2.00	7
ความยาวฐานราก (แกน Y), T	:	2.00	เมตร
ความลึก, D	:	0.40	เมตร
ระยะหุ้ม	:	0.08	เมตร
ความลึกต่ำสุด, Dmin	:	0.08	ใช้ได้
น้ำหนักฐานราก	:	3,840	กิโลกรัม
แรงตามแกน	:	10,000	kg

		เกิดจริง	ยอมให้	
แรงแบกทานของดิน (ต้นต่อตารางเมตร)	:	3,460	10,000	ใช้ได้ กิโลกรัม

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		รอบแกน X	รอบแกน Y	
โมเมนต์ดัดรอบแกน	:	0	500	
หน่วยแรงสูงสุด, P/A + M/c./I.	:	3,460	3,835	กิโลกรัมต่อตารางเมตร
หน่วยแรงต่ำสุด, P/A - M/c./I.	:	3,460	3,085	กิโลกรัมต่อตารางเมตร
		ใช้ได้	ใช้ได้	
หน่วยแรงที่ขอบเสา		3,460	3,516	กิโลกรัมต่อตารางเมตร
หน่วยแรงที่ d/2		3,460	3,576	กิโลกรัมต่อตารางเมตร
หน่วยแรงที่ d		3,460	3,636	กิโลกรัมต่อตารางเมตร
โมเมนต์ดัดรอบแกนรวม	:	2,500	2,694	กิโลกรัม-เมตร
แรงเฉือนสำหรับคำนวณแรงยึดหน่วง // แกน x และแกนy		5,882	6,249	กิโลกรัม
แรงเฉือนสำหรับแบบคาน Vd // แกน x และ y		3,758	3,967	กิโลกรัม
แรงเฉือนแบบเจาะทะลุ Vp		6,283	6,621	กิโลกรัม
เหล็กเสริม และกำลังของหน้าตัด				
ขนาดเหล็กเสริม	:	12	12	
จำนวนเส้น		15	15	#
ปริมาณเหล็กเสริม	:	16.96	16.96	ตารางเซนติเมตร
ความลึกประสิทธิผล, d	:	0.31	0.32	เมตร
MR = $R \cdot b \cdot d^2$	:	34,778	37,550	กิโลกรัม-เมตร
	:	singly	singly	ใช้ได้
As = M/[fs·j·d]	:	6.25	6.48	ตารางเซนติเมตร
	:	ใช้ได้	ใช้ได้	
As-temp = [0.0018/0.0020/0.0025]·(b or t)·D	:	16.00	16.00	ตารางเซนติเมตร
	:	ใช้ได้	ใช้ได้	
vd = Vd/Td หรือ Vd/Bd	:	0.61	0.62	กิโลกรัมต่อตารางเซนติเมตร
vc = 0.29·[f'c]^0.5	:	4.49	4.49	กิโลกรัมต่อตารางเซนติเมตร
		ใช้ได้	ใช้ได้	
vp, vc = 0.53·[f'c]^0.5	:	1.69	8.21	กิโลกรัมต่อตารางเซนติเมตร
	:		ใช้ได้	
เส้นรอบรูป เพื่อถ่ายเทแรงยึดหน่วง				
หน่วยแรงยึดหน่วงยอมให้ < 11 (RB) or < 35 (DB)	:	35.00	35.00	กิโลกรัมต่อตารางเซนติเมตร
เส้นรอบรูปที่ต้องการ	:	6.30	6.44	เซนติเมตร
เส้นรอบรูปเหล็กเสริมจริง	:	56.55	56.55	เซนติเมตร

หมายเหตุ (1) โมเมนต์รอบแกน X จะคำนวณได้เหล็กเสริมตามยาว (ตั้งฉากแกน X หรือขนานแกน Y) หรือกลับกัน

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