REPUBLIC OF INDONESIA

MINISTRY OF COMMUNICATIONS
DIRECTORATE GENERAL OF LAND TRANSPORT
AND INLAND WATERWAYS

TENDER DOCUMENTS
FOR
NEW RAILWAY LINE FOR CENGKARENG AIRPORT CONSTRUCTION PROJECT

STRUCTURAL CALCULATION SHEETS

PACKAGE I CIVIL AND ARCHITECTURAL WORK

9 of 11

AUGUST 1984

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

STRUCTURAL CALCULATION SHEETS

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§§ 14. BUILDINGS

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§ 1 GENERAL

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ii) BOOKING OFFICE

iii) TERMINAL BUILDING

b) KOTAINTAN STATION

i) ROOF

ii) STATION BUILDING

c) SIGNAL CABIN

i) TYPE (A)

ii) TYPE (B)

d) WATCHMAN'S BOX

(2) DESIGN OF BUILDINGS

1) AIRPORT TERMINAL STATION

a) ROOF

i) STRUCTURE	:	STEEL STRUCTURE
ii) STORY	:	1
iii) ROOF FINISH	:	ROOF TILE DECK PLATE.
iv) METHOD	:	RIGID FRAME STRUCTURE.

b) BOOKING OFFICE

i) STRUCTURE	:	REINFORCED CONCRETE
ii) STORY	:	1
iii) ROOF FINISH	:	MORTAR ASHALT WATER PROOF MORTAR
iv) METHOD	:	RIGID FRAME STRUCTURE

c) TERMINAL BLD

i) STRUCTURE : REINFORCED CONCRETE

ii) STORY : 3

iii) ROOF FINISH : SAME AS BOOKING OFFICE

iv) WALL : BRICK AND CONCRETE

v) METHOD : RIGID FRAME STRUCTURE

2) KOTAINTAN STATION

a) ROOF

i) STRUCTURE : STEEL STRUCTURE

ii) STORY : 1

iii) ROOF FINISH : CORRUGATED ASBESTOS CEMENT TILE

iv) METHOD : RIGID FRAME STRUCTURE

b) STATION BLD

i) STRUCTURE : REINFORCED CONCRETE

ii) STORY : 2

iii) ROOF FINSH : SAME AS BOOKING OFFICE

iv) WALL : BRICK

v) METHOD : RIGID FRAME STRUCTURE

3) SIGNAL CABIN : TYPE(A), TYPE (B)

i) STRUCTURE : REINFORCED CONCRETE

ii) STORY : 2

iii) ROOF FINISH : ROOF TILE

iv) WALL : MORTAR

v) METHOD : RIGID FRAME STRUCTURE

4) WATCHMAN'S BOX

i) STRUCTURE : REINFORCED CONCRETE WALL STRUCTURE

ii) STORY : 1

iii) ROOF FINISH : SAME AS BOOKING OFFICE

iv) WALL : MORTAR

v) METHOD : WALL STRUCTURE

(3) MATERIALS (JIS)

a) REINFORCE CONCRETE : FC-210

b) STEEL BAR : SD30
SR24

c) STEEL : SS41
SSC41

d) PILE : PC PILE (A)
φ350.

(4) METHOD OF DESIGN.

a) EARTH QUAKE LOAD

THE REGULATION FOR EARTHQUAKE RESISTANT DESIGN OF BUILDING IN INDONISIA.

(1) $H < 10\,m$ $\quad K_0 = 0.1$

(2) $10\,m < H < 40\,m$ $\quad m \dfrac{k_m}{K_0} = 1 + 0.05H$

$$k_0 = \frac{1}{10 + 0.1H}$$

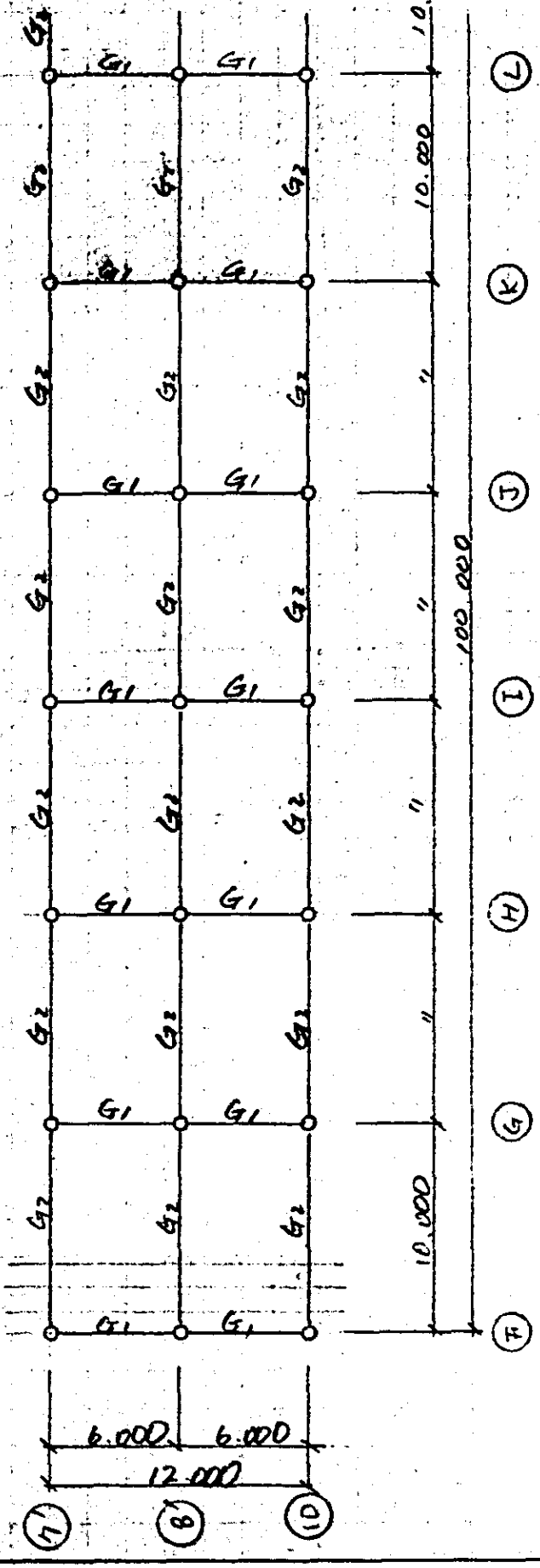
$$k_m = (1 + 0.05H)\, K_0 H$$

b) WIND LOAD.

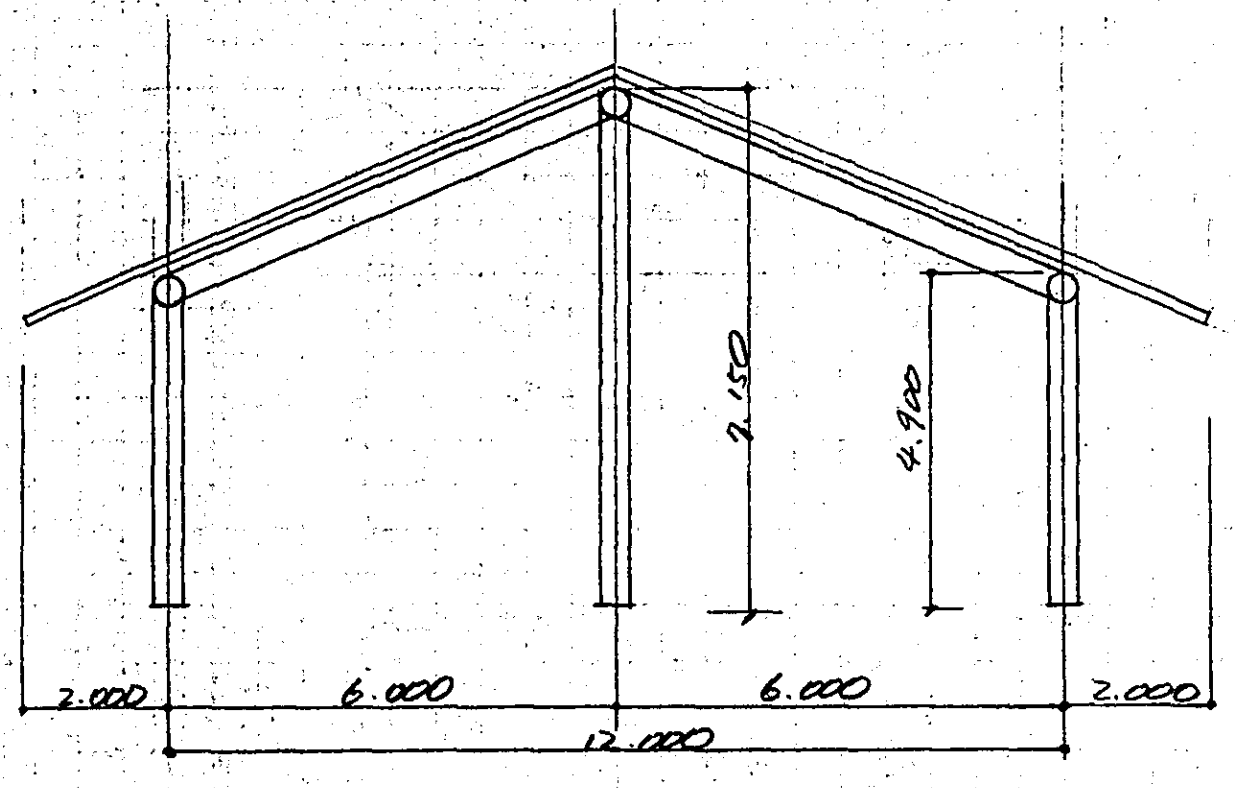
SAME a)

$$P = \frac{1}{16} V^2$$

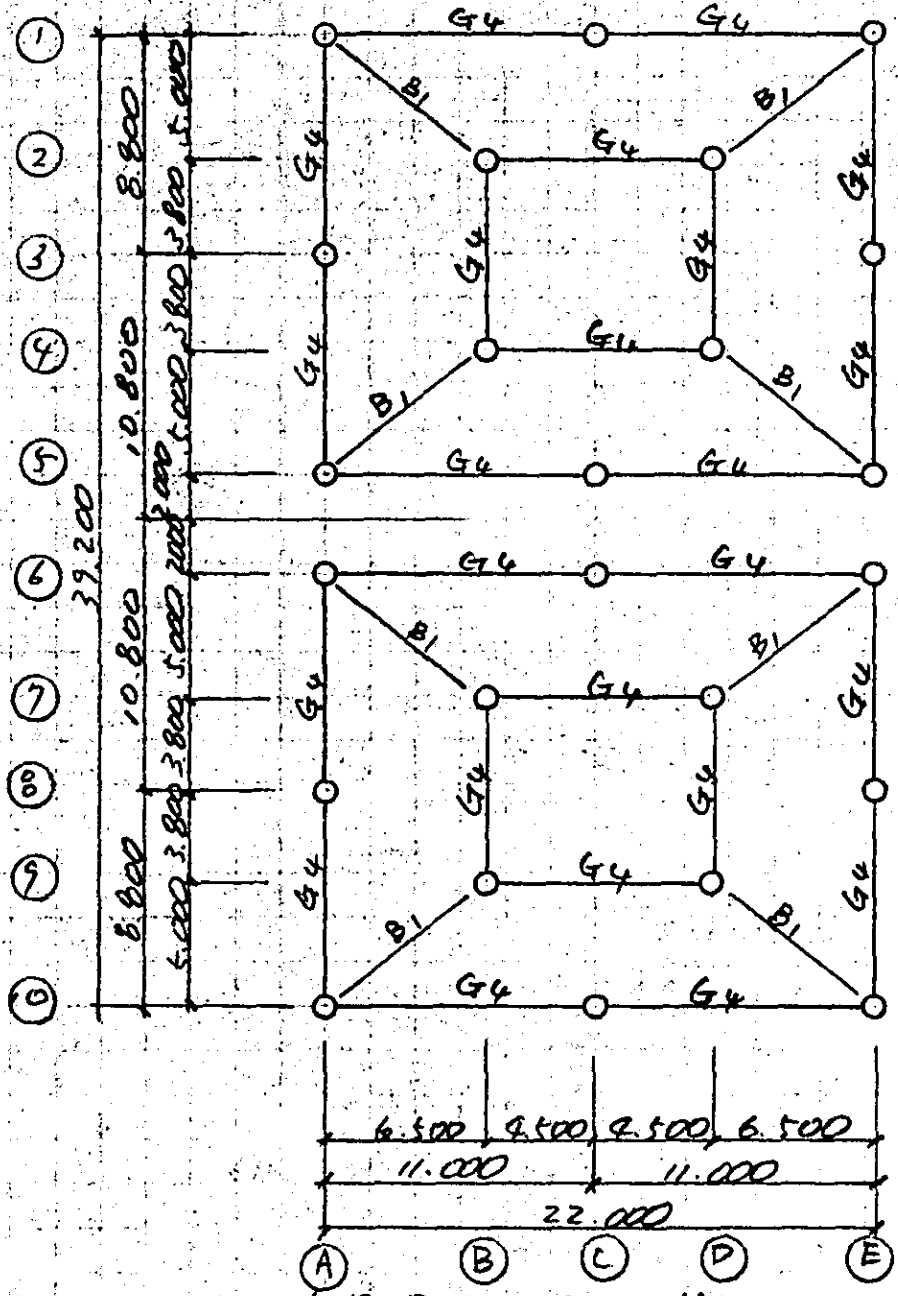
3.2 PLAN & ELEVATION



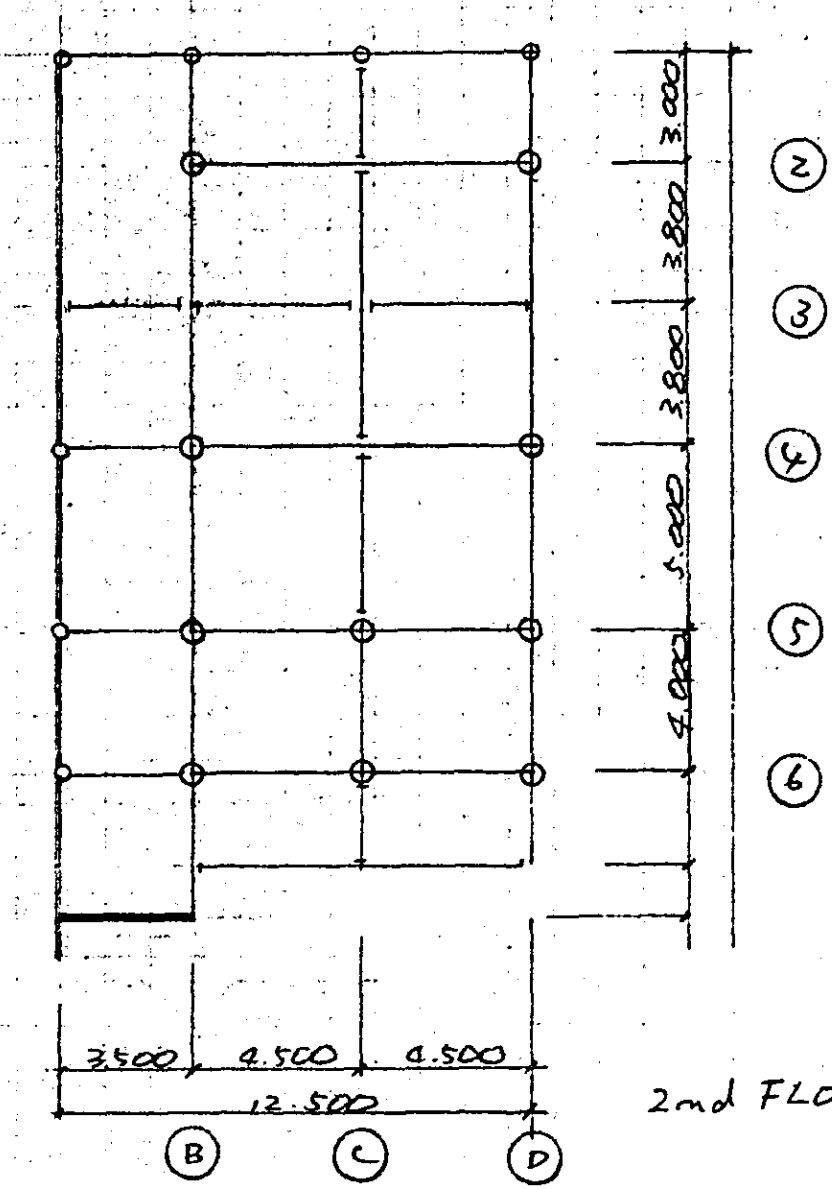
AIR PORT TERMINAL BLD ROOF PLAN



AIR TERMINAL BLD ROOF
FRAMING ELEVATION



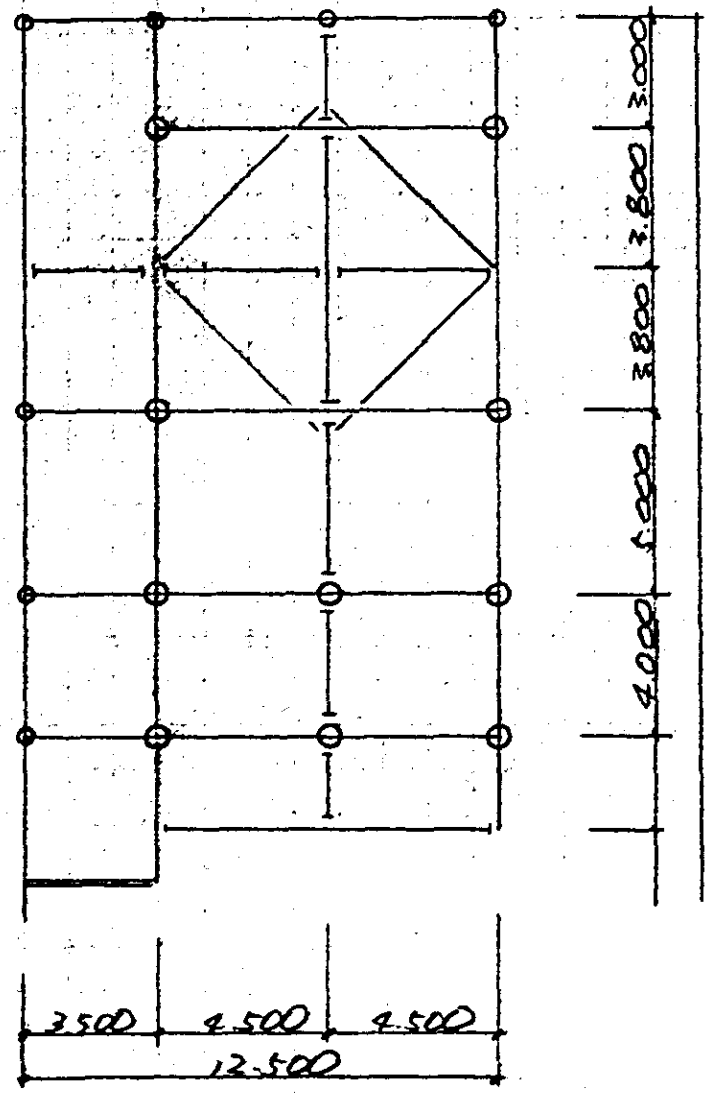
AIR PORT TERMINAL BLD
ROOF PLAN



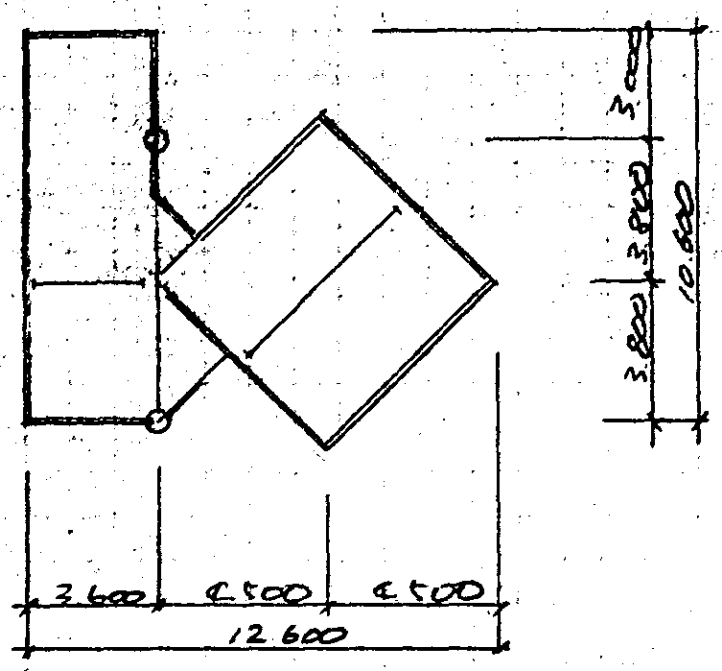
2nd FLOOR PLAN

AIR PORT TERMINAL BLD

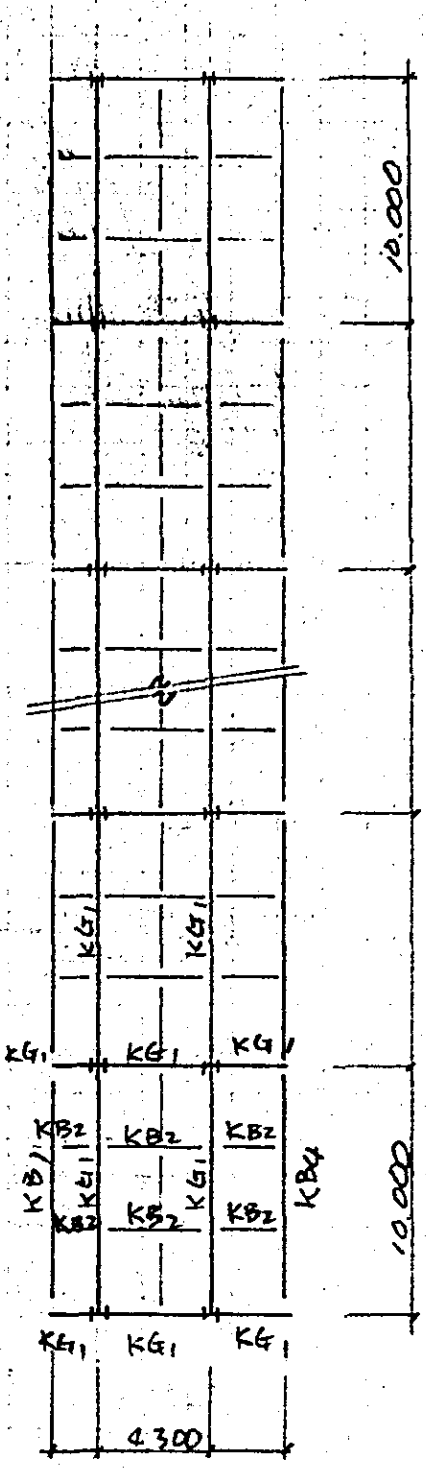
TERMINAL BLD

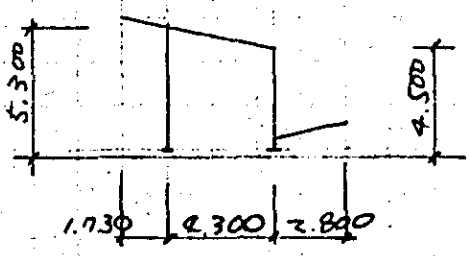


3-rd FLOOR PLAN

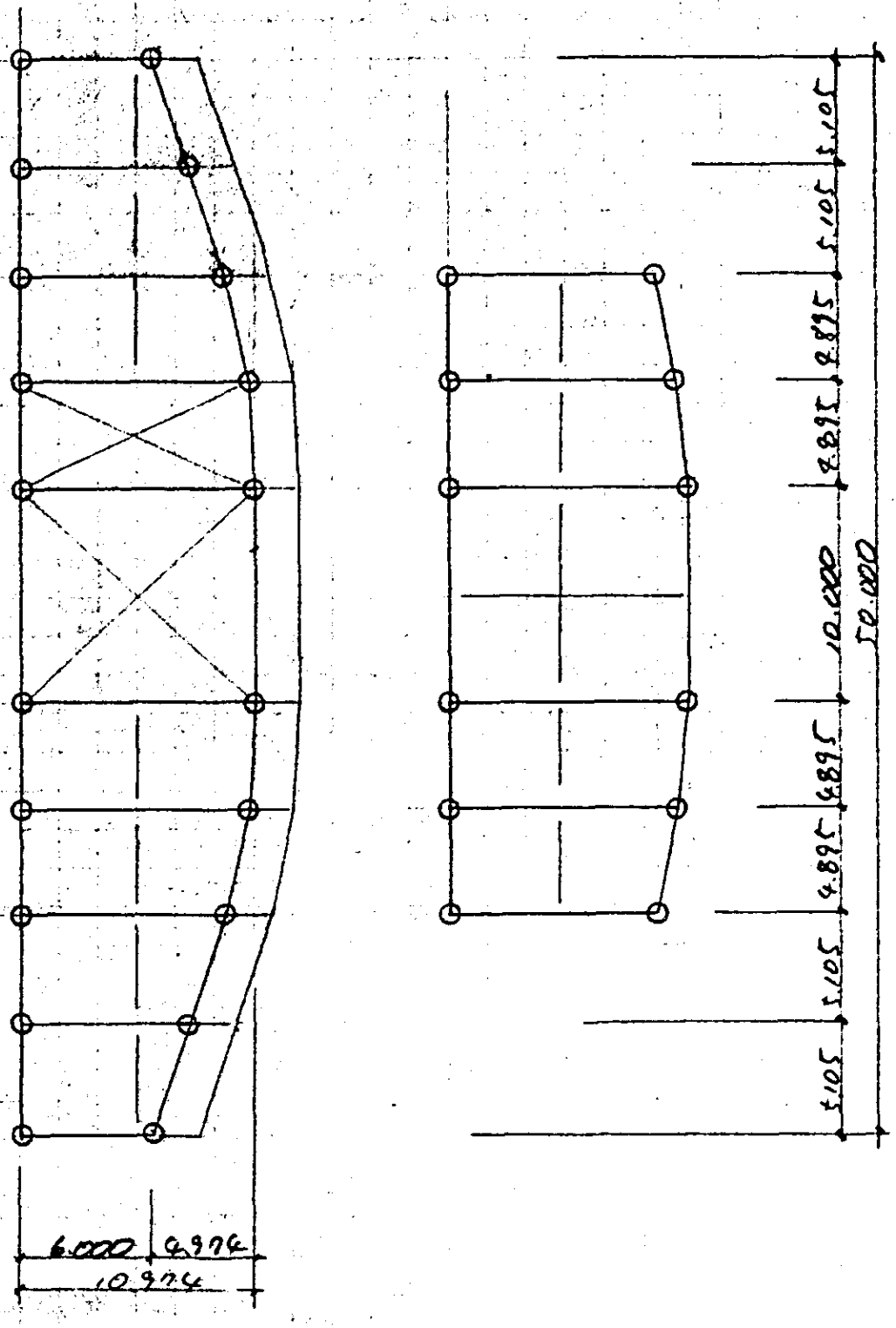


ROOF FLOOR PLAN



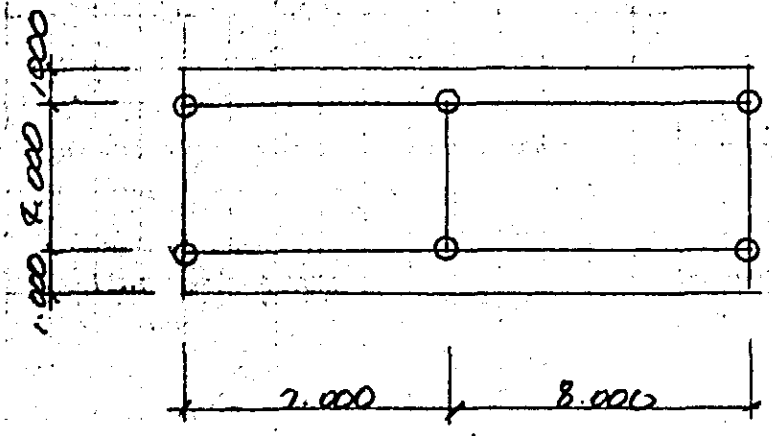


KOTA INTAN PLATFORM ROOF PLAN

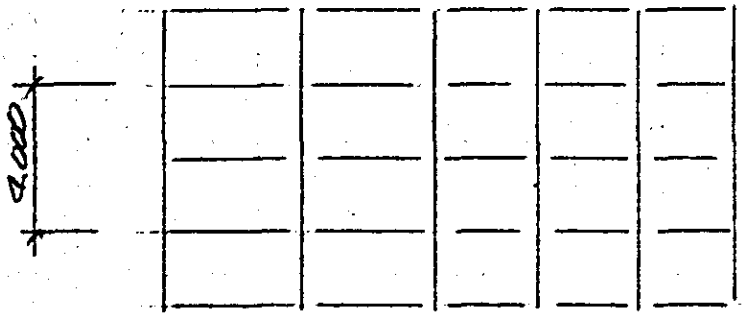


KOTAINTAN TERMINAL BLD

SIGNAL CABIN TYPE A

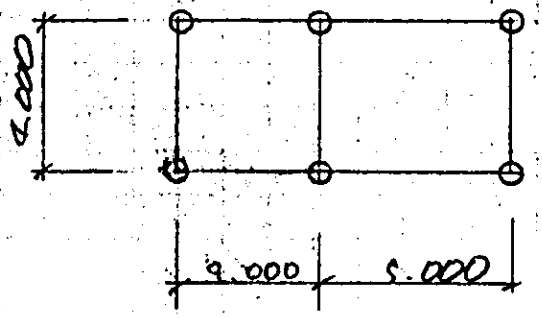


2nd FLOOR.

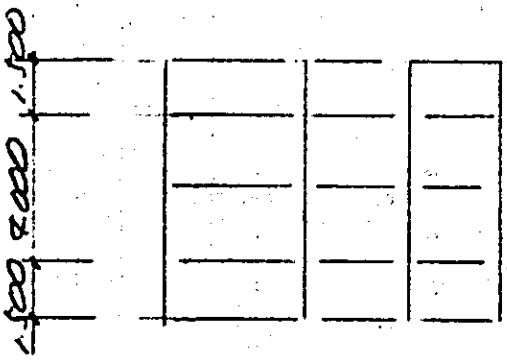


ROOF PLAN

SIGNAL CABIN TYPE (B)



2nd FLOOR.

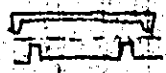


ROOF PLAN.

§3 LOAD

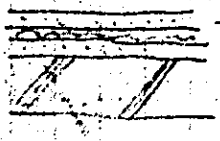
DEAD LOAD

ROOF (STEEL BLD)



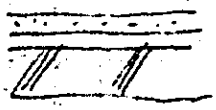
ROOF TILE	100 kg/m²
ROOFING MESHU	10 kg/m²
DECK PLATE	
V50 TYPE	18 kg/m²
STEEL FRAME	50
	178 kg/m² → 180 kg/m²

(RC BLD)



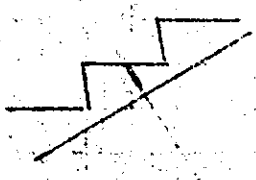
MORTAL t=90mm	189 kg/m²
ASPHALT	10 kg/m²
WATER PROOF	
MORTAR t=20mm	42 kg/m²
RC SLAB t=130	312
CEILING	20
	573 → 580 kg/m²

(OFFICE)



TERRAZZO TILE	60 kg/m²
MORTAR @30mm	42
RC SLAB	312
CEILING	20
	434 → 440 kg/m²

STAIR



FINISH	100
CONCRETE SLAB	720
CEILING	50
	870

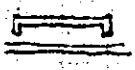
KOTA INTEN :

ROOF

CORRUGATED ASBESTOS CEMENT SLATE	20 Kg/m²
SUB BEAM	10
STEEL FRAME	40
	70 Kg/m²

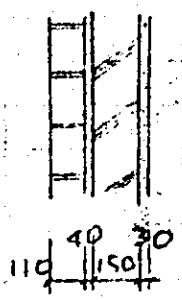
SIGNAL CABIN

ROOF



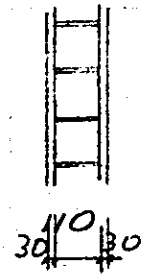
ROOF TILE	100 Kg/m²
ROOFING MESHU	10
PLASTER	25
SUB BEAM	10
CEILING	20
	165

WALL

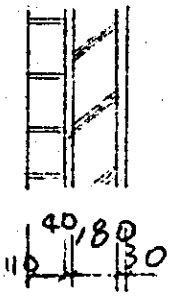


CONCRETE WALL	t=150 mm	360 kg/m²
BRICK	t=110	187
MORTAR FINISH	t=30	63
		610 kg/m²

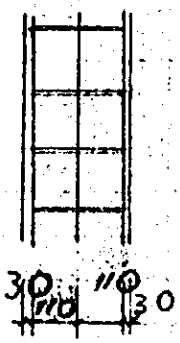
MORTAR FINISH	t=30×2	126 kg/m²
CONCRETE WALL	t=150	360
		486
		(490)



MORTAR FINISH	t=30×2	126 kg/m²
BRICK	t=110	187
		313
		(320)



CONCRETE WALL	t=180	432
BRICK	t=110	187
MORTAR FINISH	t=30	63
		682
		(685)



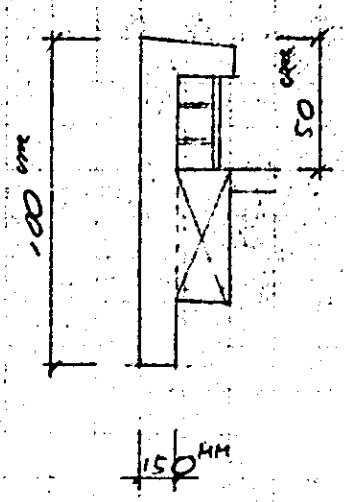
BRICK 374

MORTAR FINISH

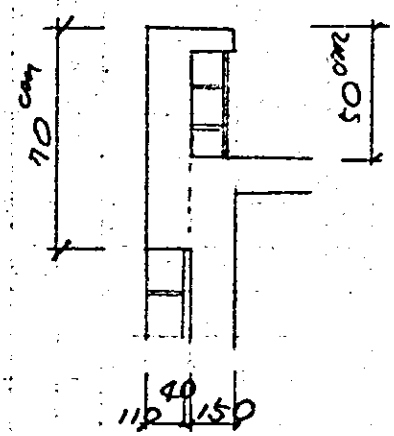
$t = 30^{mm} \times 2$ 126

500 kg/m²

PARAPET



CONCRETE WALL 360 × 0.5 = 180
96
BRICK 187 × 0.3 = 56
MORTAR λ=30 19
351 kg/m
(355)



355 kg/m

LIVE LOAD

ROOF	50 kg/m²
OFFICE	250 kg/m²
STAIR	300 kg/m²
TERRACE	200

TOTAL LOAD (W = DEAD LOAD + LIVE LOAD)

(1) AIRPORT TERMINAL STATION

a) PLAT FORM (STEEL. BLD)

ROOF 180 + 50 = 230 kg/m²

b) RC BLD

ROOF 580 + 50 = 630 kg/m²

OFFICE 440 + 250 = 690 kg/m²

STAIR 870 + 300 = 1170

TERRACE 580 + 200 = 780

(2) KOTA INTAN STATION

a) PLAT FORM (STEEL. BLD)

ROOF 70 + 50 = 120 kg/m²

b) RC BLD

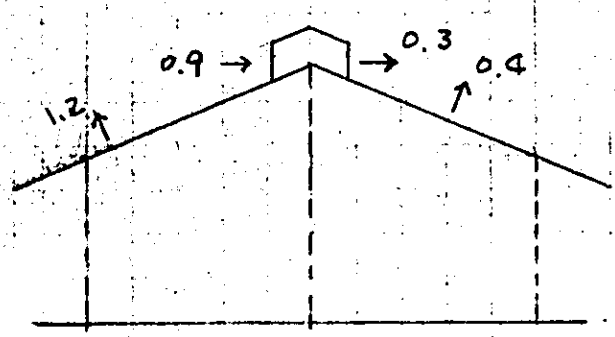
ROOF 580 + 50 = 630 kg/m²

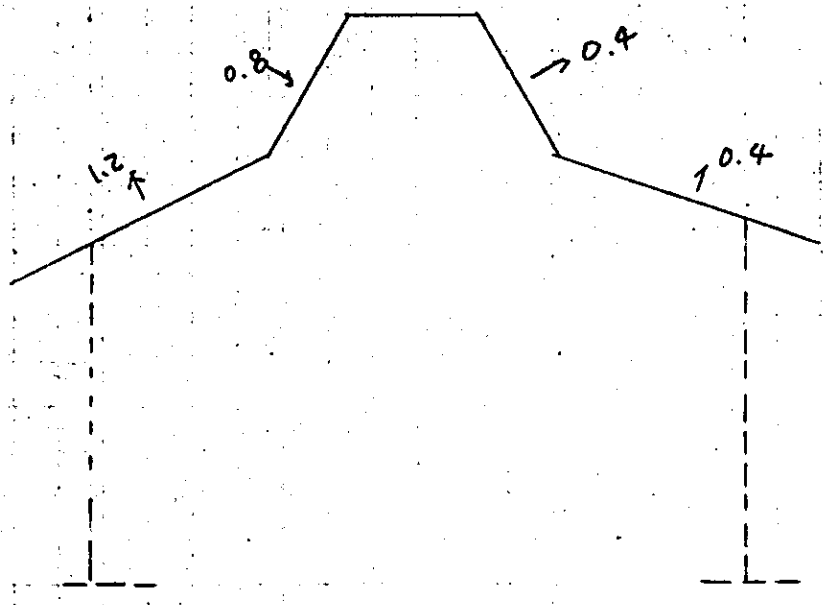
OFFICE 440 + 250 = 690 kg/m²

c) SIGNAL CABIN

ROOF 165 + 50 = 215 kg/m²

WIND LOAD

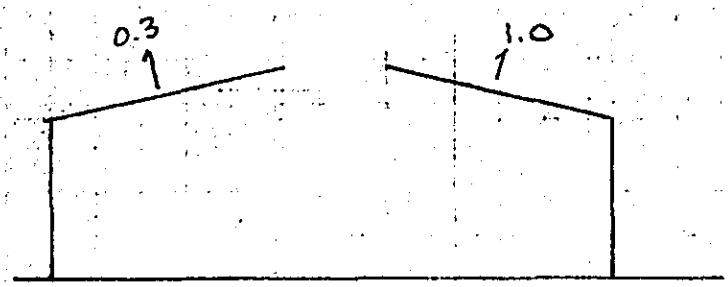




WIND PRESSURE $P = \frac{1}{16} V^2$

$V = 25$ KG/sec

$P = 52.08$ KG/m²


0.3
1.0

§4 AXIAL LOAD OF COLUMN

(1) AIR PORT TERMINAL

1G	1	ROOF	0.23 (3.0+2.0)(10.0)×1.07	12.31		
		BEAM	0.1 (3.0)×1.07	0.32		
			0.1 × 10.0	1.0		
		COLUMN	0.1 × 4.5	0.45	14.08	14.08
	FOR BASE	FG	0.77 (10.0+3.0)	10.01	10.01	24.09
			1F, 1H, 1I, 1J, 1K, 1L, 1M 1N, 1O, 1P, SAME			
2'G	1	ROOF	0.23 (6.0)(10.0) × 1.07	14.77		
		BEAM	0.1 (10.0+6.0×1.07)	1.64		
		COLUMN	0.1 × 9.0	0.9	17.31	17.31
	FOR BASE	FG	0.77 (10.0+6.0)	12.32	12.32	29.63
1A	1	ROOF	0.23 × (5.5+2.0)(4.5)×1.07	8.31		
			0.23 (1.90)(5.25) ×1.07	2.43		
		BEAM	0.15 (4.4+5.5)	1.49		
		COLUMN	0.15 (9.8)	1.47	13.70	13.70
	FOR BASE	FG	0.77 (4.4+5.5)	7.62	7.62	21.32

1'A	3	ROOF	0.63 × 1.8 × 3.4	3.86		
		PARAPET WALL	0.355 (1.8+3.4)	1.85		
			0.36 × 0.5 (1.8+3.4)	0.94		
			0.61 × 1.25 (1.8+3.4)	3.97		
		BEAM	0.24 (1.8+3.4)	1.25		
		COLUMN	0.22 × 3.0	0.66	12.53	12.53
	2	STAIR	1.17 × 1.8 × 3.4	7.16		
		BEAM	0.24 (1.8+3.4)	1.25		
		COLUMN	0.22 × 3.5	0.77		
		WALL	0.61 × 2.75 (1.8+3.4)	8.72	17.90	30.43
	1	STAIR	7.16	7.16		
		BEAM	1.25	1.25		
		COLUMN	0.77	0.77		
		WALL	0.61 × 3.0 (1.8+3.4)	9.52	18.70	49.13
		FG	0.77 (1.8+3.4)	4.71	4.71	53.84
3A1	3	ROOF	0.63 × 1.8 × 5.3	6.10		
		PARAPET WALL	0.355 (5.3)	1.88		
			0.36 × 0.5 (5.3)	0.95		
			0.61 × 2.5 (5.3)	8.08		
			0.49 × 2.5 × 1.8	2.21		
		BEAM	0.24 (5.4+1.8)	1.73		
		COLUMN	0.66	0.66	21.61	21.61

3A'	2	SLAB	0.69 × 5.3 × 1.8	6.58		
		BEAM	1.73	1.73		
		COLUMN	0.66	0.66		
		WAL	0.61 × 3.0 × 5.3	9.70		
			0.49 × 3.0 × 1.8	2.65	21.32	42.93
	1	SLAB	6.58	6.58		
		BEAM				
		COLUMN	1.73+0.66+9.70+2.65	14.74	21.32	64.25
		WALL				
		FG	0.77 (5.3+1.8)	5.47	5.47	69.72
4A'	3	ROOF	0.63 × 1.8 × 1.8	2.04		
		PARAPET	0.355 (1.8+1.8)	1.28		
		BEAM	0.24 (3.6)	0.86		
		COLUMN	0.22 × 3.0	0.66		
		WAL	0.36 × 0.5 × 3.6	0.65		
			0.61 × 3.0 × 3.6	6.69		
			0.49 × 3.0 × 1.8	2.45	14.63	14.63
	2	SLAB	0.69 × 1.8 × 1.8	2.24		
		BEAM	0.86	0.86		
		COLUMN	0.66	0.66		
		ROOF	0.78 × 2.5 × 1.8	3.51		
		BEAM	0.24 (2.5)	0.60		
		PARAPET	0.355 (2.5)	0.89		
		WALL	0.36 × 0.5 × 2.5	0.45		
			0.61 × 4.4 × 3.0	8.05		
			0.49 × 3.0 × 1.8	2.65	19.91	34.54

4A'	1	SLAB	0.69 × 1.8 × 4.4	5.46		
		BEAM	0.24 (4.4 + 1.8)	1.49		
		COLUMN	0.22 × 3.5	0.77		
		WALL	0.61 × 4.4 × 3.0	8.05		
			0.49 × 3.0 × 1.8	2.65	18.42	52.96
		FG	0.77 (4.4 + 1.8)	4.77		57.73
5A'	2	TERRACE	0.78 × 4.5 × 1.8	6.32		
		PARAPET	0.355 × 4.5	1.60		
		BEAM	0.24 × (4.5 + 1.8)	1.51		
		COLUMN	0.22 × 3.5	0.77		
		WALL	0.36 × 0.5 × 4.5	0.81		
			0.61 × 3.0 × 4.5	8.24		
			0.49 × 3.0 × 1.8	2.65	21.90	21.90
	1	SLAB	0.69 × 4.5 × 1.8	5.59		
		BEAM	1.51	1.51		
		COLUMN	0.77	0.77		
		WALL	0.61 × 3.0 × 4.5	8.24		
			0.49 × 3.0 × 1.8	2.45	18.56	40.46
		FG	0.77 × (4.5 + 1.8)	4.85		45.31

7B	2	TERRACE	0.78 (2.5×1.8+1.25×2.25)	5.70		
		PARAPET	0.355.(1.8+2.25+2.0)	2.15		
		BEAM	0.36 (2.5+1.8+2.25)	2.36		
		WALL	0.685×3.0×1.8	3.70		
			0.36×0.5×(1.8+2.0+2.25)	1.09		
			0.61×3.0(2.0+2.0)	7.32	22.32	22.32
	1	SLAP	0.69 (2.5×1.8+1.25×2.25)	5.05		
		BEAM	2.36	2.36		
		WALL	0.685×3.0×1.8	3.70		
			0.61×3.0(2.0+2.0)	7.32	18.43	40.75
		FG STEEL COLUMN	0.77 (4.4+1.8+4.5)	8.24		
			19.49	19.49	27.73	68.48
2B	3	ROOF	0.63×1.8×3.4	3.86		
		PARAPET	0.355 (3.4)	1.21		
		BEAM	0.24 (3.4)	0.82		
		COLUMN	0.95×3.5	3.33		
		WALL	0.61×3.0 (3.4)	6.22	15.44	15.44
		STEEL COLUMN	19.49			
	2	STAIR	1.17×3.4×1.8	7.16		
		TERRACE	0.78×1.5×4.5	5.27		
			0.78×1.9×4.5	6.67		
		SLAB	0.69×1.9×2.25	2.95		
		ROOF	0.63×(1.9+3.8)/2×2.25	4.04		
		BEAM	0.36(3.18+3.18)	2.29		
		PARAPET	0.355(3.18)	1.13		
		WALL	0.61×3.0-(3.18)	5.82		
			0.685×3.0×3.4	6.99	42.32	57.76
		COLUMN	3.33			

2B	1	SLAB	7.16	7.16		
			0.69 × 1.5 × 4.5	4.66		
			0.69 × 1.9 × 2.25	2.95		
		BEAM	0.55 (4.5+3.8+3.18)	6.31		
		COLUMN	3.33	3.33		
		WALL	0.685 × 3.0 (3.4)	6.99	31.4	89.16
		TG	0.77 (4.5+3.4)	6.08		95.24
4B	3	ROOF	0.63 × (1.8+4.05)/2 × 1.8	3.32		
		PARAPET	0.355 (1.8+3.18)	1.77		
		BEAM	0.24 (1.8+3.18+1.8)	1.63		
		COLUMN	0.95 × 3.5	3.33		
		WALL	0.61 × 3.0 (1.8+3.18)	9.11		
		STEE COLUMN	19.49	19.49	38.65	38.65
	2	SLAB	0.69 × 1.8 × 4.4	5.46		
			0.69 × 1.8 × 2.25	2.79		
		TERRACE	0.78 × 4.4 × 4.5	15.44		
		ROOF	0.63 (1.9+3.8)/2 × 2.25	4.04		
		BEAM	0.36 (3.18+3.18)	2.29		
		PARAPET	0.355 (3.18)	1.13		
		WALL	0.61 × 3.0 (3.18)	5.82		
		COLUMN	3.33	3.33	40.30	78.95
	1	SLAB	0.69 × 1.8 × 4.4	5.46		
			0.69 × (1.8 × 2.25 + 4.4 × 4.5)	16.46		
		BEAM	0.55 (2.5+1.8+4.5+3.8)	6.93		
		COLUML	3.33	3.33		
		WALL	0.61 × 3.0 (1.8+1.8)	6.59	38.77	117.72

4B		FG	0.77 (6.3 + 1.87 × 5 − 3.15)	12.13		129.85

4D	2	ROOF	$0.63 \times 4.5^2/2$	6.38		
		PARAPET	0.355×6.36	2.26		
		BEAM	$0.36 \times (6.36 + 3.18)$	3.43		
		WALL	$0.61 \times 3.0 \ (6.36)$	11.64		
		TERRACE	$0.78 \times (2.5 + 6.3)/2 \times 4.5$	15.44		
			$0.69 \times 4.5^2/2$	6.99		
		PARAPET	0.355×6.3	2.24		
		BEAM	$0.36 \ (6.3 + 4.5 + 6.3/2 + 6.36)$	7.31		
		COLUMN	3.33	3.33		
		WALL	$0.61 \times 3.0 \times 6.3$	11.53	70.55	70.55
	1	SLAB	$0.69 \times 4.5 \times 6.3$	19.56		
		BEAM	$0.55 \ (4.5 + 6.3)$	5.94		
		COLUMN	3.33	3.33		
		WALL	$0.61 \times 3.0 \times 6.3$	11.53	40.36	110.91
		FG	$0.77 \times (3.0 \times 6.3)$	7.16		118.07

1C	1	ROOF	0.23 (11.0 × 4.5) × 1.07	12.18		
		BEAM	0.15 × 11.0	1.65		
		COLUMN	0.15 × 9.8	1.47	15.30	15.30
	FOR BASE	FG	0.77 × (11.0 + 2.0)	10.01	10.01	25.31
	2	ROOF	0.23 (1.75 × 2.0)	0.81		
		BEAM	0.1 (1.75 + 2.0)	0.38		
		COLUMN	0.1 × 4.15 × 1.17 × 1.29	0.63		
		WALL	0.23 × 4.15 × 1.17 (1.75 + 3.8)/2	3.10		
		(ROOF)	0.23 × 4.15 × 1.17 (2.0 + 4.5)/2	3.63	8.55	8.55
	1	ROOF	0.23 × (7.75 + 4.5)/2 × 2.5 × 1.07	3.77		
			0.23 (3.8 + 6.3)/2 × 3.25 × 1.07	4.04		
		BEAM	0.15 (4.5 + 3.8)	1.25		
		COLUMN	0.15 × 12.5	1.88	10.94	19.49

KOTA INTAN STATION

9H	1	ROOF	0.78×2.85×3.3	7.34		
		PARAPET	0.355×(2.85+3.3)	2.18		
		BEAM	0.56(2.55+3.0)	3.11		
		COLUMN	0.86×3.5	3.01		
		WALL	0.50×2.7(2.55+3.0)	7.49	23.13	23.13
		FG	0.77(2.55+3.0)	4.27	4.27	27.40
10H'	1	ROOF	0.78×6.0×5.11	23.91		
		PARAPET	0.355×5.11	1.81		
		BEAM	0.56(6.0+5.11)	6.22		
			0.36×5.11	1.84		
		COLUMN	0.86×3.5	3.01		
		WALL	0.50×2.7×(2.55+4.0	8.84	45.63	45.63
		FG	0.86(5.55+4.0)	8.21		53.84
11I	2	ROOF	0.63×5.0×2.45	7.72		
		PARAPET	0.355(5.0+2.45)	2.64		
		BEAM	0.56(5.0+2.45)	4.17		
		COLUMN	0.86×3.0	2.58		
		WALL	0.50×2.2(2.45+5.0)	8.20	25.31	25.31
	1	SLAB	0.69×5.0×(5.0+2.0)	24.15		
		PARAPET	0.355×5.0	1.78		
		BEAM	0.56(5.0+5.0+2.0)	6.72		
			0.36×5.0	1.80		
		WALL	0.5×2.7(5.0+5.0)	13.5		

11.I	1	COLUMN	3.01	3.01	52.76	78.07
		FG	0.86 (5.0+5.0)	8.6	8.6	86.67
11'I'	2	ROOF	0.63 (5.0×5.5)	17.33		
		PARAPET	0.355×5.0	1.78		
		BEAM	0.56 (5.0+5.5)	5.88		
		COLUMN	0.86×3.0	2.58		
		WALL	0.5×2.2 (5.0)	5.50	33.07	33.07
	1	SLAB	0.69×5.0×7.5	25.90		
		PARAPET	0.355×5.0	1.08		
		BEAM	0.56 (5.0+5.5)	5.88		
			0.36×5.0	1.80		
		COLUMN	0.86×3.5	3.01		
		WALL	0.5×2.7×(5.0+5.5)	14.18	52.55	85.62
		FG	0.86 (5.0+5.5)	9.03		94.65

11J	2	ROOF	0.63 (5.79 × 7.45)	27.18		
		PARAPET	0.355 × 7.45	2.64		
		BEAM	0.56 (7.45 + 5.79)	7.41		
		COLUMN	2.58	2.58		
		WALL	0.5 × 2.2 × (2.5 + 5.79)	9.12		
		BEAM	0.56 (5.0/2 + 7.45/2)	3.49	52.42	52.42
	1	SLAB	0.69 × 2.5 × 7.79	13.44		
		PARAPET	0.355 × 7.45	2.64		
		BEAM	0.56 (7.45 + 5.79 + 2.0)	8.53		
			0.56 × 7.45	4.17		
		COLUMN	3.01	3.01		
		WALL	0.5 × 2.7 × (2.5 + 5.79)	11.19	42.98	95.40
			0.86 (5.79 + 5.0)	9.28	9.28	104.68

§5. EARTHQUAKE LOAD

AIR PORT TERMINAL STATION

PLATFORM

ROOF	0.23 × 17.0 × 104	= 406.64
BEAM	0.1 (100 × 3)	= 30.00
	0.1 × 6.5 × 2 × 11	= 14.30
COLUMN	0.1 (4.45 × 11 × 2)	= 9.79
	0.1 × 6.95 × 11	= 7.65
SUBBEAM	0.05 × 17.0 × 104	= 88.4
		∑ = 556.78

TERMINAL BLD (ROOF)

ROOF	0.23 × 4.0 × 3.5	= 3.22
	0.23 × 4.84 (7.6 + 3.5)/2 × 2	= 12.36
	0.23 × 4.63 (9.0 + 4.0)/2 × 2	= 13.84
	0.23 × 9.11 (7.6 + 17.6)/2 × 2	= 42.80
	0.23 × 7.83 (9.0 + 22.0)/2 × 2	= 55.83
BEAM	0.15 (4.0 × 2 + 3.5 × 2 + 7.6 × 2 + 9.0 × 2 + 17.0 × 2 + 22.0 × 2)	= 18.93
COLUMN	0.15 × 12.35 × 4	= 7.41
	0.15 × 9.85 × 8	= 11.82
		176.21

TERMINAL BLD

3F

ROOF	0.63 × 6.36 ^{2}	= 25.48
	0.63 × 3.8 × 2.25 / 2	= 2.69
	0.63 × 1.9 × 2.0 / 2	= 1.20
	0.63 × 3.6 × 10.6	= 24.05
PARAPET	0.315 (10.6 + 3.6 + 3.6 + 10.6 + 6.36 × 4)	= 19.11
BEAM	0.27 (10.6 × 2 + 3.6 × 3 + 6.36 × 4)	= 15.51
	0.44 × 6.36	= 2.80
COLUMN	0.86 × 3.5	= 3.01
WALL	0.61 × 3.0 (10.6 + 3.6 + 3.6 + 6.36 × 4) / 2	= 39.56
	0.49 × 3.0 × 3.6 / 2	= 2.65
WATER TANK	3.0	= 3.00

∑ = 139.06 *

2F

SLAP	0.18 (22.3 × 12.6 + 2.0 × 3.6)	= 224.8
PARAPET	0.315 (5.0 + 4.0 + 4.0 + 12.6 + 23.2 + 9.0)	= 20.52
BEAM	0.58 (8.4 × 2 + 3.9 × 4 + 2.7 × 2 + 3.4 × 3 + 4.4 × 3 + 6.6 × 3 + 3.0 × 3)	= 52.2
	0.34 (12.6 + 23.2 + 12.6 + 4.0 + 3.6 × 4 + 6.36 × 4 + 9.0)	= 34.42
COLUMN	3.01	= 3.01
	0.86 × 3.5 × 10 / 2	= 15.05
	0.22 × 3.5 × 6 / 2	= 2.31
WALL	39.56 + 2.65	= 42.21
	0.61 × 2.8 / 2 (23.2)	= 19.81
	0.61 × 3.0 / 2 (23.2 + 12.6 + 9.0 + 2.0)	= 42.82
	0.49 × 3.0 / 2 (6.8 + 3.8 + 3.6 × 2)	= 13.08
	0.685 × 3.0 / 2 × 3.6	= 3.700

∑ = 473.93 *

1F

SAME 2F ∑ = 473.93 *

KOTAINTAN STATION

TERMINAL BLD

2F

ROOF	0.63 × 10.0 × 11.57	= 72.89
	0.63 (11.57 + 10.01) / 2 × 10.09 × 2	= 137.18
PARAPET	0.355 (30.18 × 2 + 10.01 × 2)	= 28.53
BEAM	0.64 (8.81 + 10.37 + 10.0) × 2	= 37.35
	0.64 (4.30 + 4.30 + 9.40 + 4.3 + 4.3) × 2	= 34.05
	0.64 × 10.0 × 2	= 12.80
	0.55 × (9.79) × 2	= 10.77
COLUMN	0.864 × 3.0 / 2 (12)	= 15.55
WALL	0.5 × 2.2 (8.81 + 10.37) × 2	= 42.20
	0.5 × 2.2 (4.30 × 2 + 9.4 + 4.3 × 2) × 2	= 58.52
		449.84

1F

TERRACE	0.78 (8.5 + 11.91) / 2 × 10.51 × 2	= 167.32
	0.78 × 2.2 × 9.79 × 2	= 33.60
	0.78 × 2.2 × 10.0	= 17.16
SLAB	0.69 × (10.01 + 11.57) / 2 × 9.79 × 2	= 145.78
PARAPET	0.355 (10.51 + 8.5 + 10.76 + 10.0 + 5.0) × 2	= 31.79
BEAM	37.35 + 34.05 + 12.80 + 10.77	= 94.97
	0.64 (4.4 + 7.11 + 4.51 × 2) × 2	= 26.28
	0.64 × 2.0 × 10	= 12.8
	0.36 × (10.77 + 10.0 + 5.0) × 2	= 18.55
	0.55 × (9.79 + 10.21) × 2	= 22.00
COLUMN	15.55	= 15.55
	0.864 × 3.5 / 2 (20)	= 30.24
WALL	0.5 × 2.8 (4.51 + 4.51 + 4.51 + 4.30 × 4 + 7.10 + 8.81 + 8.9 + 5.0 + 5.5 + 5.0) × 2	= 99.45
		715.49

SIGNAL CABIN

TYPE A

2 Fl.

ROOF	0.215 × 18.0 × 9.0 × 1.17	= 40.75
BEAM	0.43 × (15.0 × 2 + 6.0 × 3)	= 20.64
WALL	0.49 × 3.85/2 (6.0 + 15.0) × 2	= 39.62
	0.558 × 6.0 × 3.85/2	= 6.44
COLUMN	0.60 × 3.85/2 × 4	= 4.62
		112.07

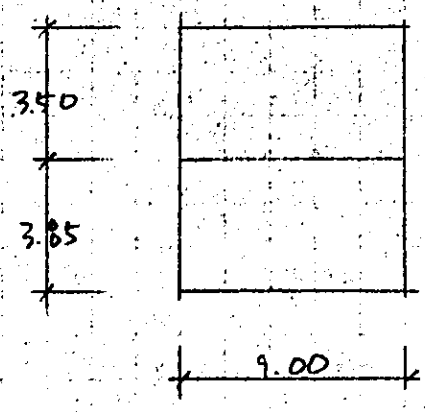
1 Fl.

SLAB	0.69 × 6.0 × 15.0	= 62.1
BEAM	0.36 (15.0 + 15.0 + 4.0 × 3)	= 15.12
COLUMN	4.62	= 4.62
	0.60 × 4.5/2 × 6	= 8.10
WALL	39.62 + 6.44	= 46.06
	0.50 × 3.90/2 (30.0 + 4.0 × 3)	= 40.95
		176.95

§6. DESIGN OF STRESS.

TERMINAL BLD

④LINE



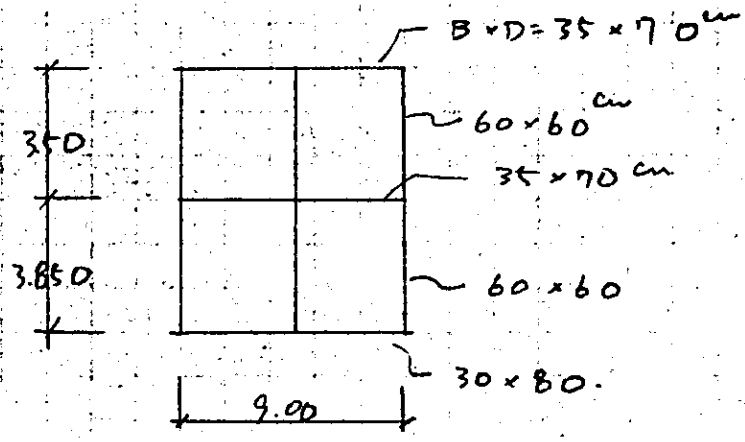
BEAM B×D = 40×70 cm

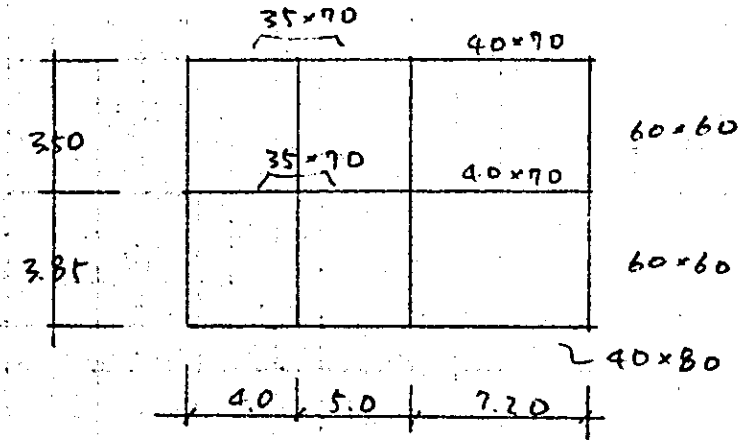
COLUMN B×D = 60×60

BEAM B×D = 40×70

COLUMN B×D = 60×60

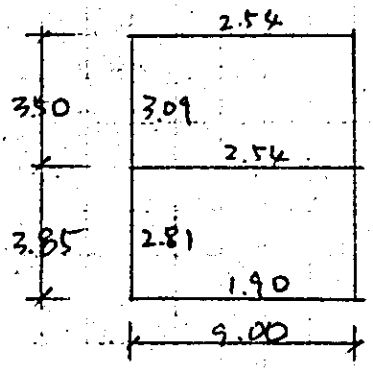
FG 40×80



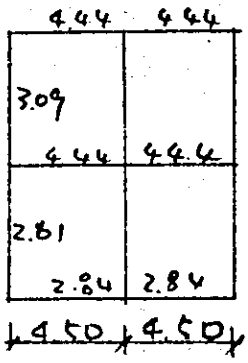


AIR PORT TERMINAL BLD TERMINAL BLD
STIFNESS

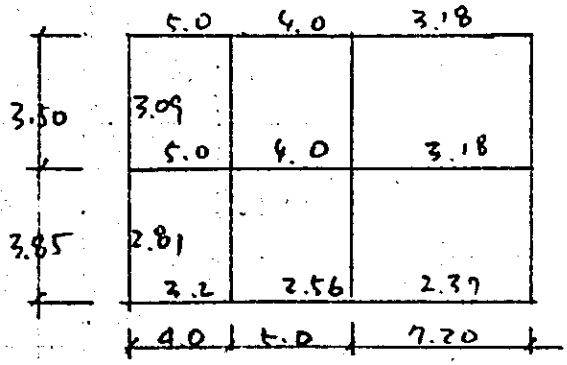
	SIZE	I	φ	φ×I	l	k
(BEAM)	40×70	11.43×10^5	2.0	22.87×10^5	9.0	2.54
					7.2	3.18
	35×70	10.00	2.0	20.00×10^5	4.5	4.44
					4.0	5.00
					5.0	4.00
(FG)	40×80	17.07×10^5	1.0	17.07×10^5	9.0	1.90
					7.2	2.37
	30×80	12.80	1.0	12.80	4.5	2.84
					4.0	3.20
					5.0	2.56



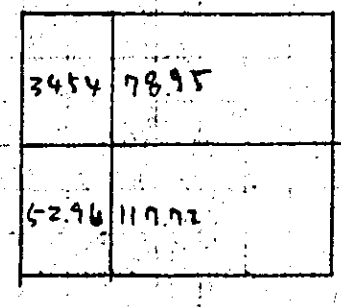
④ LINE



⑤ LINE



Ⓓ LINE



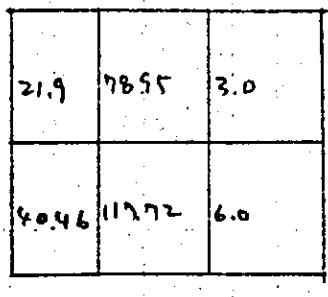
④ LINE

$\Sigma N = 184.04$

$Q = 184.04 \times 0.1 = 18.40$ t

$\Sigma N = 281.59$

$Q = 28.2$ t



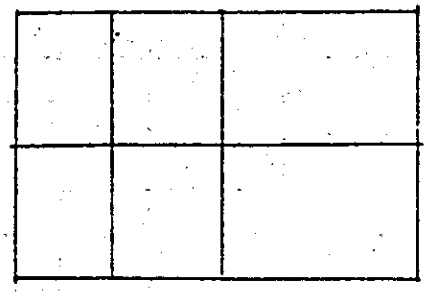
⑤ LINE

$\Sigma N = 21.9 + 78.95 + 70.55 + 3.0 = 174.4$

$Q = 17.4$ t

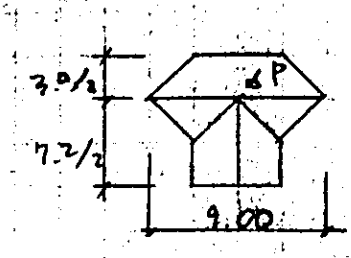
$\Sigma N = 275.09$

$Q = 27.5$ t



Ⓓ LINE

$139.06 \times 0.1 \times 0.64 =$	8.9	8.9
$473.93 \times 0.1 \times 0.64 =$	30.33	39.23
$473.93 \times 0.1 \times 0.64 =$	30.33	69.56



P

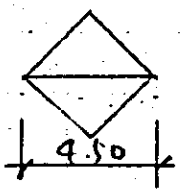
ROOF	0.63 × 10.12	=	6.38
BEAM	0.34 (6.36)	=	2.16
PARAPET	0.355 × 6.36	=	2.26
WAL	0.49 × 2.4 × 6.36	=	7.48
			18.28

(3rd)

	w	W	C	M_0	Q
P		18.28	20.57	41.1	9.14
TERRACE	0.78		7.5	11.4	4.39
	0.78		16.1	28.4	8.29
BEAM	0.55		3.71	5.57	2.48
	0.36	2.0	2.25	4.5	1.0
			50.1	91.0	25.3

(2nd)

	w	W	C	M_0	Q
SLAB	0.69		6.6	10.1	3.88
	0.69		14.2	25.2	7.3
BEAM	0.55		3.71	5.5	2.5
	0.36	2.0	2.25	4.5	1.0
			26.8	45.3	14.7

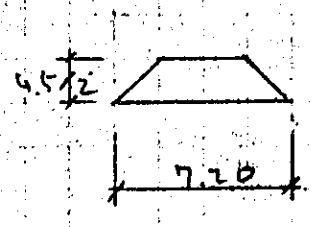


(3rd)

	w	W	C	M_0	Q
ROOF	0.63		1.5	2.4	1.6
			1.5	2.4	
BEAM	0.55		0.9	1.4	1.3
			3.9	6.2	4.4

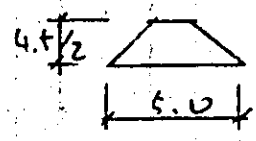
(2nd)

	w	W	C	M_0	Q
ROOF	0.69		1.6	2.6	1.7
			1.6	2.6	1.7
BEAM	0.55		0.9	1.4	1.2
			4.2	6.6	4.7



(3rd)	w	W	C	M_0	Q
ROOF	0.78		6.3	9.9	4.3
BEAM	0.55		2.4	3.6	2.0
PARA	0.355		1.5	2.3	1.3
			10.2	15.8	7.6

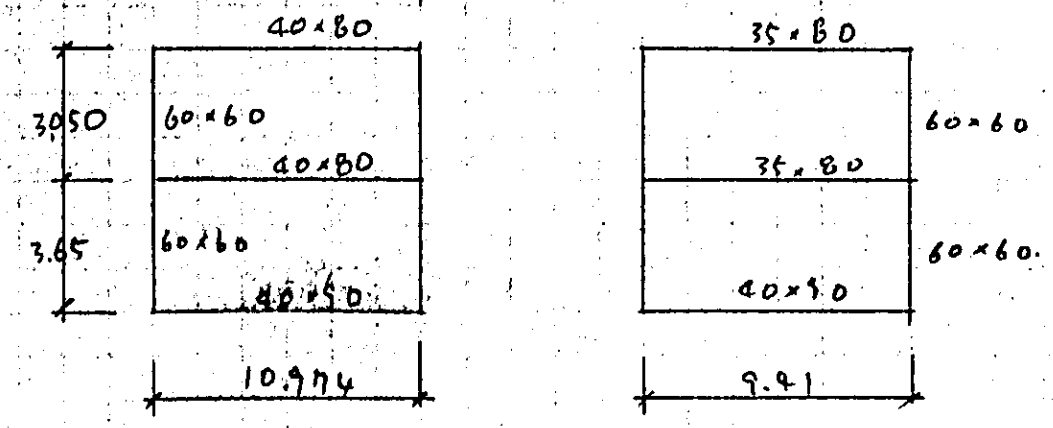
(2nd)	w	W	C	M_0	Q
SLAB	0.69		5.6	8.8	3.8
BEAM	0.55		2.4	3.6	2.0
WAL	0.61→1.71 t/m		7.4	11.1	6.2
			15.4	23.4	11.9

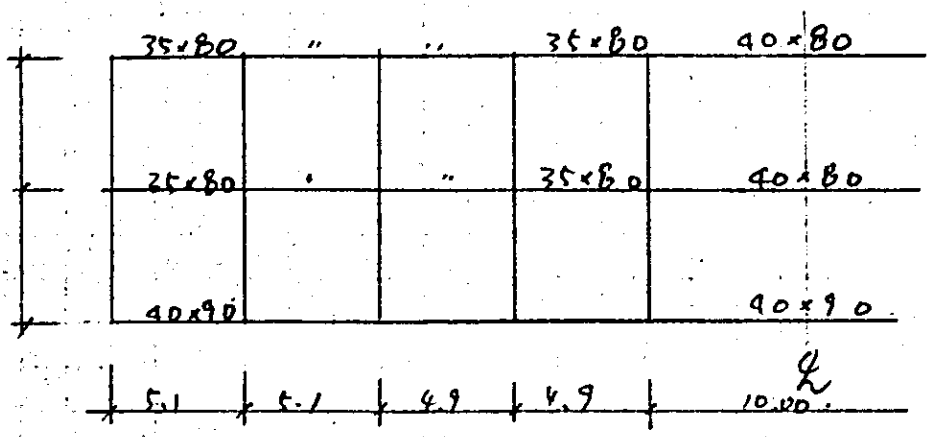


(3rd)	w	W	C	M_0	Q
ROOF	0.78		2.5	4.0	2.4
BEAM	0.55		1.1	1.7	1.4
PARA	0.355		7.4	1.1	0.9
			4.4	6.8	6.7

(2nd)	w	W	C	M_0	Q
SLAB	0.69		2.2	3.5	2.1
BEAM	0.55		1.1	1.7	1.4
WALL	1.71		3.5	5.7	4.3
			6.9	10.6	7.8

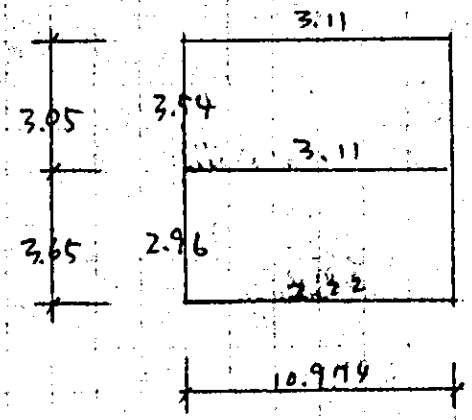
KOTA INTAN TERMINAL BLD



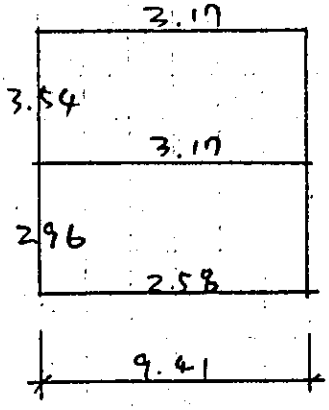


STIFNESS

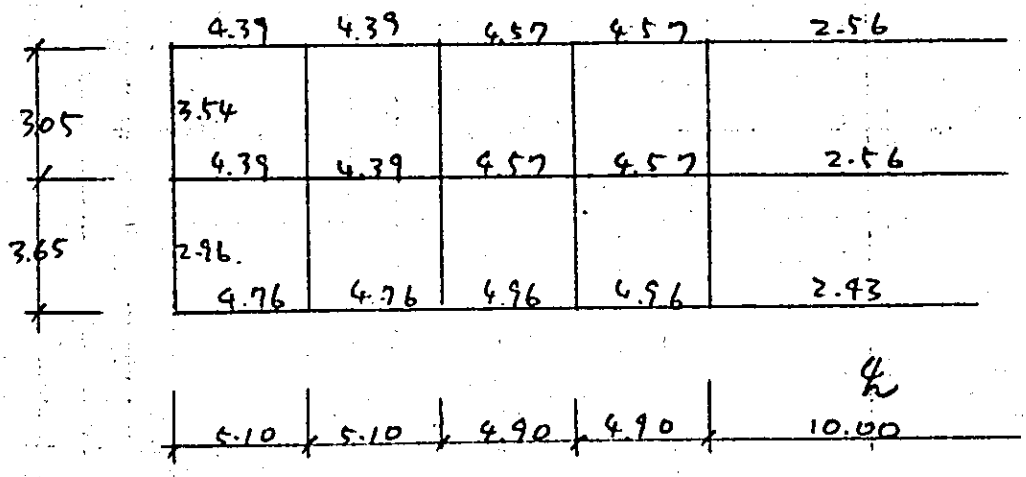
SIZE		I	φ	φ×2	l	k
(BEAM)	40×80	17.07×10^5	2.0	34.1	10.97	3.11
			1.5	26.6	10.0	2.56
	35×80	14.93×10^5	2.0	29.8	9.41	3.17
			1.5	22.4	5.1	4.39
					4.9	4.57
	40×90	24.3×10^5	1.0	24.3	10.97	2.22
					9.41	2.58
					5.1	4.76
					4.9	4.96
					10.0	2.43
(COLUMN)	60×60	I=10.8	h=3.05		k=3.54	
			3.65		2.96	


3.11
3.05
3.54
3.11
3.65
2.96
3.12
10.974

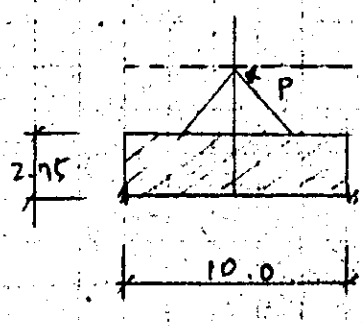
(J)


3.17
3.54
3.17
2.96
2.58
9.41

(I)


4.39
4.39
4.57
4.57
2.56
3.05
3.54
4.39
4.39
4.57
4.57
2.56
3.65
2.96
4.76
4.76
4.96
4.96
2.93
5.10
5.10
4.90
4.90
10.00

(9)

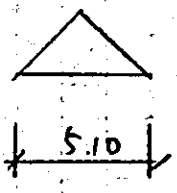


(RFT)

	W	w	C	M_0	Q
(ROOF)	0.63	1.73 t/m	14.4	21.6	8.65
	0.63	3.94	4.9	9.9	1.99
PARA	0.355		3.0	4.4	1.8
BEAM	0.64		5.3	8.0	3.2
	0.64	3.2	4.0	8.0	1.6
			31.6	51.9	17.2

(2FL)

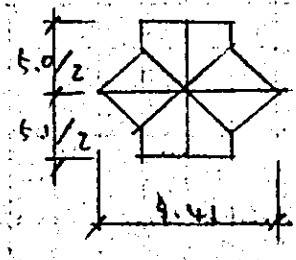
	W	w	C	M_0	Q
BEAM	0.64		5.3	8.0	3.2
WALL	1.13 t/m		9.4	14.1	5.65
			14.8	22.1	8.85



(RFT)

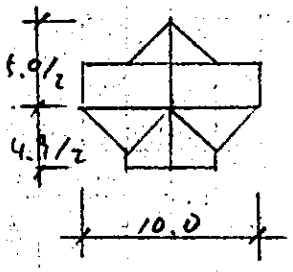
	W	w	C	M_0	Q
ROOF	0.63		2.2	3.5	2.1
BEAM	0.64		1.4	2.1	1.6
PARA	0.355		0.8	1.2	0.9
			4.4	6.7	4.6

	W	w	C	M_0	Q
(2FL) SLAB	0.69		2.4	3.8	2.2
BEAM	0.64		1.5	2.2	1.8
WALL	1.13		2.4	3.7	2.9
			6.3	9.7	6.9

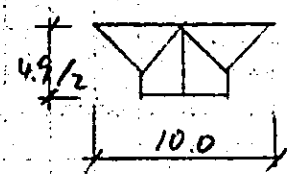


(RFT)	w	~~w~~	C	M_0	Q
ROOF	0.63		10.4	17.4	5.4
	0.63		10.6	17.8	5.2
BEAM	0.64		4.7	7.1	3.0
	0.36	1.8	2.1	4.2	0.9
			27.9	46.5	14.9

(2FT)	w	~~w~~	C	M_0	Q
SLAB	0.69		11.4	19.1	6.0
	0.69		11.6	19.5	6.0
BEAM	0.64		4.7	7.1	3.0
	0.36	1.8	2.1	4.2	0.9
			29.9	49.9	15.9

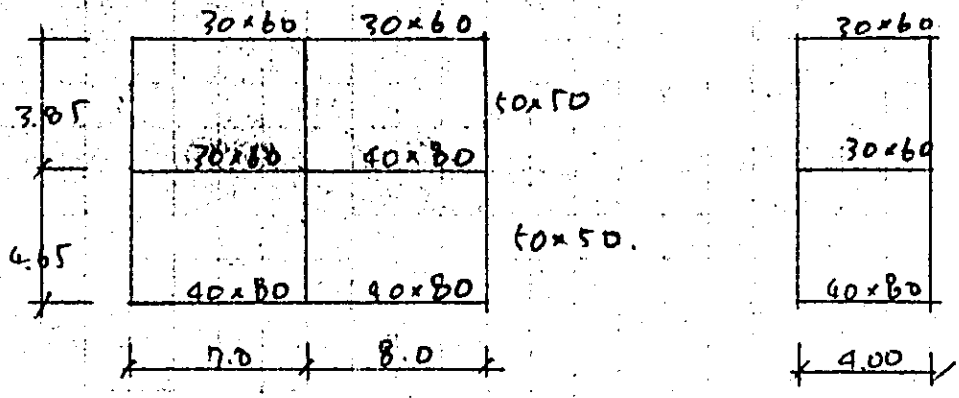


(RFT)	w	~~w~~	C	M_0	Q
ROOF	0.63		31.6	51.9	17.2
	0.63		11.7	19.3	1.8
			43.3	71.2	23.0



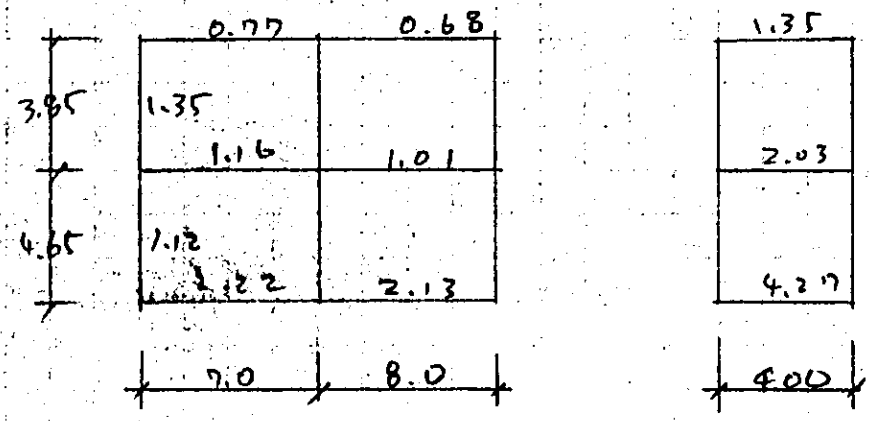
(2FT)	w	~~w~~	C	M_0	Q
SLAB	0.63		11.7	19.3	5.8
BEAM	0.64		5.3	8.0	3.2
	0.76	0.88	1.1	2.2	0.4
WALL	0.5	1.13 t/m	9.4	14.1	5.7
			27.5	43.6	15.1

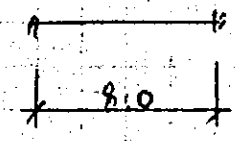
SIGNAL CABIN TYPE (A)



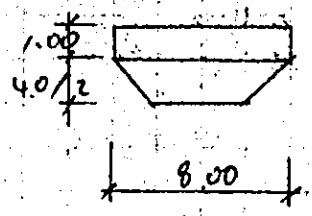
STIFNESS

	SIZE	I	Φ	Φ×2	l	fe
(BEAM)	30×60	5.4×10^5	1.0	5.4×10^5	7.0	0.77
					8.0	0.68
					4.0	1.35
			1.5	8.1×10^5	7.0	1.16
					8.0	1.01
					4.0	2.03
			2.0	10.8×10^5	4.0	2.70
	40×80	17.07×10^5	1.0	17.07	7.0	2.44
					8.0	2.13
					4.0	4.27
(COLUMN)	50×50	5.21×10^5			3.85	1.35
					4.65	1.12

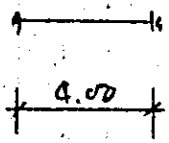

0.77
0.68
1.35
3.85
1.16
1.01
1.12
4.65
2.12
2.13
7.0
8.0
1.35
2.03
4.27
4.00



(RF)	w	w	C	M_o	Q
ROOF	0.23	1.20 t/m	10.0	15.0	6.0
BEAM		0.43	3.58	5.4	2.15
			13.6	20.4	8.15



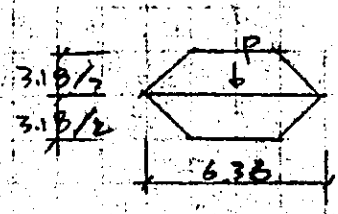
(2F)	w	w	C	M_o	Q
SLAB	0.69		6.6	10.1	4.14
"		0.69 t/m	3.68	5.52	2.76
BEAM		0.74	1.81	2.72	1.36
WALL		0.59 t/m	3.14	4.72	2.36
			15.2	23.1	10.6



(RF)	w	w	C	M_o	Q
BEAM	0.43		0.6	0.9	0.9

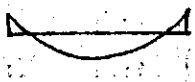
(2F)	w	w	C	M_o	Q
BEAM	0.34		0.5	0.7	0.7
SLAB	0.69		1.15	1.83	1.4
"	"		1.15	1.83	1.4
WALL	0.5	1.63 t/m	2.17	3.26	3.26
			4.9	7.6	6.7

§7 DESIGN OF SUB BEAM (RC)



P = 3.0t (WATER TANK)

	w	C	M_0	Q
ROOF	0.63 t/m²	3.0	4.6	2.4
		3.0	4.6	2.4
BEAM	0.44	1.5	2.2	1.4
TANK	P = 3.0t	2.4	4.8	1.5
		9.9	16.3	7.7



$0.6C = 0.6 \times 9.9 = 5.94$ t·m

$M_0 - 0.4C = 16.3 - 0.4 \times 9.9 = 12.34$ t·m

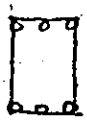
$B \times D = 35 \times 60$ $d = 53$ cm

$d' = 46.375$ cm

(END) $at = 594 / (2 \times 46.375) = 6.4$ cm²

(CENTER) $at = 1234 / (2 \times 46.375) = 13.30$ cm²

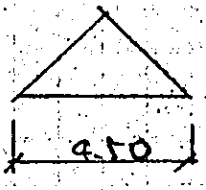
(END)



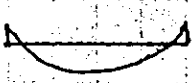
(CENTER)

$Q_A = 11.36$ t

STP. D10@200.



	w	c	M_0	D.
SLAB	0.69	1.6	2.6	1.7
		1.6	2.6	1.7
BEAM	0.27	0.5	0.2	0.6
		3.7	5.9	4.1



0.6C = 2.22

M_0 - 0.4C = 4.42

B × D = 30 cm × 50 cm d = 43 cm

j = 37.625

(CENTER)

$a_t = \frac{442}{(2 \times 37.625)}$ = 5.87 cm²

3 - D22

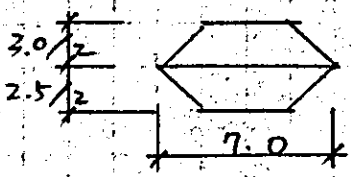
3 - D22

(ALL SECTION)

$Q_A = \frac{37.625 \times 30 \times 7.0}{1000}$

= 7.9 t

STP D10A@200



	W	L	M_0	Q
ROOF	0.63	3.5	5.4	2.6
		3.0	4.6	2.3
BEAM	0.34	1.4	2.1	1.2
		8.0	12.1	6.1

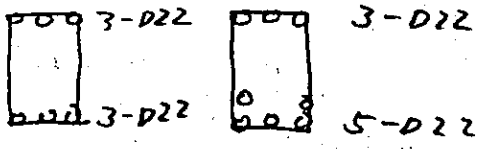
$M_0 - 0.4C = 8.9$ $B \times D = 30 \times 60$ $d = 53$ cm $d' = 46.375$

(END) $at = 480 / (2 \times 46.375) = 5.18$ cm²

(CENTER)

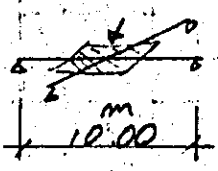
$at = 890 / (2.0 \times 46.375) = 9.6$ cm².

(END) (CENTER)



$\theta_A = 9.7$

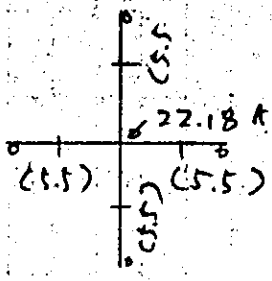
STP. P10□@200



$P = 0.63 \times 5.0 \times 5.0 = 15.75\ t$

BEAM $P' = .0.643 \times (5.0+5.0) = 6.43\ t$

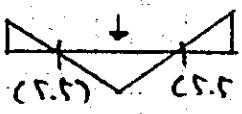
22.18



$C = 5.5 \times 2 \times 10.0 / 8 = 13.75\ t\cdot m$

$M_0 = 5.5 \times 2 \times 10.0 / 4 = 27.5\ t\cdot m$

$Q = 5.5\ t$



$0.6C = 8.25\ t\cdot m$

$M_0 - 0.4C = 22.0\ t\cdot m$

$B \times D = 40 \times 80$

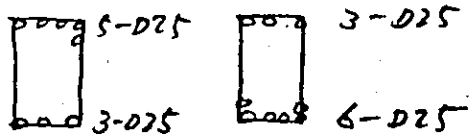
$d = 73$

$j = 63.875\ cm$

(END) $at = 825 / (2 \times 63.875) = 6.46\ cm^2$

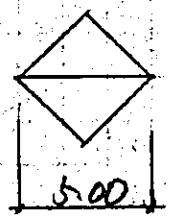
(CENTER)

$at = 2750 / (2 \times 63.875) = 21.5\ cm^2$

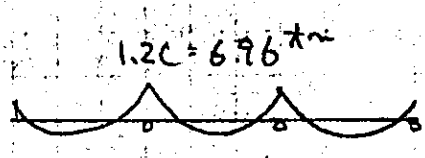


$Q_A = 17.9$

STP. D10 @200



	ω	c	M_0	D
TERRAS	0.78	2.54	4.0	2.4
		2.54	4.0	2.4
BEAM	0.34	0.72	1.1	0.9
		5.8	9.2	5.7



$M_0 - 0.4C = 6.88$

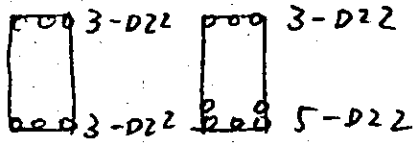
B × D = 30 × 60
d = 53
j = 46.375

(END) $at = 696 / 2 \times 46.375 = 7.50\ cm^2$

(CENTER) $at = 688 / 2 \times 46.375 = 7.42$

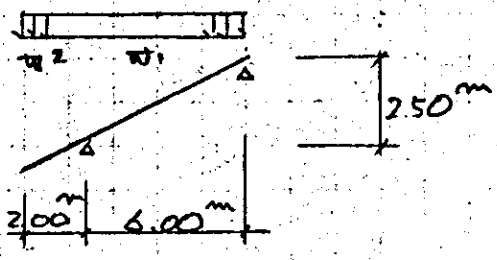
@A = 9.7

Bar



STP D10 □ @200

§8 BEAM ①



$\ell'_1 = 6.00 \times 1.083 = 6.5\ m$
$\ell'_2 = 2.0 \times 1.083 = 2.17\ m$

LOAD

DEAD LOAD 130 kg/m²

LIVE LOAD 50 kg/m²

COMBINE LOAD

130 + 50 = 180 kg/m².

BEAM PICH @1.000 mm

$w' = 0.18\ t/m^2 \times 1.0 = 0.18\ t/m$

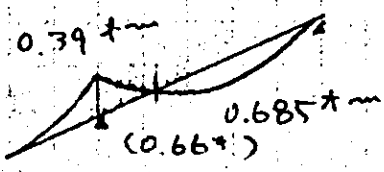
$W_1 = 0.18 \times 6.5 = 1.17\ t$
$W_2 = 0.18 \times 2.17 = 0.39\ t$

LONG SPAN

$C = 1.17 \times 6.0 / 12 = 0.585\ t\cdot m$
$M_0 = \quad " \quad / 8 = 0.88\ t\cdot m$
$Q = 1.17 / 2 = 0.59\ t$

CANTI BEAM

$C = 0.39 \times 2.0 / 2 = 0.39\ t\cdot m$
$Q = 0.39\ t$



use L - 65.2 x 4.0

$I = 658\ cm^4$ $Z = 79.7$ $f_b = 1.6\ t/cm^2$

$$\sigma_b = \frac{68.5}{79.7} = 0.86$$

$$\frac{\sigma_b}{f_b} = \frac{0.86}{1.6} = 0.54 < 1.0 \quad \text{OK}$$

DEFLECTION

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(1.17)(600)^3}{384(2100)(658)} = 2.38\ cm$$

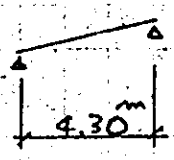
$$\frac{\Delta}{\ell} = \frac{1}{251} < \frac{1}{250} \quad \text{OK}$$

CANTI BEAM DEFLECTON

$$\Delta = \frac{WL^3}{8EI} = \frac{0.39(200)^3}{8(2100)(658)} = 0.28\ cm$$

$$\frac{\Delta}{\ell} = \frac{1}{709} < \frac{1}{250} \quad \text{OK}$$

BEAM



DEAD LOAD 60 Kg/m²
LIVE LOAD 50 "
COMBINED LOAD 110 Kg/m²

$w = 0.11^{*} \times 3.33 = 0.37\ t/m$

$M_{max} = 0.37 \times 4.3^2/8 = 0.86\ t\cdot m$

$Q = 0.37 \times 4.3/2 = 0.80\ t$

use - H-175×90×5×8 $i_b = 2.38$

$l_b = 430/2 = 215\ cm$

$\lambda = l_b/i_b = 215/2.38 = 90.3$

$f_b = 1.6\ t/cm^2$

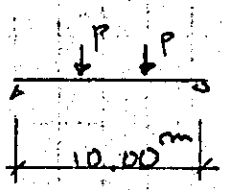
$\sigma_b/f_b = 86/139 \times 1.6 = 0.39 < 1.0$ Ok

DEFLECTION

$$\Delta = \frac{5(0.37)(430)^4(10^{-2})}{384 \times 2100 \times 1210}$$

$= 0.65\ cm$

$\delta/l = 1/663 < 1/250$ Ok



$\omega = 0.11\ t/m^2$

$P = 0.11 \times 3.33 \times 1.73/2 = 0.32\ t$

WEIHT OF BEAM = 25.7 kg/m
→ 30 kg/m.

$M_{max} = PL/3 + W'L^2/8$

$= 0.32(10.0)/3 + 0.03(10.0)^2/8$

$= 1.49\ t\cdot m$

$Q = 0.32 + 0.03(10.0)/2$

$= 0.47\ t$

use - H-248×124×5×8 $\ell_b = 333$ cm

$I = 3540 \quad Z = 285\ cm^3 \quad r_b = 3.23$

$\lambda = 333/3.23 = 103 \quad f_b = 1.1$

$\sigma_b/f_b = 144/285(1.1) = 0.46 < 1.0$ ok

$$\Delta = \frac{23PL^3}{648EI} + \frac{5WL^4}{384EI}$$

$$= \frac{23(0.32)(1000)^3}{648(2100)(3540)} + \frac{5(0.03)(1000)^4(10^{-2})}{384(2100)(3540)}$$

$= 2.05$ cm

$$\frac{\Delta}{L} = \frac{1}{487} < \frac{1}{250}$$

§ 9 DESIGN OF FOUNDATION

use PILE φ350 (P.C PILE)

BEARING CAPACITY OF PILE

$$Ra = \frac{30}{3} \times N \times AP$$

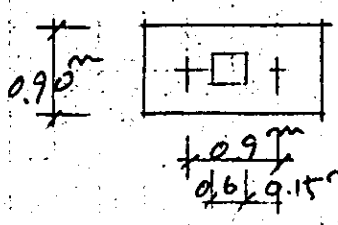
$$= \frac{30}{3} \times 50 \times 0.0962$$

$$= 48.08\ t$$

$$Ra_D = 48.08 - 0.9 \times 0.9 \times 0.8 \times 2.4$$

$$= 46.5\ t \longrightarrow 46.0\ t$$

DESIGN OF FOOTING



2 PILES.

P = 46.0 t
M = 46.0 × 0.15 = 6.9 t·m
Q = 46.0 t

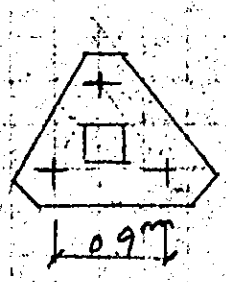
D = 80 d = 70 j = 61.25

$$\sigma t = \frac{690}{2 \times 61.25} = 5.63$$

BAR 5 - D19

$M/Qd = 0.21$

$Q_A = 38.6 \times 2 = 77.2\ t$



3 piles

$L_{MAX} = 0.2$ m P = 46.0 t

$M = 46.0 \times 0.2 = 9.2$

$Q = 46.0$

D = 80 d = 70 j = 61.25 cm

$at = 920 / 2 \times 61.25 = 7.51$

B02 5-D19

§10 ********** DESIGN OF SLAB - REINFORCED CONCRET **********

AIR PORT TERMINAL STATION

(_____)

LX= 3.50 LY= 7.00m RAMDA= 2.00 w(t/m2)= 0.63t/m2
W*LX= 2.20 W*LX^2= 7.71
t(cm)=13.00cm D1(cm)=10.00cm j1= 8.750cm
Tmin =10.84cm D2(cm)= 9.00cm j2=7.875cm

MX1= 7.717 * 0.079 = 0.609 tm at= 3.483cm2
MX2= 7.717 * 0.052 = 0.401 tm at= 2.293cm2
MY1= 7.717 * 0.042 = 0.324 tm at= 2.058cm2
MY2= 7.717 * 0.028 = 0.216 tm at= 1.372cm2
Q = 2.205 * 0.520 = 1.146 t BOND= 6.240cm2

(X) U-BAR @ (Y) U-BAR @
D-BAR @ D-BAR @

(_____)

LX= 4.00 LY= 7.00m RAMDA= 1.75 w(t/m2)= 0.63t/m2
W*LX= 2.52 W*LX^2= 10.08
t(cm)=13.00cm D1(cm)=10.00cm j1= 8.750cm
Tmin =12.54cm D2(cm)= 9.00cm j2= 7.875cm

MX1= 10.080 * 0.075 = 0.761 tm at= 4.348cm2
MX2= 10.080 * 0.050 = 0.504 tm at= 2.880cm2
MY1= 10.080 * 0.042 = 0.423 tm at= 2.688cm2
MY2= 10.080 * 0.028 = 0.282 tm at= 1.792cm2
Q = 2.520 * 0.520 = 1.310 t BOND= 7.131cm2

(X) U-BAR @ (Y) U-BAR @
D-BAR @ D-BAR @

(_____)

LX= 3.50 LY= 6.00m RAMDA= 1.71 w(t/m2)= 0.63t/m2
W*LX= 2.20 W*LX^2= 7.71
t(cm)=13.00cm D1(cm)=10.00cm j1= 8.750cm
Tmin =10.62cm D2(cm)= 9.00cm j2=7.875cm

MX1= 7.717 * 0.075 = 0.579 tm at= 3.313cm2
MX2= 7.717 * 0.050 = 0.385 tm at= 2.205cm2
MY1= 7.717 * 0.042 = 0.324 tm at= 2.058cm2
MY2= 7.717 * 0.028 = 0.216 tm at= 1.372cm2
Q = 2.205 * 0.520 = 1.146 t BOND= 6.240cm2

(X) U-BAR @ (Y) U-BAR @
D-BAR @ D-BAR @

(_____)

LY= 4.50 LY= 5.00m RAMDA= 1.11 w(t/m2)= 0.63t/m2
W*LY= 2.83 W*LX^2= 12.75
t(cm)=13.00cm D1(cm)=10.00cm j1= 8.750cm
Tmin =12.79cm D2(cm)= 9.00cm j2= 7.875cm

MX1= 12.757 * 0.050 = 0.647 tm at= 3.701cm2
MX2= 12.757 * 0.032 = 0.416 tm at= 2.381cm2
MY1= 12.757 * 0.042 = 0.535 tm at= 3.402cm2
MY2= 12.757 * 0.028 = 0.357 tm at= 2.268cm2
Q = 2.835 * 0.520 = 1.474 t BOND= 8.022cm2

(Y) U-BAR @ (Y) U-BAR @
D-BAR @ D-BAR @

**************<<<< DESIGN OF SLAB - REINFORCED CONCRET >>>>************

KOTAINTAN STATION

(_____)

LX= 4.50 LY= 5.50m RAMDA= 1.22 w(t/m2)= 0.78t/m2
W*LX= 3.51 W*LX^2= 15.79
t(cm)=15.00cm D1(cm)=12.00cm j1=10.500cm
Tmin =14.12cm D2(cm)=11.00cm j2= 9.625cm

MX1=	15.795	* 0.058	= 0.930	tm	at=	4.429cm2
MX2=	15.795	* 0.039	= 0.626	tm	at=	2.983cm2
MY1=	15.795	* 0.042	= 0.663	tm	at=	3.446cm2
MY2=	15.795	* 0.028	= 0.442	tm	at=	2.297cm2
Q =	3.510	* 0.520	= 1.825	t	BOND=	8.277cm2

(X) U-BAR @ (Y) U-BAR @
D-BAR @ D-BAR @

(_____)

LX= 4.10 LY= 4.70m RAMDA= 1.14 w(t/m2)= 0.69t/m2
W*LX= 2.82 W*LX^2= 11.59
t(cm)=13.00cm D1(cm)=10.00cm j1= 8.750cm
Tmin =11.97cm D2(cm)= 9.00cm j2= 7.875cm

MX1=	11.598	* 0.053	= 0.617	tm	at=	3.528cm2
MX2=	11.598	* 0.034	= 0.403	tm	at=	2.305cm2
MY1=	11.598	* 0.042	= 0.487	tm	at=	3.093cm2
MY2=	11.598	* 0.028	= 0.324	tm	at=	2.062cm2
Q =	2.829	* 0.520	= 1.471	t	BOND=	8.005cm2

(X) U-BAR @ (Y) U-BAR @
D-BAR @ D-BAR @

(_____)

LX= 4.50 LY= 5.50m RAMDA= 1.22 w(t/m2)= 0.78t/m2
W*LX= 3.51 W*LX^2= 15.79
t(cm)=15.00cm D1(cm)=12.00cm j1=10.500cm
Tmin =14.12cm D2(cm)=11.00cm j2= 9.625cm

MX1=	15.795	* 0.058	= 0.930	tm	at=	4.429cm2
MX2=	15.795	* 0.039	= 0.626	tm	at=	2.983cm2
MY1=	15.795	* 0.042	= 0.663	tm	at=	3.446cm2
MY2=	15.795	* 0.028	= 0.442	tm	at=	2.297cm2
Q =	3.510	* 0.520	= 1.825	t	BOND=	8.277cm2

(X) U-BAR @ (Y) U-BAR @
D-BAR @ D-BAR @

§ 11 _ STRESS.

PLANE FRAME ANALYSIS

(7) (10) LINE.

TITLE AIR TERMINAL STATION

PLACE INDONESIA

DATE 1984. 1.10

SIGN _____

DENCO - A3 Ver 4.02

by Tokyo Denco Co.,Ltd.

***** DATA ECHO *****

1 CONTROL DATA

NUMBER OF JOINTS	24
NUMBER OF SUPPORTS	11
NUMBER OF MATERIAL	2
NUMBER OF MEMBERS	23
NUMBER OF LOAD CASE	2
NUMBER OF LOAD DATA	23
NUMBER OF MIX LOAD CASE	1
NUMBER OF MIX LOAD DATA	2
OUTPUT OPTION	1
SHEAR DEFORMATION	0
COMBINATION OPTION	1

2 COORDINATE OF JOINTS

J.NO	X(m)	Y(m)
1	-2.000	4.750
2	0.000	4.750
3	10.000	4.750
4	20.000	4.750
5	30.000	4.750
6	40.000	4.750
7	50.000	4.750
8	60.000	4.750
9	70.000	4.750
10	80.000	4.750
11	90.000	4.750
12	100.000	4.750
13	102.000	4.750
14	0.000	0.000
15	10.000	0.000
16	20.000	0.000
17	30.000	0.000
18	40.000	0.000
19	50.000	0.000
20	60.000	0.000
21	70.000	0.000
22	80.000	0.000
23	90.000	0.000
24	100.000	0.000

3 SUPPORT OF JOINT

	J.NO	X(t/m.mm)	Y(t/m.mm)	M(rad/tm.rad/10)
1	14	1.0000	1.0000	0.0000
2	15	1.0000	1.0000	0.0000

	J.NO	X(t/m,mm)	Y(t/m,mm)	M(rad/tm,rad/10)
3	16	1.0000	1.0000	0.0000
4	17	1.0000	1.0000	0.0000
5	18	1.0000	1.0000	0.0000
6	19	1.0000	1.0000	0.0000
7	20	1.0000	1.0000	0.0000
8	21	1.0000	1.0000	0.0000
9	22	1.0000	1.0000	0.0000
10	23	1.0000	1.0000	0.0000
11	24	1.0000	1.0000	0.0000

4 MATERIAL TABLE

	E(t/cm*2)	G(t/cm*2)	A(cm*2)	I(cm*4)
1	2100.0	810.0	86.29	13000.00
2	2100.0	810.0	103.30	15500.00

5 MEMBER TABLE

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	kappa	beta
1	1	2	1	2	1.00	1.00	0.00	0.00	1.00	1.00
2	2	3	1	2	1.00	1.00	0.00	0.00	1.00	1.00
3	3	4	1	2	1.00	1.00	0.00	0.00	1.00	1.00
4	4	5	1	2	1.00	1.00	0.00	0.00	1.00	1.00
5	5	6	1	2	1.00	1.00	0.00	0.00	1.00	1.00
6	6	7	1	2	1.00	1.00	0.00	0.00	1.00	1.00
7	7	8	1	2	1.00	1.00	0.00	0.00	1.00	1.00
8	8	9	1	2	1.00	1.00	0.00	0.00	1.00	1.00
9	9	10	1	2	1.00	1.00	0.00	0.00	1.00	1.00
10	10	11	1	2	1.00	1.00	0.00	0.00	1.00	1.00
11	11	12	1	2	1.00	1.00	0.00	0.00	1.00	1.00
12	12	13	1	2	1.00	1.00	0.00	0.00	1.00	1.00
13	2	14	3	1	1.00	1.00	0.00	0.00	1.00	1.00
14	3	15	3	1	1.00	1.00	0.00	0.00	1.00	1.00
15	4	16	3	1	1.00	1.00	0.00	0.00	1.00	1.00
16	5	17	3	1	1.00	1.00	0.00	0.00	1.00	1.00
17	6	18	3	1	1.00	1.00	0.00	0.00	1.00	1.00
18	7	19	3	1	1.00	1.00	0.00	0.00	1.00	1.00
19	8	20	3	1	1.00	1.00	0.00	0.00	1.00	1.00
20	9	21	3	1	1.00	1.00	0.00	0.00	1.00	1.00
21	10	22	3	1	1.00	1.00	0.00	0.00	1.00	1.00
22	11	23	3	1	1.00	1.00	0.00	0.00	1.00	1.00
23	12	24	3	1	1.00	1.00	0.00	0.00	1.00	1.00

6 LOAD DATA TABLE

L.NO	M/J	type	way	1	2	3	4	5	6	7
1	1	5	2	1.32	1.00					
2	2	5	2	1.32	1.00					
3	3	5	2	1.32	1.00					
4	4	5	2	1.32	1.00					
5	5	5	2	1.32	1.00					
6	6	5	2	1.32	1.00					
7	7	5	2	1.32	1.00					
8	8	5	2	1.32	1.00					
9	9	5	2	1.32	1.00					
10	10	5	2	1.32	1.00					
11	11	5	2	1.32	1.00					
12	12	5	2	1.32	1.00					
13	2	1	1	1.90	0.00	0.00				
14	3	1	1	1.90	0.00	0.00				
15	4	1	1	1.90	0.00	0.00				
16	5	1	1	1.90	0.00	0.00				
17	6	1	1	1.90	0.00	0.00				
18	7	1	1	1.90	0.00	0.00				
19	8	1	1	1.90	0.00	0.00				
20	9	1	1	1.90	0.00	0.00				
21	10	1	1	1.90	0.00	0.00				
22	11	1	1	1.90	0.00	0.00				
23	12	1	1	1.90	0.00	0.00				

7 COMBINATION DATA TABLE

C.NO	L.NO	VALUE
1	1	1.00
2	2	1.00

***** PROPERTIES OF MEMBERS *****

M.NO	Im	Jm	L(m)	cos	sin	k(cm**3)	E*I*(I/Io)/L	E*A*(A/Ao)/L
1	1	2	2.000	1.000	0.000	77.50	1.627E+005	1.084E+003
2	2	3	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
3	3	4	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
4	4	5	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
5	5	6	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
6	6	7	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
7	7	8	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
8	8	9	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
9	9	10	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
10	10	11	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
11	11	12	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
12	12	13	2.000	1.000	0.000	77.50	1.627E+005	1.084E+003
13	2	14	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
14	3	15	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
15	4	16	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
16	5	17	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
17	6	18	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
18	7	19	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
19	8	20	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
20	9	21	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
21	10	22	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
22	11	23	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002
23	12	24	4.750	0.000	-1.000	27.36	5.747E+004	3.814E+002

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	2	-0.440	0.660	0.440	1.320	-1.320	0.000	0.000
2	2	3	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
3	3	4	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
4	4	5	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
5	5	6	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
6	6	7	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
7	7	8	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
8	8	9	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
9	9	10	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
10	10	11	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
11	11	12	-11.000	16.500	11.000	6.600	-6.600	0.000	0.000
12	12	13	-0.440	0.660	0.440	1.320	-1.320	0.000	0.000

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	0.00000	-1.32000	-0.44000
2	0.00000	-7.92000	-10.56000
3	0.00000	-13.20000	0.00000
4	0.00000	-13.20000	0.00000
5	0.00000	-13.20000	0.00000
6	0.00000	-13.20000	0.00000
7	0.00000	-13.20000	0.00000
8	0.00000	-13.20000	0.00000
9	0.00000	-13.20000	0.00000
10	0.00000	-13.20000	0.00000
11	0.00000	-13.20000	0.00000
12	0.00000	-7.92000	-10.56000
13	0.00000	-1.32000	0.44000
	0.00000	-137.28000	

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
2	1.90000	0.00000	0.00000
3	1.90000	0.00000	0.00000
4	1.90000	0.00000	0.00000
5	1.90000	0.00000	0.00000
6	1.90000	0.00000	0.00000
7	1.90000	0.00000	0.00000
8	1.90000	0.00000	0.00000
9	1.90000	0.00000	0.00000
10	1.90000	0.00000	0.00000
11	1.90000	0.00000	0.00000
12	1.90000	0.00000	0.00000
	20.90000	0.00000	

***** LOAD CASE NO -1----JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0208742	0.4734850	-0.0023471
2	0.0208742	-0.0229741	-0.0028878
3	0.0161155	-0.0360261	0.0004268
4	0.0121279	-0.0343868	-0.0000745
5	0.0080583	-0.0346366	0.0000049
6	0.0040255	-0.0345984	-0.0000041
7	0.0000000	-0.0346051	-0.0000000
8	-0.0040255	-0.0345984	0.0000041
9	-0.0080583	-0.0346366	-0.0000049
10	-0.0121279	-0.0343868	0.0000745
11	-0.0161155	-0.0360261	-0.0004268
12	-0.0208742	-0.0229741	0.0028878
13	-0.0208742	0.4734850	0.0023471
14	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000
20	0.0000000	0.0000000	0.0000000
21	0.0000000	0.0000000	0.0000000
22	0.0000000	0.0000000	0.0000000
23	0.0000000	-0.0000000	0.0000000
24	0.0000000	0.0000000	0.0000000

***** LOAD CASE NO -1-- --SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	14	1.03230	8.76447	0.00000
2	15	-0.16727	13.74370	0.00000
3	16	-0.01777	13.11833	0.00000
4	17	-0.00796	13.21363	0.00000
5	18	-0.00158	13.19904	0.00000
6	19	-0.00000	13.20159	0.00000
7	20	0.00158	13.19904	0.00000
8	21	0.00796	13.21363	0.00000
9	22	-0.01777	13.11833	0.00000
10	23	0.16727	13.74370	0.00000
11	24	-1.03230	8.76447	0.00000
		-0.00000	137.28000	

***** LOAD CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	2	-0.000	-0.660	-2.640	-0.000	2.640	0.000	0.000
2	2	3	-7.543	6.578	-12.298	6.124	7.075	1.032	-1.032
3	3	4	11.504	5.336	-10.822	6.668	6.531	0.865	-0.865
4	4	5	10.906	5.525	-11.041	6.586	6.613	0.882	-0.882
5	5	6	11.003	5.497	-11.002	6.600	6.599	0.874	-0.874
6	6	7	10.994	5.501	-11.002	6.599	6.600	0.873	-0.873
7	7	8	11.002	5.501	-10.994	6.600	6.599	0.873	-0.873
8	8	9	11.002	5.497	-11.003	6.599	6.600	0.874	-0.874
9	9	10	11.041	5.525	-10.906	6.613	6.586	0.882	-0.882
10	10	11	10.822	5.336	-11.504	6.531	6.668	0.865	-0.865
11	11	12	12.298	6.578	-7.543	7.075	6.124	1.032	-1.032
12	12	13	2.640	0.660	0.000	2.640	0.000	0.000	-0.000
13	2	14	-4.903	2.451	0.000	-1.032	1.032	8.764	-8.764
14	3	15	-0.794	-0.397	0.000	0.167	-0.167	13.743	-13.743
15	4	16	-0.084	0.042	0.000	-0.017	0.017	13.118	-13.118
16	5	17	-0.037	-0.018	0.000	0.007	-0.007	13.213	-13.213
17	6	18	0.007	-0.003	0.000	0.001	-0.001	13.199	-13.199
18	7	19	-0.000	-0.000	-0.000	0.000	-0.000	13.201	-13.201
19	8	20	-0.007	0.003	0.000	-0.001	0.001	13.199	-13.199
20	9	21	-0.037	-0.018	0.000	-0.007	0.007	13.213	-13.213
21	10	22	0.084	-0.042	0.000	0.017	-0.017	13.118	-13.118
22	11	23	-0.794	0.397	-0.000	-0.167	-0.167	13.743	-13.743
23	12	24	4.903	-2.451	0.000	1.032	-1.032	8.764	-8.764

***** LOAD CASE NO 2 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	3.7622906	0.8126505	-0.0040473
2	3.7622906	-0.0031817	-0.0040473
3	3.7600132	-0.0008070	-0.0021758
4	3.7585820	-0.0001222	-0.0024610
5	3.7575146	-0.0000193	-0.0024167
6	3.7568816	-0.0000025	-0.0024230
7	3.7566701	-0.0000000	-0.0024217
8	3.7568816	-0.0000025	-0.0024230
9	3.7575146	0.0000193	-0.0024167
10	3.7585820	0.0001222	-0.0024610
11	3.7600132	0.0008070	-0.0021758
12	3.7622906	-0.0031817	-0.0040473
13	3.7622906	-0.8126505	-0.0040473
14	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
20	0.0000000	0.0000000	0.0000000
21	0.0000000	0.0000000	0.0000000
22	0.0000000	0.0000000	0.0000000
23	0.0000000	0.0000000	0.0000000
24	0.0000000	0.0000000	0.0000000

***** LOAD CASE NO 2 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	14	-1.40596	-1.21383	0.00000
2	15	-2.08356	0.30787	0.00000
3	16	-1.97893	-0.04662	0.00000
4	17	-1.99420	0.00736	0.00000
5	18	-1.99144	-0.00096	0.00000
6	19	-1.99176	0.00000	0.00000
7	20	-1.99144	0.00096	0.00000
8	21	-1.99420	-0.00736	0.00000
9	22	-1.97893	0.04662	0.00000
10	23	-2.08356	-0.30787	0.00000
11	24	-1.40596	1.21383	0.00000
		-20.90000	-0.00000	

***** LOAD CASE NO 2 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	2	-0.000	0.000	-0.000	-0.000	0.000	0.000	0.000
2	2	3	-6.678	0.609	-5.459	-1.213	1.213	0.494	-0.494
3	3	4	-4.436	-0.092	-4.622	-0.905	0.905	0.310	-0.310
4	4	5	-4.777	0.014	-4.748	-0.952	0.952	0.231	-0.231
5	5	6	-4.724	-0.002	-4.728	-0.945	0.945	0.137	-0.137
6	6	7	-4.731	0.000	-4.730	-0.946	0.946	0.045	-0.045
7	7	8	-4.730	-0.000	-4.731	-0.946	0.946	-0.045	-0.045
8	8	9	-4.728	0.002	-4.724	-0.945	0.945	-0.137	0.137
9	9	10	-4.748	-0.014	-4.777	-0.952	0.952	-0.231	0.231
10	10	11	-4.622	0.092	-4.436	-0.905	0.905	-0.310	0.310
11	11	12	-5.459	-0.609	-6.678	-1.213	1.213	-0.494	0.494
12	12	13	-0.000	0.000	-0.000	-0.000	0.000	-0.000	0.000
13	2	14	6.678	-3.339	0.000	1.405	-1.405	-1.213	1.213
14	3	15	9.896	-4.948	0.000	2.083	-2.083	0.307	-0.307
15	4	16	9.399	-4.699	0.000	1.978	-1.978	-0.046	0.046
16	5	17	9.472	-4.736	0.000	1.994	-1.994	0.007	-0.007
17	6	18	9.459	-4.729	0.000	1.991	-1.991	-0.000	0.000
18	7	19	9.460	-4.730	0.000	1.991	-1.991	0.000	-0.000
19	8	20	9.459	-4.729	-0.000	1.991	-1.991	-0.000	-0.000
20	9	21	9.472	-4.736	0.000	1.994	-1.994	-0.007	0.007
21	10	22	9.399	-4.699	0.000	1.978	-1.978	0.046	-0.046
22	11	23	9.896	-4.948	0.000	2.083	-2.083	-0.307	0.307

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
23	12	24	6.678	-3.339	0.000	1.405	-1.405	1.213	-1.213

***** MIX CASE NO 1 *****

	C.NO	L.NO	VALUE
1	1	1	1.00
2	1	2	1.00

***** MIX CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	3.7831648	1.2861356	-0.0063944
2	3.7831648	-0.0197923	-0.0069351
3	3.7761287	-0.0368331	-0.0017489
4	3.7707099	-0.0342646	-0.0025355
5	3.7655730	-0.0346559	-0.0024117
6	3.7609071	-0.0345959	-0.0024271
7	3.7566701	-0.0346051	-0.0024217
8	3.7528560	-0.0346009	-0.0024189
9	3.7494563	-0.0346173	-0.0024217
10	3.7464541	-0.0345090	-0.0023865
11	3.7438977	-0.0352190	-0.0026027
12	3.7414164	-0.0261559	-0.0011595
13	3.7414164	-0.3391654	-0.0017002
14	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000
20	0.0000000	0.0000000	0.0000000
21	0.0000000	0.0000000	0.0000000
22	0.0000000	0.0000000	0.0000000
23	0.0000000	0.0000000	0.0000000
24	0.0000000	0.0000000	0.0000000

***** MIX CASE NO 1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	14	-0.37365	7.55064	0.00000
2	15	-2.25083	14.05158	0.00000
3	16	-1.96115	13.07170	0.00000
4	17	-2.00217	13.22100	0.00000
5	18	-1.99303	13.19808	0.00000
6	19	-1.99176	13.20159	0.00000
7	20	-1.98986	13.20000	0.00000
8	21	-1.98624	13.20626	0.00000
9	22	-1.99670	13.16496	0.00000
10	23	-1.91628	13.43582	0.00000

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
11	24	-2.43826	-9.97830	-0.00000
		-20.90000	-137.28000	

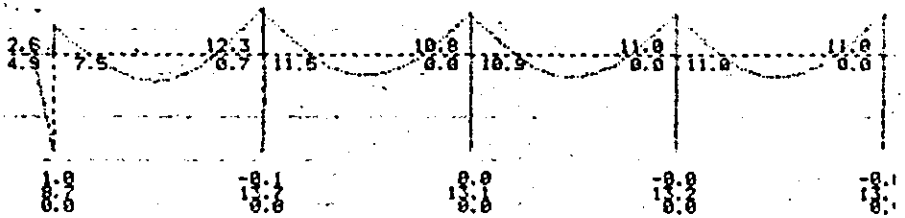
***** MIX CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	2	-0.000	-0.660	-2.640	-0.000	2.640	0.000	0.000
2	2	3	0.865	7.188	-17.758	4.910	8.289	1.526	-1.526
3	3	4	7.067	5.243	-15.444	5.762	7.437	1.175	-1.175
4	4	5	6.129	5.540	-15.790	5.633	7.566	1.114	-1.114
5	5	6	6.279	5.495	-15.730	5.654	7.545	1.012	-1.012
6	6	7	6.263	5.501	-15.733	5.653	7.546	0.919	-0.919
7	7	8	6.272	5.500	-15.725	5.654	7.545	0.827	-0.827
8	8	9	6.274	5.499	-15.727	5.654	7.545	0.737	-0.737
9	9	10	6.293	5.511	-15.684	5.660	7.539	0.651	-0.651
10	10	11	6.199	5.429	-15.941	5.625	7.574	0.554	-0.554
11	11	12	6.838	5.969	-14.221	5.861	7.338	0.538	-0.538
12	12	13	2.640	-0.660	-0.000	2.640	0.000	-0.000	-0.000
13	2	14	1.774	-0.887	0.000	0.373	-0.373	7.550	-7.550
14	3	15	10.691	-5.345	-0.000	2.250	-2.250	14.051	-14.051
15	4	16	9.315	-4.657	0.000	1.961	-1.961	13.071	-13.071
16	5	17	9.510	-4.755	0.000	2.002	-2.002	13.221	-13.221
17	6	18	9.466	-4.733	0.000	1.993	-1.993	13.198	-13.198
18	7	19	9.460	-4.730	0.000	1.991	-1.991	13.201	-13.201
19	8	20	9.451	-4.725	0.000	1.989	-1.989	13.200	-13.200
20	9	21	9.434	-4.717	-0.000	1.986	-1.986	13.206	-13.206
21	10	22	9.484	-4.742	0.000	1.996	-1.996	13.164	-13.164
22	11	23	9.102	-4.551	-0.000	1.916	-1.916	13.435	-13.435
23	12	24	11.581	-5.790	0.000	2.438	-2.438	9.978	-9.978

* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

SCALE 1/ 250



DESIGN OF BEAM

BEAM [G2]

M_L = 12.3 t·m

M_E = 5.4

M_S = 17

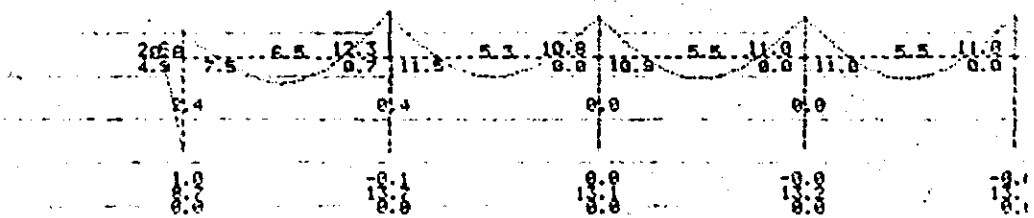
use - φ 355.6 × 9.5

$\sigma_{cb}/f_b = 12.3\times10^3/871\times1.6 = 0.18 < 1.0$ O.K

* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

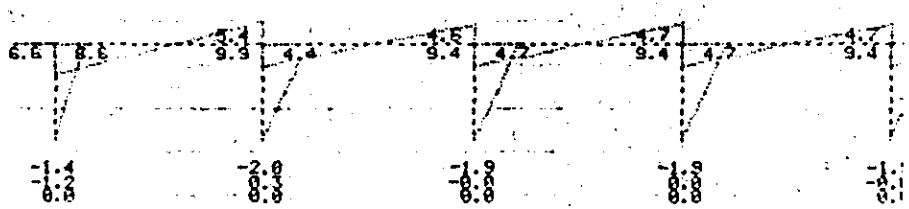
SCALE 1/ 250



* PLANE FRAME ANALYSIS LOAD NO 2

MOMENT

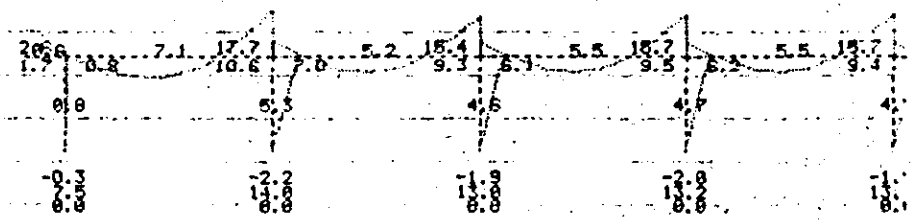
SCALE 1/ 250



* PLANE FRAME ANALYSIS MIX NO 1

MOMENT

SCALE 1/ 250



(8-1) LINE

PLANE FRAME ANALYSIS

TITLE AIR TERMINAL STATION

PLACE INDONESIR

DATE 1984. 1.10

SIGN

DENCO - A3 Ver 4.02

by Tokyo Denco Co.,Ltd.

***** DATA ECHO *****

1 CONTROL DATA

NUMBER OF JOINTS	24
NUMBER OF SUPPORTS	11
NUMBER OF MATERIAL	2
NUMBER OF MEMBERS	23
NUMBER OF LOAD CASE	2
NUMBER OF LOAD DATA	23
NUMBER OF MIX LOAD CASE	1
NUMBER OF MIX LOAD DATA	2
OUTPUT OPTION	1
SHEAR DEFORMATION	0
COMBINATION OPTION	1

2 COORDINATE OF JOINTS

J.NO	X(m)	Y(m)
1	-2.000	7.000
2	0.000	7.000
3	10.000	7.000
4	20.000	7.000
5	30.000	7.000
6	40.000	7.000
7	50.000	7.000
8	60.000	7.000
9	70.000	7.000
10	80.000	7.000
11	90.000	7.000
12	100.000	7.000
13	102.000	7.000
14	0.000	0.000
15	10.000	0.000
16	20.000	0.000
17	30.000	0.000
18	40.000	0.000
19	50.000	0.000
20	60.000	0.000
21	70.000	0.000
22	80.000	0.000
23	90.000	0.000
24	100.000	0.000

3 SUPPORT OF JOINT

	J.NO	X(t/m,mm)	Y(t/m,mm)	M(rad/tm,rad/t0)
1	14	1.0000	1.0000	0.0000
2	15	1.0000	1.0000	0.0000

	J.NO	X(t/m.mm)	Y(t/m.mm)	M(rad/tm.rad/10)
3	16	1.0000	1.0000	0.0000
4	17	1.0000	1.0000	0.0000
5	18	1.0000	1.0000	0.0000
6	19	1.0000	1.0000	0.0000
7	20	1.0000	1.0000	0.0000
8	21	1.0000	1.0000	0.0000
9	22	1.0000	1.0000	0.0000
10	23	1.0000	1.0000	0.0000
11	24	1.0000	1.0000	0.0000

4 MATERIAL TABLE

	E(t/cm*2)	G(t/cm*2)	A(cm*2)	I(cm*4)
1	2100.0	810.0	86.29	13000.00
2	2100.0	810.0	103.30	15500.00

5 MEMBER TABLE

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	kappa	beta
1	1	2	1	2	1.00	1.00	0.00	0.00	1.00	1.00
2	2	3	1	2	1.00	1.00	0.00	0.00	1.00	1.00
3	3	4	1	2	1.00	1.00	0.00	0.00	1.00	1.00
4	4	5	1	2	1.00	1.00	0.00	0.00	1.00	1.00
5	5	6	1	2	1.00	1.00	0.00	0.00	1.00	1.00
6	6	7	1	2	1.00	1.00	0.00	0.00	1.00	1.00
7	7	8	1	2	1.00	1.00	0.00	0.00	1.00	1.00
8	8	9	1	2	1.00	1.00	0.00	0.00	1.00	1.00
9	9	10	1	2	1.00	1.00	0.00	0.00	1.00	1.00
10	10	11	1	2	1.00	1.00	0.00	0.00	1.00	1.00
11	11	12	1	2	1.00	1.00	0.00	0.00	1.00	1.00
12	12	13	1	2	1.00	1.00	0.00	0.00	1.00	1.00
13	2	14	3	1	1.00	1.00	0.00	0.00	1.00	1.00
14	3	15	3	1	1.00	1.00	0.00	0.00	1.00	1.00
15	4	16	3	1	1.00	1.00	0.00	0.00	1.00	1.00
16	5	17	3	1	1.00	1.00	0.00	0.00	1.00	1.00
17	6	18	3	1	1.00	1.00	0.00	0.00	1.00	1.00
18	7	19	3	1	1.00	1.00	0.00	0.00	1.00	1.00
19	8	20	3	1	1.00	1.00	0.00	0.00	1.00	1.00
20	9	21	3	1	1.00	1.00	0.00	0.00	1.00	1.00
21	10	22	3	1	1.00	1.00	0.00	0.00	1.00	1.00
22	11	23	3	1	1.00	1.00	0.00	0.00	1.00	1.00
23	12	24	3	1	1.00	1.00	0.00	0.00	1.00	1.00

6 LOAD DATA TABLE

	L.NO	M/J type	way	1	2	3	4	5	6	7
1	1	1	5	2	1.57	1.00				
2	1	2	5	2	1.57	1.00				
3	1	3	5	2	1.57	1.00				
4	1	4	5	2	1.57	1.00				
5	1	5	5	2	1.57	1.00				
6	1	6	5	2	1.57	1.00				
7	1	7	5	2	1.57	1.00				
8	1	8	5	2	1.57	1.00				
9	1	9	5	2	1.57	1.00				
10	1	10	5	2	1.57	1.00				
11	1	11	5	2	1.57	1.00				
12	1	12	5	2	1.57	1.00				
13	2	2	1	1	1.42	0.00	0.00			
14	2	3	1	1	1.42	0.00	0.00			
15	2	4	1	1	1.42	0.00	0.00			
16	2	5	1	1	1.42	0.00	0.00			
17	2	6	1	1	1.42	0.00	0.00			
18	2	7	1	1	1.42	0.00	0.00			
19	2	8	1	1	1.42	0.00	0.00			
20	2	9	1	1	1.42	0.00	0.00			
21	2	10	1	1	1.42	0.00	0.00			
22	2	11	1	1	1.42	0.00	0.00			
23	2	12	1	1	1.42	0.00	0.00			

7 COMBINATION DATA TABLE

C.NO	L.NO	VALUE
1	1	1.00
2	1	2	1.00

***** PROPERTIES OF MEMBERS *****

M.NO	Im	Jm	L(m)	cos	sin	k(cm**3)	E*I*(I/Io)/L	E*A*(A/Ao)/L
1	1	2	2.000	1.000	0.000	77.50	1.627E+005	1.084E+003
2	2	3	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
3	3	4	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
4	4	5	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
5	5	6	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
6	6	7	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
7	7	8	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
8	8	9	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
9	9	10	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
10	10	11	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
11	11	12	10.000	1.000	0.000	15.50	3.255E+004	2.169E+002
12	12	13	2.000	1.000	0.000	77.50	1.627E+005	1.084E+003
13	2	14	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
14	3	15	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
15	4	16	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
16	5	17	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
17	6	18	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
18	7	19	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
19	8	20	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
20	9	21	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
21	10	22	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
22	11	23	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002
23	12	24	7.000	0.000	-1.000	18.57	3.900E+004	2.588E+002

***** LOAD CASE NO 1 - EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	2	-0.523	0.785	0.523	1.570	-1.570	0.000	0.000
2	2	3	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
3	3	4	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
4	4	5	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
5	5	6	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
6	6	7	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
7	7	8	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
8	8	9	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
9	9	10	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
10	10	11	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
11	11	12	-13.083	19.625	13.083	7.850	-7.850	0.000	0.000
12	12	13	-0.523	0.785	0.523	1.570	-1.570	0.000	0.000

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	0.00000	-1.57000	-0.52333
2	0.00000	-9.42000	-12.56000
3	0.00000	-15.70000	0.00000
4	0.00000	-15.70000	0.00000
5	0.00000	-15.70000	0.00000
6	0.00000	-15.70000	0.00000
7	0.00000	-15.70000	0.00000
8	0.00000	-15.70000	0.00000
9	0.00000	-15.70000	0.00000
10	0.00000	-15.70000	0.00000
11	0.00000	-15.70000	0.00000
12	0.00000	-9.42000	-12.56000
13	0.00000	-1.57000	0.52333
	0.00000	-163.28000	

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im - Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
2	1.42000	0.00000	0.00000
3	1.42000	0.00000	0.00000
4	1.42000	0.00000	0.00000
5	1.42000	0.00000	0.00000
6	1.42000	0.00000	0.00000
7	1.42000	0.00000	0.00000
8	1.42000	0.00000	0.00000
9	1.42000	0.00000	0.00000
10	1.42000	0.00000	0.00000
11	1.42000	0.00000	0.00000
12	1.42000	0.00000	0.00000
	15.62000	0.00000	

***** LOAD CASE NO - 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0141866	0.7128328	-0.0036026
2	0.0141866	-0.0398449	-0.0042457
3	0.0109309	-0.0637092	0.0007400
4	0.0082574	-0.0601122	-0.0001334
5	0.0054903	-0.0607441	0.0000211
6	0.0027455	-0.0606324	-0.0000048
7	0.0000000	-0.0606554	-0.0000000
8	-0.0027455	-0.0606324	0.0000048
9	-0.0054903	-0.0607441	-0.0000211
10	-0.0082574	-0.0601122	0.0001334
11	-0.0109309	-0.0637092	-0.0007400
12	-0.0141866	-0.0398449	0.0042457
13	-0.0141866	0.7128328	0.0036026
14	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000
20	0.0000000	0.0000000	0.0000000
21	0.0000000	0.0000000	0.0000000
22	0.0000000	0.0000000	0.0000000
23	0.0000000	0.0000000	0.0000000
24	0.0000000	0.0000000	0.0000000

***** LOAD CASE NO - 1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	14	-0.70625	10.31466	0.00000
2	15	-0.12630	16.49240	0.00000
3	16	0.02032	15.56124	0.00000
4	17	-0.00484	15.72482	0.00000
5	18	0.00014	15.69592	0.00000
6	19	-0.00000	15.70186	0.00000
7	20	-0.00014	15.69592	0.00000
8	21	0.00484	15.72482	0.00000
9	22	-0.02032	15.56124	0.00000
10	23	0.12630	16.49240	0.00000
11	24	-0.70625	10.31466	0.00000
		-0.00000	163.28000	

***** LOAD CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im - Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1 - 2	-0.000	-0.785	-3.140	-0.000	3.140	0.000	0.000
2	2 - 3	8.083	8.164	-14.837	7.174	8.525	0.706	-0.706
3	3 - 4	13.953	6.257	-12.782	7.967	7.732	0.579	-0.579
4	4 - 5	12.924	6.591	-13.141	7.828	7.871	0.600	-0.600
5	5 - 6	13.107	6.533	-13.076	7.853	7.846	0.595	-0.595
6	6 - 7	13.077	6.543	-13.086	7.849	7.850	0.595	-0.595
7	7 - 8	13.086	6.543	-13.077	7.850	7.849	0.595	-0.595
8	8 - 9	13.076	6.533	-13.107	7.846	7.853	0.595	-0.595
9	9 - 10	13.141	6.591	-12.924	7.871	7.828	0.600	-0.600
10	10 - 11	12.782	6.257	-13.953	7.732	7.967	0.579	-0.579
11	11 - 12	14.837	8.164	-8.083	8.525	7.174	0.706	-0.706
12	12 - 13	3.140	-0.785	-0.000	3.140	-0.000	-0.000	-0.000
13	2 - 14	-4.943	2.471	0.000	-0.706	0.706	10.314	-10.314
14	3 - 15	0.884	-0.442	0.000	0.126	-0.126	16.492	-16.492
15	4 - 16	-0.142	0.071	0.000	-0.020	0.020	15.561	-15.561
16	5 - 17	0.033	-0.016	0.000	0.004	-0.004	15.724	-15.724
17	6 - 18	-0.001	0.000	0.000	-0.000	0.000	15.695	-15.695
18	7 - 19	0.000	-0.000	0.000	0.000	-0.000	15.701	-15.701
19	8 - 20	0.001	-0.000	0.000	0.000	-0.000	15.695	-15.695
20	9 - 21	-0.033	0.016	0.000	-0.004	0.004	15.724	-15.724
21	10 - 22	0.142	-0.071	0.000	0.020	-0.020	15.561	-15.561
22	11 - 23	-0.884	0.442	0.000	-0.126	0.126	16.492	-16.492
23	12 - 24	4.943	-2.471	0.000	0.706	-0.706	10.314	-10.314

***** LOAD CASE NO 2 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	8.0396215	0.9746946	-0.0048467
2	8.0396215	0.0053497	-0.0048467
3	8.0381905	-0.0015950	-0.0022582
4	8.0373213	0.0002803	-0.0027148
5	8.0366611	-0.0000495	-0.0026342
6	8.0362714	0.0000082	-0.0026483
7	8.0361408	-0.0000000	-0.0026453
8	8.0362714	-0.0000082	-0.0026483
9	8.0366611	0.0000495	-0.0026342
10	8.0373213	-0.0002803	-0.0027148
11	8.0381905	0.0015950	-0.0022582
12	8.0396215	-0.0053497	-0.0048467
13	8.0396215	-0.9746946	-0.0048467
14	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
20	0.0000000	0.0000000	0.0000000
21	0.0000000	0.0000000	0.0000000
22	0.0000000	0.0000000	0.0000000
23	0.0000000	0.0000000	0.0000000
24	0.0000000	0.0000000	0.0000000

***** LOAD CASE NO 2 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	14	-1.10956	-1.38488	0.00000
2	15	-1.54187	-0.41291	0.00000
3	16	-1.46535	-0.07258	0.00000
4	17	-1.47865	-0.01283	0.00000
5	18	-1.47621	-0.00214	0.00000
6	19	-1.47667	0.00000	0.00000
7	20	-1.47621	0.00214	0.00000
8	21	-1.47865	0.01283	0.00000
9	22	-1.46535	0.07258	0.00000
10	23	-1.54187	0.41291	0.00000
11	24	-1.10956	1.38488	0.00000
		-15.61999	0.00000	

***** LOAD CASE NO 2 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	2	-0.000	0.000	-0.000	-0.000	0.000	-0.000	0.000
2	2	3	-7.766	0.842	-6.081	-1.384	1.384	0.310	-0.310
3	3	4	-4.711	-0.148	-5.008	-0.971	0.971	0.188	-0.188
4	4	5	-5.248	0.026	-5.196	-1.044	1.044	0.143	-0.143
5	5	6	-5.154	-0.004	-5.163	-1.031	1.031	0.084	-0.084
6	6	7	-5.170	0.000	-5.168	-1.033	1.033	0.028	-0.028
7	7	8	-5.168	-0.000	-5.170	-1.033	1.033	-0.028	0.028
8	8	9	-5.163	0.004	-5.154	-1.031	1.031	-0.084	0.084
9	9	10	-5.196	-0.026	-5.248	-1.044	1.044	-0.143	0.143
10	10	11	-5.008	0.148	-4.711	-0.971	0.971	-0.188	0.188
11	11	12	-6.081	-0.842	-7.766	-1.384	1.384	-0.310	0.310
12	12	13	0.000	-0.000	0.000	0.000	-0.000	0.000	-0.000
13	2	14	-7.766	-3.883	-0.000	1.109	-1.109	-1.384	1.384
14	3	15	10.793	-5.396	0.000	1.541	-1.541	0.412	-0.412
15	4	16	10.257	-5.128	0.000	1.465	-1.465	-0.072	0.072
16	5	17	10.350	-5.175	0.000	1.478	-1.478	0.012	-0.012
17	6	18	10.333	-5.166	-0.000	1.476	-1.476	-0.002	0.002
18	7	19	10.336	-5.168	0.000	1.476	-1.476	0.000	-0.000
19	8	20	10.333	-5.166	-0.000	1.476	-1.476	0.002	-0.002
20	9	21	10.350	-5.175	0.000	1.478	-1.478	-0.012	0.012
21	10	22	10.257	-5.128	0.000	1.465	-1.465	0.072	-0.072
22	11	23	10.793	-5.396	0.000	1.541	-1.541	-0.412	0.412

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
23	12	24	7.766	-3.883	0.000	-1.109	-1.109	1.384	-1.384

***** MIX CASE NO - 1 *****

	C.NO	L.NO	VALUE
1	1	1	1.00
2	1	2	1.00

***** MIX CASE NO 1 JOINT-DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	8.0538081	-1.6875274	-0.0084493
2	8.0538081	-0.0344952	-0.0090924
3	8.0491214	-0.0653042	-0.0015181
4	8.0455788	-0.0598318	-0.0028482
5	8.0421515	-0.0607936	-0.0026131
6	8.0390169	-0.0606241	-0.0026531
7	8.0361408	-0.0606554	-0.0026453
8	8.0335259	-0.0606407	-0.0026435
9	8.0311708	-0.0606945	-0.0026554
10	8.0290638	-0.0603925	-0.0025813
11	8.0272596	-0.0621141	-0.0029982
12	8.0254349	-0.0451946	-0.0006010
13	8.0254349	-0.2618618	-0.0012441
14	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000
20	0.0000000	0.0000000	0.0000000
21	0.0000000	0.0000000	0.0000000
22	0.0000000	0.0000000	0.0000000
23	0.0000000	0.0000000	0.0000000
24	0.0000000	0.0000000	0.0000000

***** MIX CASE NO 1 SUPPORT-REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	14	-0.40331	8.92977	0.00000
2	15	-1.66817	16.90531	0.00000
3	16	-1.44502	15.48866	0.00000
4	17	-1.48350	15.73765	0.00000
5	18	-1.47606	15.69378	0.00000
6	19	-1.47667	15.70186	0.00000
7	20	-1.47636	15.69806	0.00000
8	21	-1.47380	15.71199	0.00000
9	22	-1.48568	15.63382	0.00000
10	23	-1.41556	16.07949	0.00000

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
11	-24	-1.81582	-11.69955	0.00000
		-15.61999	163.28000

***** MIX CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	2	-0.000	-0.785	-3.140	-0.000	3.140	0.000	0.000
2	2	3	0.316	-9.007	-20.919	5.789	9.910	1.016	-1.016
3	3	4	9.241	6.108	-17.790	6.995	8.704	0.768	-0.768
4	4	5	7.675	6.618	-18.337	6.783	8.916	0.743	-0.743
5	5	6	7.953	6.528	-18.239	6.821	8.878	0.679	-0.679
6	6	7	7.906	6.544	-18.254	6.815	8.884	0.623	-0.623
7	7	8	7.918	6.542	-18.247	6.817	8.882	0.567	-0.567
8	8	9	7.912	6.537	-18.261	6.815	8.884	0.510	-0.510
9	9	10	7.944	6.565	-18.173	6.827	8.872	0.457	-0.457
10	10	11	7.773	6.405	-18.664	6.760	8.939	0.391	-0.391
11	11	12	8.755	7.321	-15.850	7.140	8.559	0.395	-0.395
12	12	13	3.140	-0.785	-0.000	3.140	-0.000	0.000	-0.000
13	2	14	2.823	-1.411	0.000	0.403	-0.403	8.929	-8.929
14	3	15	11.677	-5.838	0.000	1.668	-1.668	16.905	-16.905
15	4	16	10.115	-5.057	0.000	1.445	-1.445	15.488	-15.488
16	5	17	10.384	-5.192	0.000	1.483	-1.483	15.737	-15.737
17	6	18	10.332	-5.166	0.000	1.476	-1.476	15.693	-15.693
18	7	19	10.336	-5.168	0.000	1.476	-1.476	15.701	-15.701
19	8	20	10.334	-5.167	0.000	1.476	-1.476	15.698	-15.698
20	9	21	10.316	-5.158	0.000	1.473	-1.473	15.711	-15.711
21	10	22	10.399	-5.199	0.000	1.485	-1.485	15.633	-15.633
22	11	23	9.908	-4.954	0.000	1.415	-1.415	16.079	-16.079
23	12	24	12.710	-6.355	0.000	1.815	-1.815	11.699	-11.699

* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

SCALE 1/ 250

DESIGN OF BEAM

Mc = 14.8 t·m ϕ - 311.6 × 9.5

Z = 6.0 σ_b / f_b = 1480 / 871 × 1.6 = 1.0 ≤ 1.0 ok

S = 20.8

DESIGN OF COLUMN

(C) [Nc 17.31 Mc 0.8 / ± — ± 10.7 / S 17.31 S 11.5]

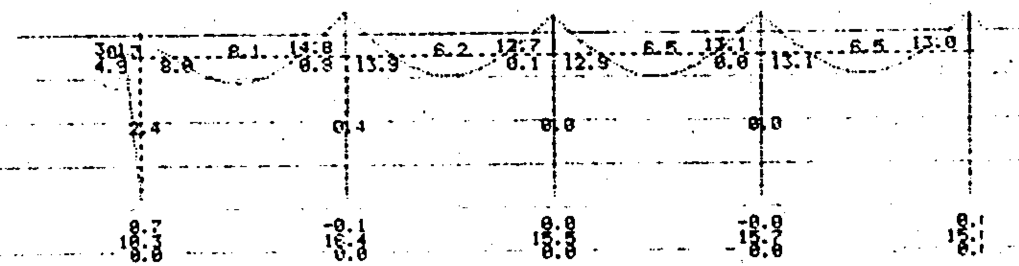
(T) [Nc 17.31 Mc 0 / ± — ± 8.1 / S 17.71 S 8.1]

use ϕ - 355.6 × 7.9

l = 700 i = 12.3 λ = 113.8 fc = ...

$\sigma_c / f_c + \sigma_b / f_b$ = 17.31 / 86.25 × 0.721 × 1.5 + 1150 / 734 × 1.6 × 1.5

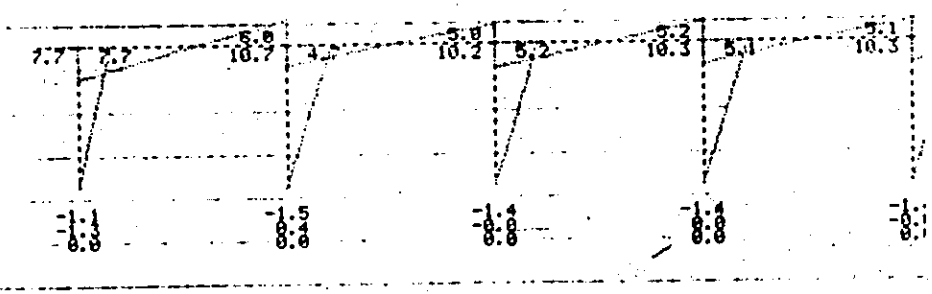
= 0.84 < 1.0 ok



* PLANE FRAME ANALYSIS LOAD NO 2

MOMENT

SCALE 1/ 250

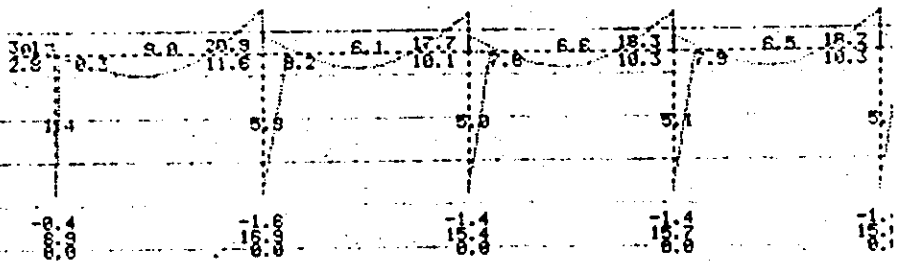


* PLANE FRAME ANALYSIS MIX NO 1

MOMENT

SCALE 1/ 250

100



⑭ LNE

PLANE FRAME ANALYSIS

TITLE AIR TERMINAL STATION

PLACE INDONESIA

DATE 1984. 1.10

SIGN _____

DENCO - A3 Ver 4.02

by Tokyo Denco Co.,Ltd.

***** DATA ECHO *****

1 CONTPOL-DATA

NUMBER OF JOINTS	6
NUMBER OF SUPPORTS	3
NUMBER OF MATERIAL	2
NUMBER OF MEMBERS	5
NUMBER OF LOAD CASE	2
NUMBER OF LOAD DATA	3
NUMBER OF MIX LOAD CASE	1
NUMBER OF MIX LOAD DATA	2
OUTPUT OPTION	1
SHEAR-DEFORMATION	0
COMBINATION OPTION	1

2 COORDINATE OF JOINTS

J.NO	X(m)	Y(m)
1	0.000	0.000
2	6.000	0.000
3	12.000	0.000
4	0.000	4.700
5	6.000	7.000
6	12.000	4.700

3 SUPPORT OF JOINT

	J.NO	X(t/m,mm)	Y(t/m,mm)	M(rad/tm,rad/10)
1	1	1.0000	1.0000	0.0000
2	2	1.0000	1.0000	0.0000
3	3	1.0000	1.0000	0.0000

4 MATERIAL TABLE

	E(t/cm*2)	G(t/cm*2)	A(cm*2)	I(cm*4)
1	2100.0	810.0	86.29	13000.00
2	2100.0	810.0	103.30	15500.00

5 MEMBER TABLE

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	kappa	beta
1	1	4	2	1	1.00	1.00	0.00	0.00	1.00	1.00
2	2	5	2	1	1.00	1.00	0.00	0.00	1.00	1.00
3	3	6	2	1	1.00	1.00	0.00	0.00	1.00	1.00

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	kappa	beta
4	4	5	1	2	1.00	1.00	0.00	0.00	1.00	1.00
5	5	6	1	2	1.00	1.00	0.00	0.00	1.00	1.00

6 LOAD DATA TABLE

L.NO	M/J	type	way	1	2	3	4	5	6	7
1	1	4	5	2	0.10	1.00	--			
2	1	5	5	2	0.10	1.00				
3	2	5	1	1	5.06	0.00	0.00			

7 COMBINATION DATA TABLE

C.NO	L.NO	VALUE
1	1	1.00
2	1	1.00

***** PROPERTIES OF MEMBERS *****

M.NO	Im	Jm	L(m)	cos	sin	k(cm*3)	E*I*(I/Io)/L	E*A*(A/Ao)/L
1	1	4	4.700	0.000	1.000	27.65	5.808E+004	3.855E+002
2	2	5	7.000	0.000	1.000	18.57	3.900E+004	2.588E+002
3	3	6	4.700	0.000	1.000	27.65	5.808E+004	3.855E+002
4	4	5	6.425	0.933	0.357	24.12	5.065E+004	3.375E+002
5	5	6	6.425	0.933	-0.357	24.12	5.065E+004	3.375E+002

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
4	4	5	-0.321	0.481	-0.321	-0.300	-0.300	-0.115	0.115
5	5	6	-0.321	0.481	0.321	0.300	-0.300	0.115	-0.115

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
4	0.00000	-0.32128	-0.32128
5	0.00000	-0.64257	0.00000
6	-0.00000	-0.32128	0.32128
	0.00000	-1.28514	

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im - Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
5	5.06000	0.00000	0.00000
	5.06000	0.00000	

***** LOAD CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	-0.0006789	-0.0007598	-0.0000871
5	-0.0000000	-0.0027010	-0.0000000
6	0.0006789	-0.0007598	0.0000871

***** LOAD CASE NO 1 SUPPORT REACTION *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	0.03285	0.29296	0.00000
2	0.00000	0.69920	0.00000
3	-0.03285	-0.29296	-0.00000
	0.00000	1.28514	

***** LOAD CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	-0.077	-0.154	-0.032	0.032	0.292	-0.292
2	2	5	0.000	-0.000	-0.000	-0.000	0.000	0.699	-0.699
3	3	6	0.000	0.077	0.154	0.032	-0.032	0.292	-0.292
4	4	5	0.154	0.204	-0.399	0.261	-0.338	0.135	-0.094
5	5	6	0.399	0.204	-0.154	0.338	0.261	-0.094	-0.135

***** LOAD CASE NO 2 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	-0.0000000	0.0000000	-0.0000000
3	0.0000000	0.0000000	0.0000000
4	4.6710934	0.0076557	-0.0046902
5	4.6831433	0.0000000	0.0003001
6	4.6710934	-0.0076557	-0.0046902

***** LOAD CASE NO 2 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	-1.94580	-2.95166	0.00000
2	2	-1.16839	-0.00000	0.00000
3	3	-1.94580	2.95166	0.00000
		-5.06000	0.00000	

***** LOAD CASE NO 2 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	4.572	-9.145	-1.945	-1.945	-2.951	2.951
2	2	5	0.000	4.089	8.178	1.168	-1.168	-0.000	0.000
3	3	6	0.000	4.572	-9.145	1.945	-1.945	2.951	-2.951
4	4	5	-9.145	2.527	-4.089	-2.059	2.059	-2.873	2.873
5	5	6	-4.089	-2.527	-9.145	-2.059	2.059	2.873	-2.873

***** MIX CASE NO 1 *****

	C.NO	L.NO	VALUE
1	1	1	1.00
2	1	2	1.00

***** MIX CASE NO 1 --- JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	4.6704144	0.0068958	-0.0047774
5	4.6831433	-0.0027010	0.0003001
6	4.6717723	-0.0084155	-0.0046031

***** MIX CASE NO 1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	-1.91295	-2.65869	0.00000
2	2	-1.16839	0.69920	0.00000
3	3	-1.97865	3.24463	0.00000
		-5.06000	1.28514	

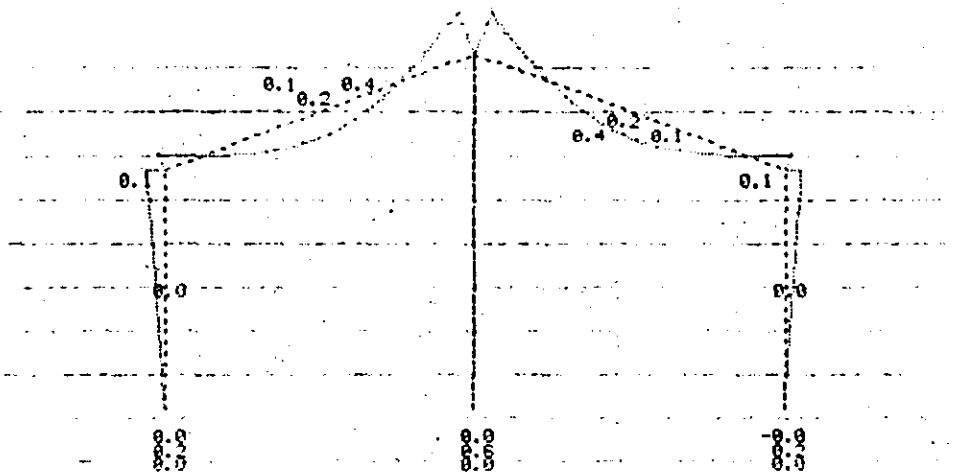
***** MIX CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	4.495	8.990	1.912	-1.912	-2.658	2.658
2	2	5	0.000	-4.089	-8.178	1.168	-1.168	0.699	-0.699
3	3	6	0.000	4.649	9.299	1.978	-1.978	3.244	-3.244
4	4	5	-8.990	2.732	-4.489	-1.797	2.397	-2.737	2.967
5	5	6	-3.689	-2.323	-9.299	-1.721	2.321	2.778	-3.008

* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

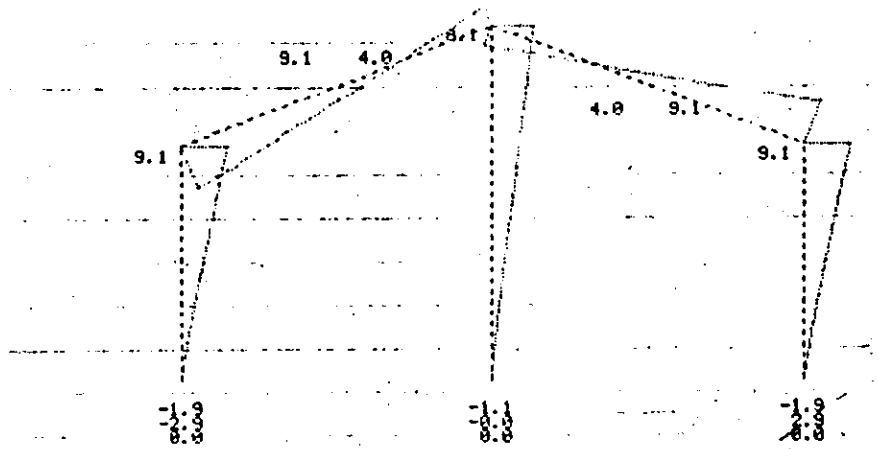
SCALE 1/ 100



* PLANE FRAME ANALYSIS LOAD NO 2

MOMENT

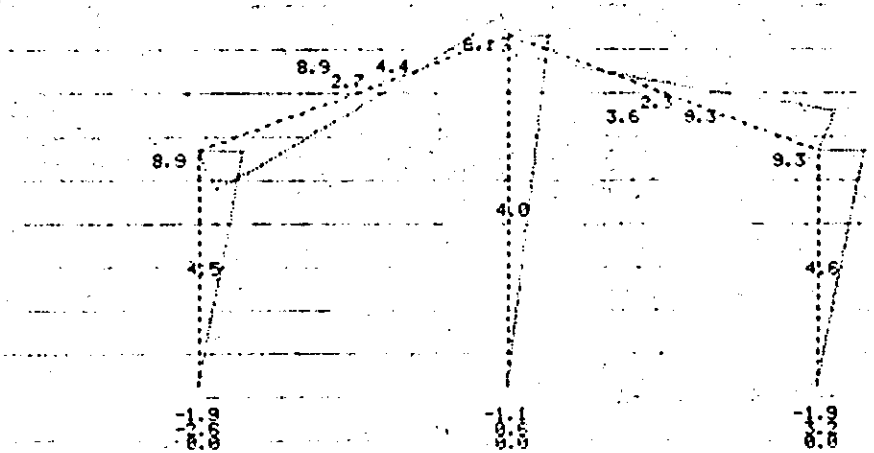
SCALE 1/ 100



* PLANE FRAME ANALYSIS MIX NO 1

MOMENT

SCALE 1/ 100



⑤ LINE

PLANE FRAME ANALYSIS

TITLE AIR TERMINAL STATION TERMINAL BLD

PLACE IND

DATE 1984. 1.10

SIGN _____

DENCO - A3 Ver 4.02

by Tokyo Denco Co.,Ltd.

***** DATA ECHO *****

1 CONTROL-DATA

NUMBER OF JOINTS	6
NUMBER OF SUPPORTS	3
NUMBER OF MATERIAL	1
NUMBER OF MEMBERS	5
NUMBER OF LOAD CASE	2
NUMBER OF LOAD DATA	5
NUMBER OF MIX LOAD CASE	1
NUMBER OF MIX LOAD DATA	2
OUTPUT OPTION	1
SHEAR DEFORMATION	0
COMBINATION OPTION	1

2 COORDINATE OF JOINTS

J.NO	X(m)	Y(m)
1	0.000	0.000
2	11.000	0.000
3	22.000	0.000
4	0.000	9.700
5	11.000	9.700
6	22.000	9.700

3 SUPPORT OF JOINT

	J.NO	X(t/m·mm)	Y(t/m·mm)	M(rad/tm·rad/10)
1	1	1.0000	1.0000	0.0000
2	2	1.0000	1.0000	0.0000
3	3	1.0000	1.0000	0.0000

4 MATERIAL TABLE

	E(t/cm*2)	G(t/cm*2)	A(cm*2)	I(cm*4)
1	2100.0	810.0	133.60	33500.00

5 MEMBER TABLE

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Yj(cm)	Xj(cm)	kappa	beta
1	1	4	2	1	1.00	1.00	0.00	0.00	1.00	1.00
2	2	5	2	1	1.00	1.00	0.00	0.00	1.00	1.00
3	3	6	2	1	1.00	1.00	0.00	0.00	1.00	1.00
4	4	5	1	1	1.00	1.00	0.00	0.00	1.00	1.00

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	kappa	beta
5	5	6	1	1	1.00	1.00	0.00	0.00	1.00	1.00

6 LOAD DATA TABLE

L.NO	M/J	type	way	1	2	3	4	5	6	7
1	1	4	5	2	1.04	1.00				
2	1	5	5	2	1.04	1.00				
3	2	4	1	1	1.37	1.00	0.00			
4	2	5	1	1	4.53	0.00	0.00			
5	2	6	1	1	1.37	0.00	0.00			

7 CONBINATION DATA TABLE

C.NO	L.NO	VALUE
1	1	1.00
2	1	2 1.00

***** PROPERTIES OF MEMBERS *****

M.NO	Im	Jm	L(m)	cos	sin	k(cm*3)	E*I*(I/Io)/L	E*A*(A/Ao)/L
1	1	4	9.700	0.000	1.000	34.53	7.252E+004	2.892E+002
2	2	5	9.700	0.000	1.000	34.53	7.252E+004	2.892E+002
3	3	6	9.700	0.000	1.000	34.53	7.252E+004	2.892E+002
4	4	5	11.000	1.000	0.000	30.45	6.395E+004	2.550E+002
5	5	6	11.000	1.000	0.000	30.45	6.395E+004	2.550E+002

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
4	4	5	-10.486	15.730	10.486	5.720	-5.720	0.000	0.000
5	5	6	-10.486	15.730	10.486	5.720	-5.720	0.000	0.000

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
4	0.00000	-5.72000	-10.48666
5	0.00000	-11.44000	0.00000
6	0.00000	-5.72000	-10.48666
	0.00000	-22.88000	

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
4	1.37000	-1.00000	0.00000
5	4.53000	0.00000	0.00000
6	1.37000	0.00000	0.00000
	7.27000	-1.00000	

***** LOAD CASE NO -1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	0.0019651	-0.0171394	-0.0022365
5	0.0000000	-0.0448257	-0.0000000
6	-0.0019651	-0.0171394	0.0022365

***** LOAD CASE NO -1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	-1	0.50121	4.95736	0.00000
2	2	-0.00000	12.96527	0.00000
3	3	-0.50121	-4.95736	-0.00000
		0.00000	22.88000	

***** LOAD CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	-2.430	-4.861	-0.501	0.501	4.957	-4.957
2	2	5	0.000	0.000	0.000	0.000	-0.000	12.965	-12.965
3	3	6	0.000	2.430	4.861	0.501	-0.501	4.957	-4.957
4	4	5	-4.861	6.673	-13.250	4.957	6.482	0.501	-0.501
5	5	6	13.250	6.673	-4.861	6.482	4.957	0.501	-0.501

***** LOAD CASE NO 2 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	15.6392156	0.0076271	-0.0067536
5	15.6420839	-0.0000044	-0.0024507
6	-15.6392179	-0.0110800	-0.0067562

***** LOAD CASE NO 2 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	-2.10157	-2.20605	0.00000
2	2	-3.06742	0.00129	0.00000
3	3	-2.10100	3.20475	0.00000
		-7.26999	1.00000	

***** LOAD CASE NO 2 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	10.192	-20.385	2.101	-2.101	-2.206	2.206
2	2	5	0.000	14.876	29.753	3.067	-3.067	0.001	-0.001
3	3	6	-0.000	10.189	-20.379	2.101	-2.101	3.204	-3.204
4	4	5	-20.385	2.751	-14.881	-3.206	3.206	-0.731	0.731
5	5	6	-14.872	-2.753	-20.379	-3.204	3.204	0.731	-0.731

***** MIX CASE NO 1 *****

C.NO	L.NO	VALUE
1	1	1.00
2	1	2	1.00

***** MIX CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	-0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	15.6411808	-0.0095122	-0.0089902
5	15.6420839	-0.0448302	-0.0024507
6	15.6372527	-0.0282194	-0.0045197

***** MIX CASE NO 1 SUPPORT REACTION *****

J.NO		F-X(t)	F-Y(t)	M-Z(tm)
1	1	-1.60035	2.75130	0.00000
2	2	-3.06742	12.96657	0.00000
3	3	-2.60221	8.16212	0.00000
		-7.26999	23.88000	

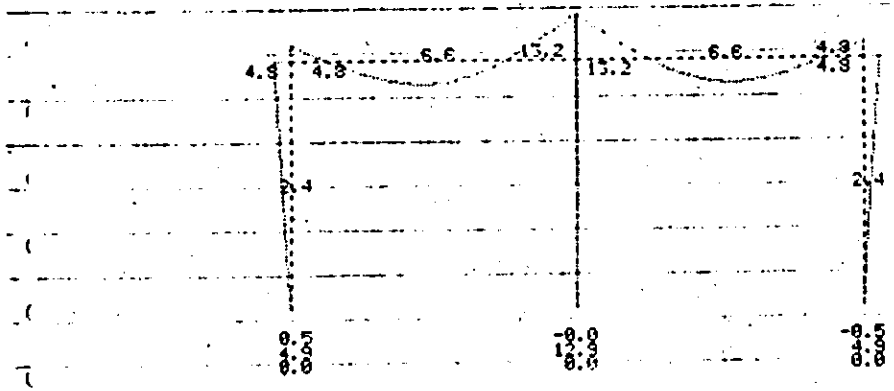
***** MIX CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	7.761	15.523	1.600	-1.600	2.751	-2.751
2	2	5	-0.000	14.876	-29.753	3.067	-3.067	12.966	-12.966
3	3	6	0.000	12.620	25.241	2.602	-2.602	8.162	-8.162
4	4	5	-15.523	9.425	-28.132	1.751	9.688	-0.230	0.230
5	5	6	-1.621	3.920	-25.241	3.277	8.162	1.232	-1.232

* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

SCALE 1/ 200



[G4] DESIGN OF BEAM.

Mc 13.2
E 14.8
S 28.0

use - Φ 457.2 × 9.5

σ_b/f_b = 28.0 / 1.70 × 23.4 = 0.80 < 1.0 ok

DESIGN OF COLUMN

[C1] Mc 19.49 Mc 0
E — E 29.7
S 19.49 S 29.7

use - Φ 457.2 × 9.5 l_e = 935 × 2 = 1870

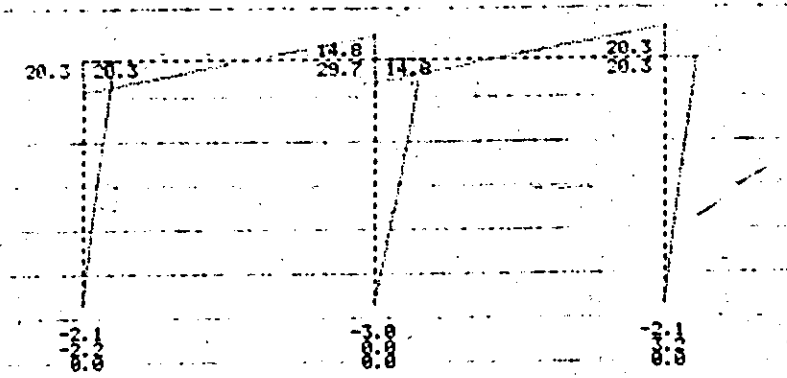
λ = 118 f_c = 0.686

$\sigma_c/f_c + \sigma_b/f_b$ = 19.49 / 133.1 × 0.686 × 1.5 + 29.7 / 1.70 × 23.4 = 0.98 < 1.0 ok

* PLANE FRAME ANALYSIS LOAD NO 2

MOMENT

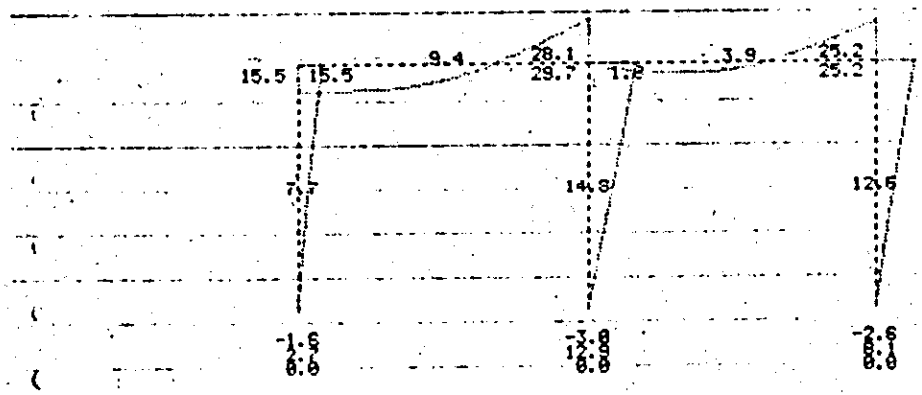
SCALE 1/ 200



* PLANE FRAME ANALYSIS MIX NO 1

MOMENT

SCALE 1/ 200



******** PAHMEN DATA (ｲｯﾊﾟﾝｼﾞｮｳﾎｳ) **********

1)	ｸｳｺﾒｲ	AIR TERMINAL
2)	ﾆｭｳﾘｮｸ ﾗﾝｳﾝｽｳ	3
3)	ﾔﾝﾏｰｹｲｽｳ E (TON/CM**)	210
4)	ﾋｮｳｼﾞｭﾝ ｺﾞｳﾋ K0 (CM**)	1000
5)	ｶｲｷｳ ｼﾃｲ	0
6)	ｼｭｯﾘｮｸ ｼﾃｲ	1

***** NO= 1 *** 4 PAHMEN DATA N= 2 S= 1 KAIHOU= 3 ***** KENMEI = AIP TERMINAL

H = 3.500 3.850

L = 9.000

**** HARI DATA **********

ｶｲ	ｲﾁ	KG	X	GD	XL	XR	B	K	*	a	a'	b	d	d'	*	CG	CL	CR	ML	OL	OR
3	1	2.540	1							2.000	2.000	1.000	1.000	1.000			50.10	50.10	41.00	25.30	25.30
	2																				
2	1	2.540	1							2.000	2.000	1.000	1.000	1.000			26.80	26.80	17.30	14.70	14.70
	2																				
1	1	1.900	1							2.000	2.000	1.000	1.000	1.000							
	2																				

**** HASHIRA DATA **********

ｶｲ	ｲﾁ	KC	HO/H	H(M)	ﾌｾｷ	CD	XU	XD	B	K	*	a	a'	b	Q (TON)
2	1	3.090	1.0000	3.500								2.000	2.000	1.000	18.400
	2	3.090	1.0000	3.500								2.000	2.000	1.000	
1	1	2.810	1.0000	3.850								2.000	2.000	1.000	28.200
	2	2.810	1.0000	3.850								2.000	2.000	1.000	

***** NO= 2 *** 5 RAHMEN DATA N= 2 S= 2 KAIHOU= 3 ***** KENMEI = AIR TERMINAL

H = 3.500 3.850

L = 4.500 4.500

**** HARI DATA **********

n	#	KG	X	GD	XL	XR	B	K	*	a	a'	b	d	d'	*	CG	CL	CR	[illegible]	QL	QR
3	1	4.440	1							2.000	2.000	1.000	1.000	1.000			3.90	3.90	[illegible]	4.40	4.40
	2	4.440	1							2.000	2.000	1.000	1.000	1.000			3.90	3.90	[illegible]	4.40	4.40
	3																				
2	1	4.440	1							2.000	2.000	1.000	1.000	1.000			4.20	4.20	[illegible]	4.70	4.70
	2	4.440	1							2.000	2.000	1.000	1.000	1.000			4.20	4.20	[illegible]	4.70	4.70
	3																				
1	1	2.840	1							2.000	2.000	1.000	1.000	1.000							
	2	2.840	1							2.000	2.000	1.000	1.000	1.000							
	3																				

**** HASHIRA DATA **********

n	#	KC	H0/H	H(M)	???	CD	XU	XD	B	K	*	a	a'	b	Q (TON)
2	1	3.090	1.0000	3.500								2.000	2.000	1.000	17.400
	2	3.090	1.0000	3.500								2.000	2.000	1.000	
	3	3.090	1.0000	3.500								2.000	2.000	1.000	
1	1	2.810	1.0000	3.850								2.000	2.000	1.000	27.500
	2	2.810	1.0000	3.850								2.000	2.000	1.000	
	3	2.810	1.0000	3.850								2.000	2.000	1.000	

***** NO= 3 *** D PAHMEN DATA N= 2 S= 3 KAIHOU= 3 ***** KENMEI = AIP TERMINAL

H = 3.500 3.850

L = 4.000 5.000 7.200

**** HAPI DATA **********

ｶｲ	ｲﾁ	KG	X	GD	XL	YR	B	K	*	a	a'	b	d	d'	*	CG	CL	CR	[illegible]	QL	QR
3	1	5.000	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.90	6.70	6.70
	2	4.000	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.90	6.70	6.70
	3	3.180	1							2.000	2.000	1.000	1.000	1.000			10.20	10.20	15.70	7.60	7.60
	4																				
2	1	5.000	1							2.000	2.000	1.000	1.000	1.000			6.90	6.90	10.60	7.80	7.80
	2	4.000	1							2.000	2.000	1.000	1.000	1.000			6.90	6.90	10.60	7.80	7.80
	3	3.180	1							2.000	2.000	1.000	1.000	1.000			15.40	15.40	23.70	11.90	11.90
	4																				
1	1	3.200	1							2.000	2.000	1.000	1.000	1.000							
	2	2.560	1							2.000	2.000	1.000	1.000	1.000							
	3	2.370	1							2.000	2.000	1.000	1.000	1.000							
	4																				

**** HASHIRA DATA **********

ｶｲ	ｲﾁ	KC	HO/H	H(M)	ﾌｾｷ	CD	XU	XD	B	K	*	a	a'	b	***	Q (TON)
2	1	3.090	1.0000	3.500								2.000	2.000	1.000		39.230
	2	3.090	1.0000	3.500								2.000	2.000	1.000		
	3	3.090	1.0000	3.500								2.000	2.000	1.000		
	4	3.090	1.0000	3.500								2.000	2.000	1.000		
1	1	2.810	1.0000	3.850								2.000	2.000	1.000		69.560
	2	2.810	1.0000	3.850								2.000	2.000	1.000		
	3	2.810	1.0000	3.850								2.000	2.000	1.000		
	4	2.810	1.0000	3.850								2.000	2.000	1.000		

4 ラーメン ハリ オウリョク ヒズミ

カイ	イチ	MLL	MLC	MLR	OL	OLL	OLR	*	MKL	MKC	MKR	OK
3	1	-36.17	54.82	36.17		25.30	25.30	*	19.96	0.00	19.96	-4.44
2	1	-24.92	20.38	24.92		14.70	14.70	*	38.98	0.00	38.98	-8.66
1	1	-0.53	-0.52	-0.53				*	27.54	0.00	27.54	-6.12

4 ラーメン ハバ オウリョク ヒズミ

カイ	イチ	MLT	MLB	OL	*	MKT	MKB	OK	NK	*	ｱﾏｻｲｶﾝ	ﾍﾝｲ(cm)	H/ﾍﾝｲ
2	1	36.17	21.53	-16.49	*	-19.96	-12.24	9.20	-4.44	*	1.334E-007	0.4670	1/ 749
	2	-36.17	-21.53	16.49	*	-19.96	-12.24	9.20	4.44	*			
1	1	3.39	-0.53	-1.02	*	-26.74	-27.54	14.10	-13.10	*	1.950E-003	0.7510	1/ 512
	2	-3.39	-0.53	1.02	*	-26.74	-27.54	14.10	13.10	*			

5 ラーメン ハリ オウリョク ヒズミ

カイ	イチ	MLL	MLC	MLR	OL	OLL	OLR	*	MKL	MKC	MKR	OK
3	1	-1.92	2.79	4.89	-0.66	3.74	5.06	*	9.71	1.05	7.61	-3.85
	2	-4.89	2.79	1.92	0.66	5.06	3.74	*	7.61	-1.05	9.71	-3.85
2	1	-2.64	2.79	4.98	-0.52	4.18	5.22	*	21.74	1.84	18.05	-8.84
	2	-4.98	2.79	2.64	0.52	5.22	4.18	*	18.05	-1.84	21.74	-8.84
1	1	-0.25	-0.06	-0.12	0.08	0.08	-0.08	*	14.69	1.55	11.59	-5.84
	2	0.12	-0.06	0.25	-0.08	-0.08	0.08	*	11.59	-1.55	14.69	-5.84

5　ラーメン　ハシラ　オクリョク　ヒョウ

カイ	イチ	インチョク MLT	インチョク MLB	インチョク QL	スイヘイ MKT	スイヘイ MKB	スイヘイ QK	スイヘイ NK	[illegible]	[illegible]	ソイ(cm)	H/ソイ
2	1	-1.92	-1.77	-1.06	-9.71	-6.55	-4.65	-3.85	*	5.418E-004	[illegible]	0.1896 -1/ 1845
	2				-15.21	-13.16	8.11		*			
	3	-1.92	-1.77	-1.06	-9.71	-6.55	-4.65	3.85	*			
1	1	-0.86	-0.25	-0.29	-15.19	-14.69	-7.76	-12.69	*	8.980E-004	[illegible]	-0.3457 -1/ -1113
	2				-22.94	-23.17	11.98		*			
	3	-0.86	-0.25	0.29	-15.19	-14.69	-7.76	12.69	*			

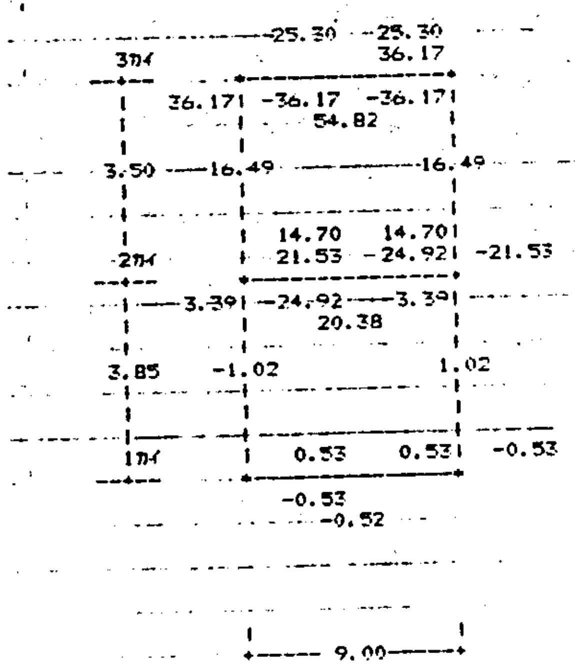
D　ラーメン　ハリ　オクリョク　ヒョウ

カイ	イチ	インチョク MLL	インチョク MLC	インチョク MLR	インチョク QL	インチョク QLL	インチョク QLP	スイヘイ MKL	スイヘイ MKC	スイヘイ MKR	スイヘイ QK
3	1	-2.47	3.23	-4.67	-0.55	6.15	7.25	17.71	-1.46	14.79	-8.13
	2	-3.77	1.52	6.79	-0.60	6.10	7.30	10.23	-0.36	10.96	-4.24
	3	-10.21	-7.25	-6.89	0.46	-8.06	7.14	-11.56	-1.12	13.82	-3.52
2	1	-4.24	-4.75	-7.45	-0.80	-7.00	8.60	-42.28	-2.98	-36.32	-19.65
	2	-0.07	2.65	9.81	-0.75	7.05	8.55	26.05	-0.87	27.81	-10.77
	3	-15.44	10.00	11.36	0.57	12.47	11.33	-27.94	-2.21	32.38	-8.38
1	1	-0.40	-0.22	-0.05	0.09	-0.09	-0.09	-29.31	-2.39	24.52	-13.46
	2	-0.05	0.22	-0.50	0.11	0.11	-0.11	16.56	-0.39	17.35	-6.78
	3	0.02	-0.45	-0.92	-0.13	-0.13	0.13	-20.77	-1.99	-24.96	-6.32

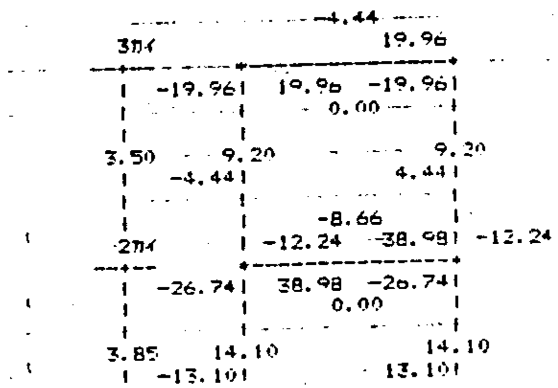
D		ラーメン		バネ	スプリング	ヒンジ
		インチョク				
カイ	イチ	MLT	MLB	OL		
2	1	2.47	2.71	-1.48		
	2	-0.90	-0.93	0.52		
	3	-3.42	-3.64	2.02		
	4	-6.89	-7.35	4.07		
1	1	1.54	0.40	-0.50		
	2	-0.44	-----	0.11		
	3	1.99	0.47	-0.64		
	4	-4.01	-0.92	1.28		

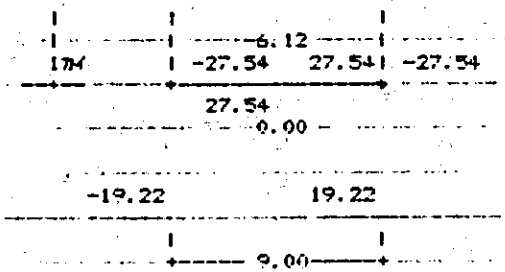
	スイセン						
	MYT	MYB	OK	NY			
*	-17.71	-12.03	8.50	-8.13	*	9.285E-004	0.3250 1/ 1076
*	-25.01	-21.20	13.20	3.89	*		
*	-22.52	-17.92	11.55	0.71	*		
*	-13.82	-7.10	5.98	3.52	*		
*	-30.26	-29.31	15.47	-27.78	*	1.647E-003	0.6341 1/ 607
*	-41.17	-41.08	21.36	12.77	*		
*	-37.83	-38.12	19.73	3.11	*		
*	-25.27	-24.76	12.98	11.90	*		

4 ラーメン (エンチョク) オウリョク ズ (1/ 1)

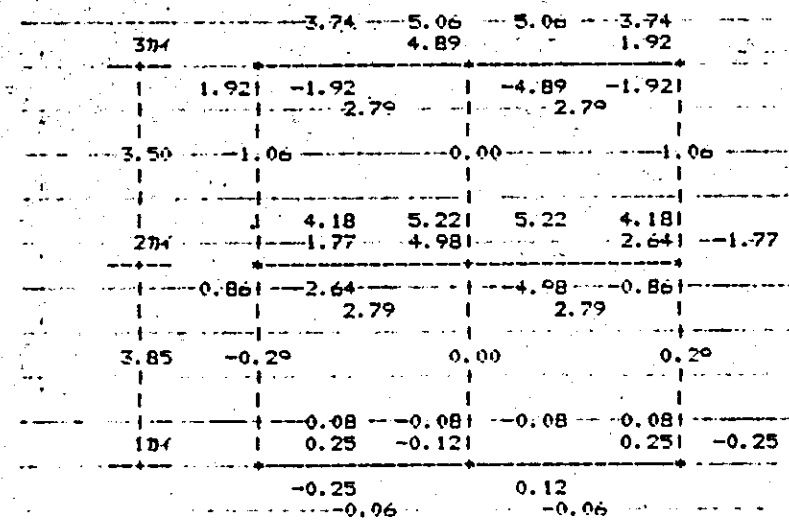


4 ラーメン (スイヘイ) オウリョク ズ (1/ 1)

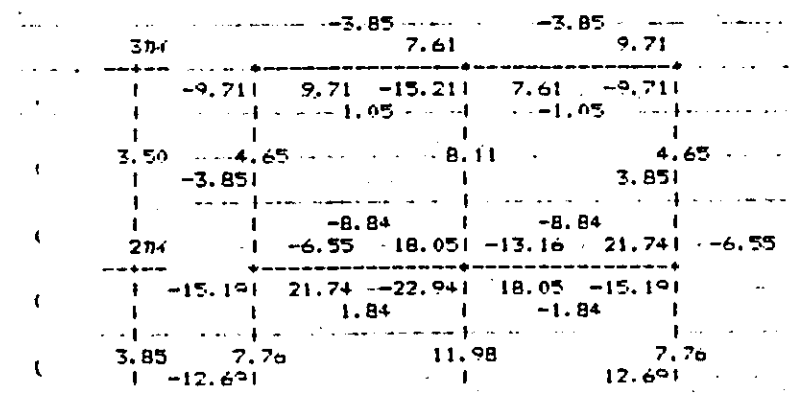


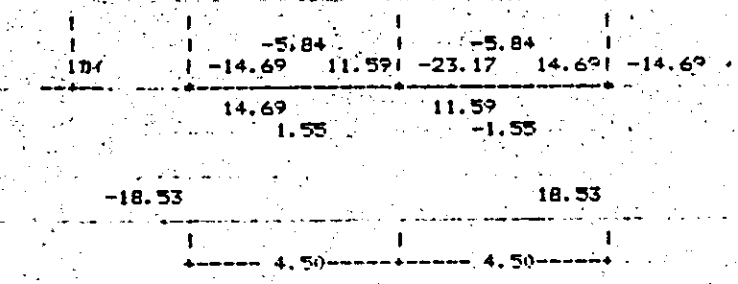

-6.12
IM
-27.54
27.54
-27.54
27.54
0.00
-19.22
19.22
9.00

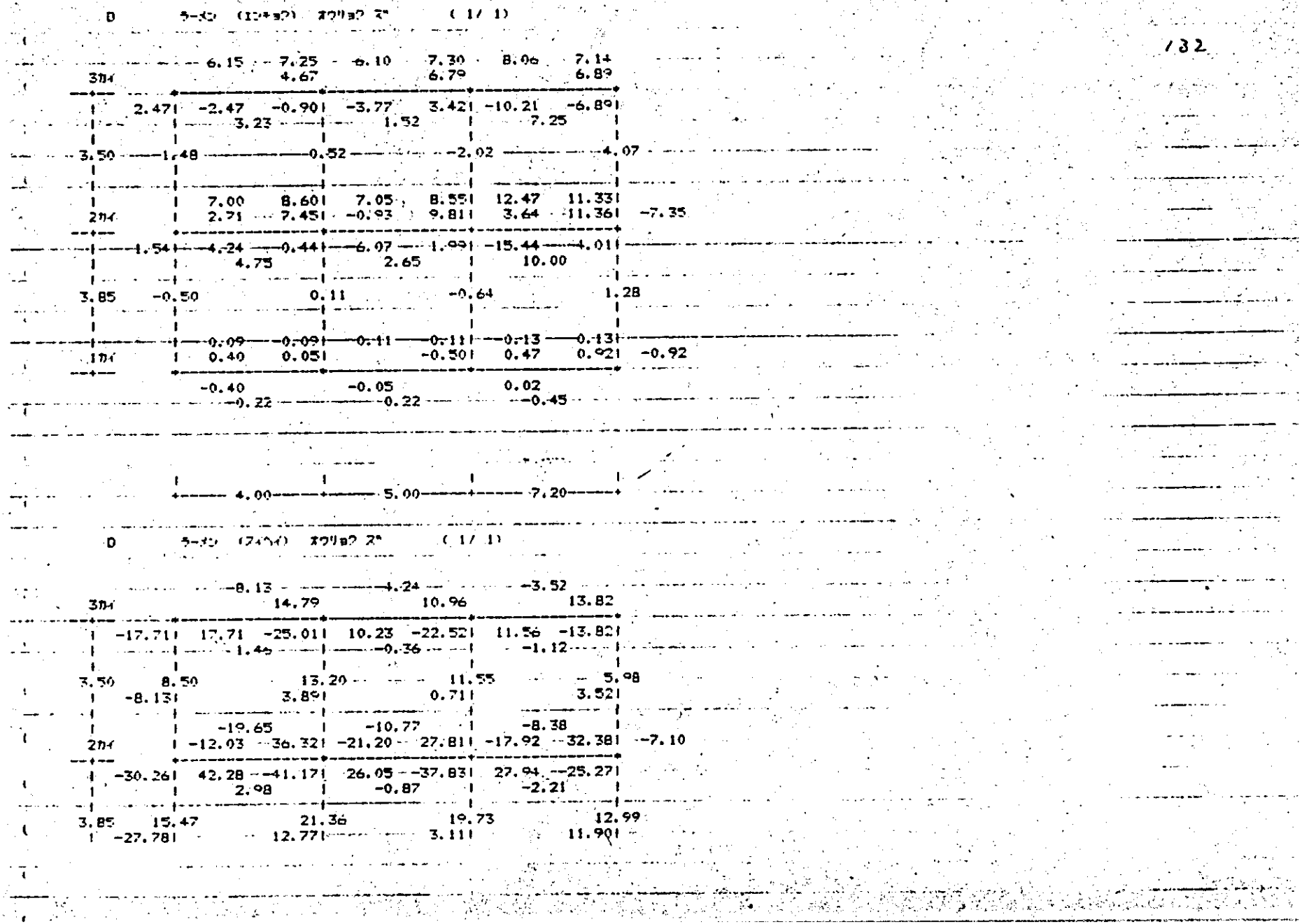
5　　ﾗｰﾒﾝ　(ｺﾝｾﾝﾄﾘｯｸ)　ｵｸﾘﾎﾏ ｽﾞ　　(1/ 1)

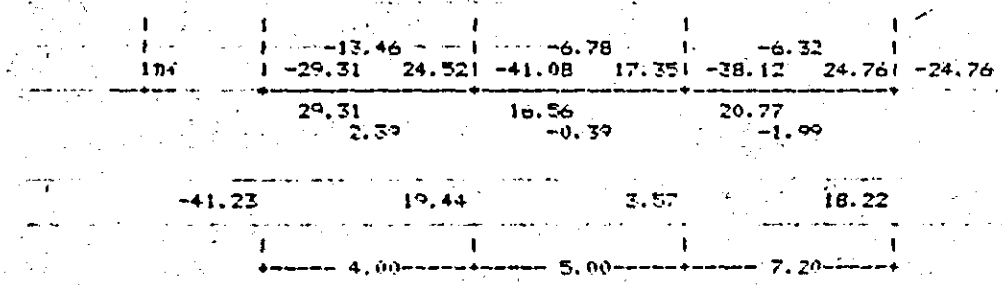


5　　ﾗｰﾒﾝ　(ｽﾍﾟｲﾝ)　ｵｸﾘﾎﾏ ｽﾞ　　(1/ 1)




-5.84
-5.84
-14.69
11.59
-23.17
14.69
-14.69
14.69
11.59
1.55
-1.55
-18.53
18.53
4.50
4.50


D 5-30 (10*20) ｽﾗﾌﾞ ｽﾀｰﾄ (1/ 1)
6.15 7.25 6.10 7.30 8.06 7.14
3M 4.67 6.79 6.89
2.47 -2.47 -0.90 -3.77 3.42 -10.21 -6.89
3.23 1.52 7.25
3.50 1.48 0.52 2.02 4.07
7.00 8.60 7.05 8.55 12.47 11.33
2M 2.71 7.45 -0.93 9.81 3.64 -11.36 -7.35
1.54 4.24 0.44 6.07 1.99 15.44 4.01
4.75 2.65 10.00
3.85 -0.50 0.11 -0.64 1.28
0.09 0.09 0.11 0.11 0.13 0.13
1M 0.40 0.05 -0.50 0.47 0.92 -0.92
-0.40 -0.05 0.02
-0.22 0.22 -0.45
4.00 5.00 7.20
D 5-30 (20*4) ｽﾗﾌﾞ ｽﾀｰﾄ (1/ 1)
-8.13 -4.24 -3.52
3M 14.79 10.96 13.82
-17.71 17.71 -25.01 10.23 -22.52 11.56 -13.82
1.46 -0.36 -1.12
3.50 8.50 13.20 11.55 5.98
-8.13 3.89 0.71 3.52
-19.65 -10.77 -8.38
2M -12.03 -36.32 -21.20 -27.81 -17.92 -32.38 -7.10
-30.26 42.28 -41.17 26.05 -37.83 27.94 -25.27
2.98 -0.87 -2.21
3.85 15.47 21.36 19.73 12.99
-27.78 12.77 3.11 11.90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-6.32
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-29.31
24.52
-41.08
17.35
-38.12
24.76
-24.76
29.31
16.56
20.77
2.39
-0.39
-1.99

-41.23
19.44
3.57
18.22
4.00
5.00
7.20

KOTA INTAN

134

******** PAHMEN DATA (ﾊﾝﾒﾝﾃﾞｰﾀ) **********

1)	ﾀｲﾌﾟ	AIR TERMINAL
2)	ﾆｭｳﾘｮｸ ﾗﾝｸ NO	3
3)	ﾔｼｷ ﾀｲｱｯﾌﾟ-E-(TON/CM**)	210
4)	ﾋｮｳｼﾞｭﾝ ｺﾝｸﾘｰﾄ KO (CM**)	1900
5)	ﾊｲｶﾞｽ ﾋｮｳｼﾞ	0
6)	ﾊﾝﾒﾝﾋｮｳｼﾞ ﾋﾝﾄｳ	1

***** NO= 1 *** J RAHMEN DATA N= 2 S= 1 KAIHOU= 3 ***** KEIMEI = AIR TERMIN

H = 3.050 3.650

L = 10.970

**** HAFI DATA **********

ﾏｴ	#ﾏｴ	KG	X	GD	XL	XF	B	*	a	a'	b	d	d'	*	CG	CL	CR	DL	DR
3	1	3.110	1						2.000	2.000	1.000	1.000	1.000			43.30	43.30	23.00	23.00
	2																		
2	1	3.110	1						2.000	2.000	1.000	1.000	1.000			27.50	27.50	15.10	15.10
	2																		
1	1	2.220	1						2.000	2.000	1.000	1.000	1.000						
	2																		

**** HASHIFA DATA **********

ﾏｴ	#ﾏｴ	KC	HO/H	H(M)	ﾌｾｷ	CD	XU	XD	B	K	*	a	a'	b	Q (TON)
2	1	3.540	1.0000	3.050								2.000	2.000	1.000	10.480
	2	3.540	1.0000	3.050								2.000	2.000	1.000	
1	1	2.960	1.0000	3.650								2.000	2.000	1.000	12.080
	2	2.960	1.0000	3.650								2.000	2.000	1.000	

***** NO= 2 *** 1 FAHMEN DATA N= 2 S= 1 KAIHOU= 3 ***** KENMEI = AIF TERMINAL

H = 3.050 3.650

L = 9.410

**** HAFI DATA **********

ﾊｲ	ｲﾁ	KG	X	GD	XL	XP	B	K	*	a	a'	b	d	d'	*	CG	CL	CF	ｲﾁ	QL	QR
3	1	3.170	1							2.000	2.000	1.000	1.000	1.000			27.90	27.90		14.90	14.90
	2																				
2	1	3.170	1							2.000	2.000	1.000	1.000	1.000			29.90	29.90		15.90	15.90
	2																				
1	1	2.580	1							2.000	2.000	1.000	1.000	1.000							
	2																				

**** HASHIRA DATA **********

ﾊｲ	ｲﾁ	KC	HO/H	H(M)	ｺﾃｲﾁ	CD	XU	XD	B	K	*	a	a'	b	Q (TON)
2	1	3.540	1.0000	3.050								2.000	2.000	1.000	6.610
	2	3.540	1.0000	3.050								2.000	2.000	1.000	
1	1	2.960	1.0000	3.650								2.000	2.000	1.000	17.120
	2	2.960	1.0000	3.650								2.000	2.000	1.000	

***** NO= 3 *** 9 PAHMEN DATA N= 2 S= 9 KAIHOU= 3 ***** TENMEI = AIR TERMINAL

H = 3.050 3.650

L = 5.100 5.100 4.900 4.900 10.000 4.900 4.900 5.100 5.100

**** HARI DATA **********

m	#	KG	X	GD	XL	XP	B	K	*	a	a'	b	d	d'	*	CG	CL	CR		CL	CR
3	1	4.390	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	2	4.390	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	3	4.570	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	4	4.570	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	5	2.560	1							2.000	2.000	1.000	1.000	1.000			31.60	31.60	11.10	17.20	17.20
	6	4.570	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	7	4.570	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	8	4.390	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	9	4.390	1							2.000	2.000	1.000	1.000	1.000			4.40	4.40	6.70	4.60	4.60
	10																				
2	1	4.390	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	2	4.390	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	3	4.570	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	4	4.570	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	5	2.560	1							2.000	2.000	1.000	1.000	1.000			14.90	14.90	11.10	8.85	8.85
	6	4.570	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	7	4.570	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	8	4.390	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	9	4.390	1							2.000	2.000	1.000	1.000	1.000			6.30	6.30	9.70	6.90	6.90
	10																				
1	1	4.760	1							2.000	2.000	1.000	1.000	1.000							
	2	4.760	1							2.000	2.000	1.000	1.000	1.000							
	3	4.960	1							2.000	2.000	1.000	1.000	1.000							
	4	4.960	1							2.000	2.000	1.000	1.000	1.000							
	5	2.430	1							2.000	2.000	1.000	1.000	1.000							
	6	4.960	1							2.000	2.000	1.000	1.000	1.000							
	7	4.960	1							2.000	2.000	1.000	1.000	1.000							
	8	4.760	1							2.000	2.000	1.000	1.000	1.000							
	9	4.760	1							2.000	2.000	1.000	1.000	1.000							
	10																				

**** HASHIRA DATA **********

階	番号	KC	H0/H	H(M)	形式	CD	XU	XD	B	K	a	a'	b	Q (TON)
2	1	2.540	1.0000	3.050							2.000	2.000	1.000	22.490
	2	2.540	1.0000	3.050							2.000	2.000	1.000	
	3	2.540	1.0000	3.050							2.000	2.000	1.000	
	4	2.540	1.0000	3.050							2.000	2.000	1.000	
	5	2.540	1.0000	3.050							2.000	2.000	1.000	
	6	2.540	1.0000	3.050							2.000	2.000	1.000	
	7	2.540	1.0000	3.050							2.000	2.000	1.000	
	8	2.540	1.0000	3.050							2.000	2.000	1.000	
	9	2.540	1.0000	3.050							2.000	2.000	1.000	
	10	2.540	1.0000	3.050							2.000	2.000	1.000	
1	1	2.960	1.0000	3.650							2.000	2.000	1.000	58.270
	2	2.960	1.0000	3.650							2.000	2.000	1.000	
	3	2.960	1.0000	3.650							2.000	2.000	1.000	
	4	2.960	1.0000	3.650							2.000	2.000	1.000	
	5	2.960	1.0000	3.650							2.000	2.000	1.000	
	6	2.960	1.0000	3.650							2.000	2.000	1.000	
	7	2.960	1.0000	3.650							2.000	2.000	1.000	
	8	2.960	1.0000	3.650							2.000	2.000	1.000	
	9	2.960	1.0000	3.650							2.000	2.000	1.000	
	10	2.960	1.0000	3.650							2.000	2.000	1.000	

J 5-ﾀﾞ ﾒﾓﾘ ｱﾄﾞﾚｽ ﾋｮｳｼﾞ

ﾌﾚｰﾑ	ﾉｰﾄﾞ	MLL	MLC	MLR	QL	QLL	QLR	*	MKL	MKC	MKR	QI
3	1	-31.06	40.14	31.06		23.00	23.00	*	10.41	0.00	10.41	-1.90
2	1	-24.69	18.90	24.69		15.10	15.10	*	23.15	0.00	23.15	-4.22
1	1	-0.73	-0.72	0.73				*	17.25	0.00	17.25	-3.14

J 5-ﾀﾞ ﾒﾓﾘ ｱﾄﾞﾚｽ ﾋｮｳｼﾞ

ﾌﾚｰﾑ	ﾉｰﾄﾞ	MLT	MLB	QL	*	MKT	MKB	QI	NK	*	ｴﾗｰﾘﾂ	ｽﾍﾟｸﾄﾙ(cm)	H/ｽﾍﾟｸﾄﾙ
2	1	31.06	20.32	-16.85	*	-10.41	-5.57	5.24	-1.90	*	6.077E-004	0.1852	1/ 1646
	2	-31.06	-20.32	16.85	*	-10.41	-5.57	5.24	1.90	*			
1	1	4.37	0.73	-1.40	*	-17.57	-17.25	9.54	-6.12	*	1.070E-005	0.3307	1/ 934
	2	-4.37	-0.73	1.40	*	-17.57	-17.25	9.54	6.12	*			

1 5-ﾀﾞ ﾒﾓﾘ ｱﾄﾞﾚｽ ﾋｮｳｼﾞ

ﾌﾚｰﾑ	ﾉｰﾄﾞ	MLL	MLC	MLR	QL	QLL	QLR	*	MKL	MKC	MKR	QI
3	1	-20.87	25.63	20.87		14.90	14.90	*	7.17	0.00	7.17	-1.52
2	1	-25.28	24.61	25.28		15.90	15.90	*	18.61	0.00	18.61	-3.96
1	1	-1.31	-1.30	1.31				*	15.55	0.00	15.55	-3.30

1 ラーメン ハシラ オウリョク ヒョウ

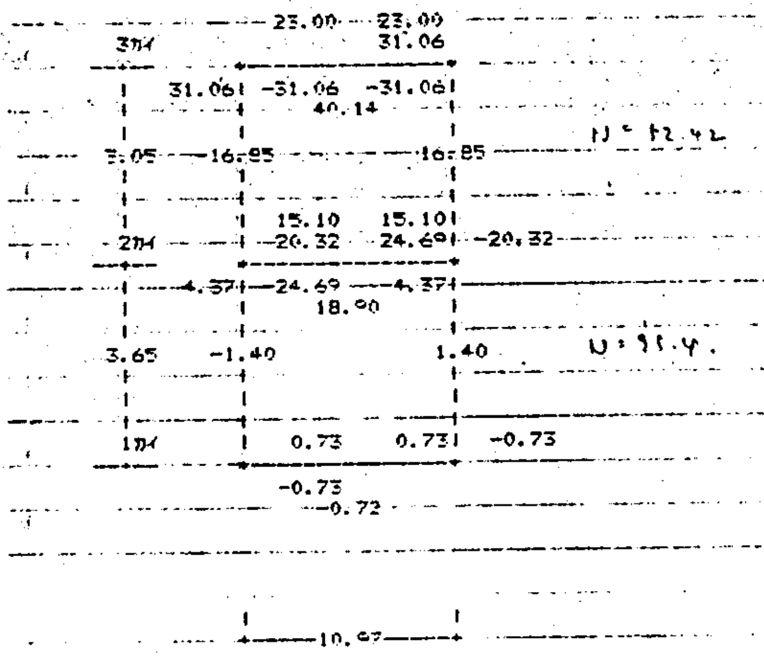
カイ イチ	MLT	MLB	QL		MKT	MKB	QK	NK		ブザイカク	[illegible]	ヘンイ(cm)	H/ヘンイ
	インチョク				**スイヘイ**								
2 1	-20.87	18.16	-12.80	*	-7.17	-2.91	3.30	-1.52	*	4.357E-004	[illegible]	0.1328	1/ 2295
2	-20.87	-18.16	12.80	*	-7.17	-2.91	3.31	1.52	*				
1 1	7.12	1.31	-2.31	*	-15.70	-15.55	8.56	-5.48	*	8.909E-004	[illegible]	0.3251	1/ 1122
2	-7.12	-1.31	-2.31	*	-15.70	-15.55	8.56	-5.48	*				

9 ラーメン ハリ オウリョク ヒョウ

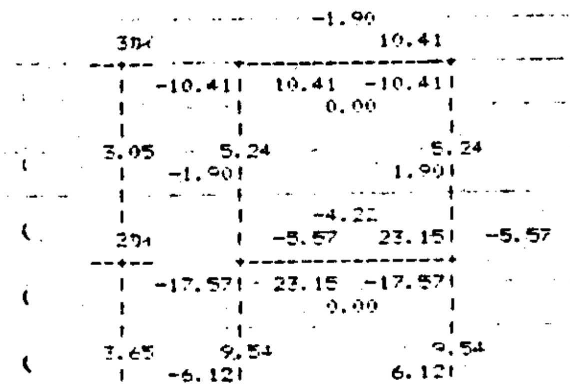
カイ イチ	MLL	MLC	MLR	QL	QLL	QLR		MKL	MKC	MKR	QI
	インチョク							**スイヘイ**			
3 1	-2.20	-3.06	-5.06	-0.56	-4.04	-5.16	*	-2.95	-0.25	-2.43	-1.05
2	-4.62	1.97	4.82	-0.04	4.56	4.64	*	1.99	-0.03	2.06	-0.80
3	-5.24	3.27	-1.61	0.74	5.34	3.86	*	2.17	0.02	2.12	-0.88
4	0.15	-2.34	18.23	-3.75	0.85	8.35	*	2.25	-0.08	2.42	-0.95
5	-27.28	24.61	-27.29		17.20	17.20	*	1.46	-0.00	1.46	[illegible]
6	-18.23	-2.33	-0.17	3.76	8.36	0.84	*	2.42	0.08	2.25	-0.95
7	-1.63	-3.26	-5.23	-0.73	-3.87	-5.33	*	-2.12	-0.02	-2.17	-0.88
8	-4.82	1.97	4.62	0.04	4.64	4.56	*	2.06	0.03	1.99	-0.80
9	-5.07	3.06	-2.20	0.56	-5.16	4.04	*	2.43	-0.25	-2.95	-1.05
2 1	-3.84	4.15	7.25	-0.67	6.23	7.57	*	9.68	0.76	8.15	-3.50
2	-6.67	3.30	6.11	0.11	7.01	6.79	*	6.80	-0.08	6.97	-2.70
3	-6.30	3.40	-6.29		-6.90	6.90	*	-7.30	-0.06	-7.18	-2.96
4	-5.43	2.96	8.04	-0.53	6.37	7.43	*	7.58	-0.26	8.11	-3.20
5	-14.32	7.79	-14.29		8.85	8.85	*	4.84		4.84	-0.97
6	-7.97	2.90	5.62	0.48	7.38	6.42	*	8.11	0.26	7.58	-3.20
7	-6.71	3.16	6.37	0.07	6.97	6.83	*	7.18	-0.06	7.30	-2.96
8	-6.14	3.29	6.66	-0.10	6.80	7.00	*	6.97	0.08	6.80	-2.70
9	-7.25	4.15	-3.84	-0.67	-7.57	6.23	*	8.15	-0.76	9.68	-3.50
1 1	-0.52	-0.19	-0.43	0.13	0.13	-0.13	*	8.58	0.92	6.72	-3.00
2	0.15	0.05	0.04	-0.04	-0.04	0.04	*	5.19	-0.16	5.52	-2.10
3	-0.01	-0.03	0.05	-0.01	-0.01	0.01	*	5.87	0.11	5.63	-2.35
4	-0.09	0.10	-0.29	0.08	0.08	-0.08	*	6.12	-0.36	6.84	-2.65
5	-0.08	-0.08	0.09				*	3.71		3.71	-0.74
6	0.29	0.11	0.07	-0.07	-0.07	0.07	*	6.84	0.36	6.12	-2.65
7	-0.07	-0.04	0.01	0.01	0.01	-0.01	*	5.63	-0.11	5.97	-2.35
8	-0.03	0.05	-0.15	0.03	0.03	-0.03	*	5.52	0.16	5.19	-2.10
9	0.13	-0.19	-0.52	-0.13	-0.13	0.13	*	6.72	-0.92	8.58	-3.00

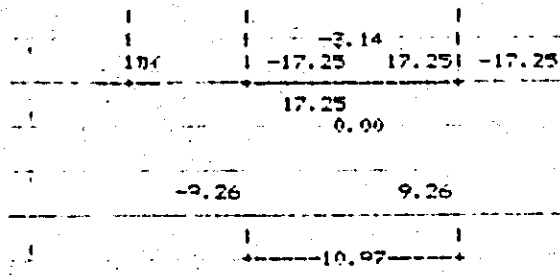
		インチョク			スイソイ						
		MLT	MLB	OL	MLT	MKB	OK	NK			
2	1	2.20	2.25	-1.46	-2.95	-1.45	1.44	-1.05	2.012E-004		0.0613 1/ 4968
	2	-0.44	-0.38	0.27	-4.42	-3.51	2.60	0.26			
	3	0.41	0.21	-0.20	-4.24	-3.27	2.46	-0.08			
	4	-1.76	-0.88	0.86	-4.37	-3.45	2.56	-0.08			
	5	-9.05	-5.25	4.69	-3.88	-2.76	2.18	-0.66			
	6	-9.05	-5.27	4.70	-3.89	-2.76	2.18	-0.66			
	7	1.80	0.99	-0.91	-4.37	-3.45	2.56	0.08			
	8	-0.42	-0.22	0.21	-4.24	-3.27	2.46	0.08			
	9	0.44	-0.38	-0.27	-4.42	-3.51	2.60	-0.26			
	10	-2.20	-2.25	1.46	-2.95	-1.45	1.44	1.05			
1	1	1.59	0.52	-0.58	-8.22	-8.58	4.60	-4.55	4.134E-004		0.1509 1/ 2418
	2	-0.20	-0.02	0.06	-11.44	-11.92	6.40	1.06			
	3	-0.02	-0.03	0.01	-11.00	-11.39	6.13	-0.34			
	4	0.02	0.04	-0.02	-11.31	-11.75	6.32	-0.32			
	5	1.03	0.37	-0.38	-10.19	-10.55	5.68	2.89			
	6	-1.05	-0.37	0.39	-10.19	-10.55	5.68	-2.89			
	7	0.10	0.01	-0.03	-11.31	-11.75	6.32	0.32			
	8		0.02	-0.01	-11.00	-11.39	6.13	-0.34			
	9	0.20	0.02	-0.06	-11.44	-11.92	6.40	-1.06			
	10	-1.60	-0.52	0.58	-8.22	-8.58	4.60	4.55			

J ラ-メン (12+a?) ネツリョク ズ (1/ 1)



J ラ-メン (...) ネツリョク ズ (1/ 1)

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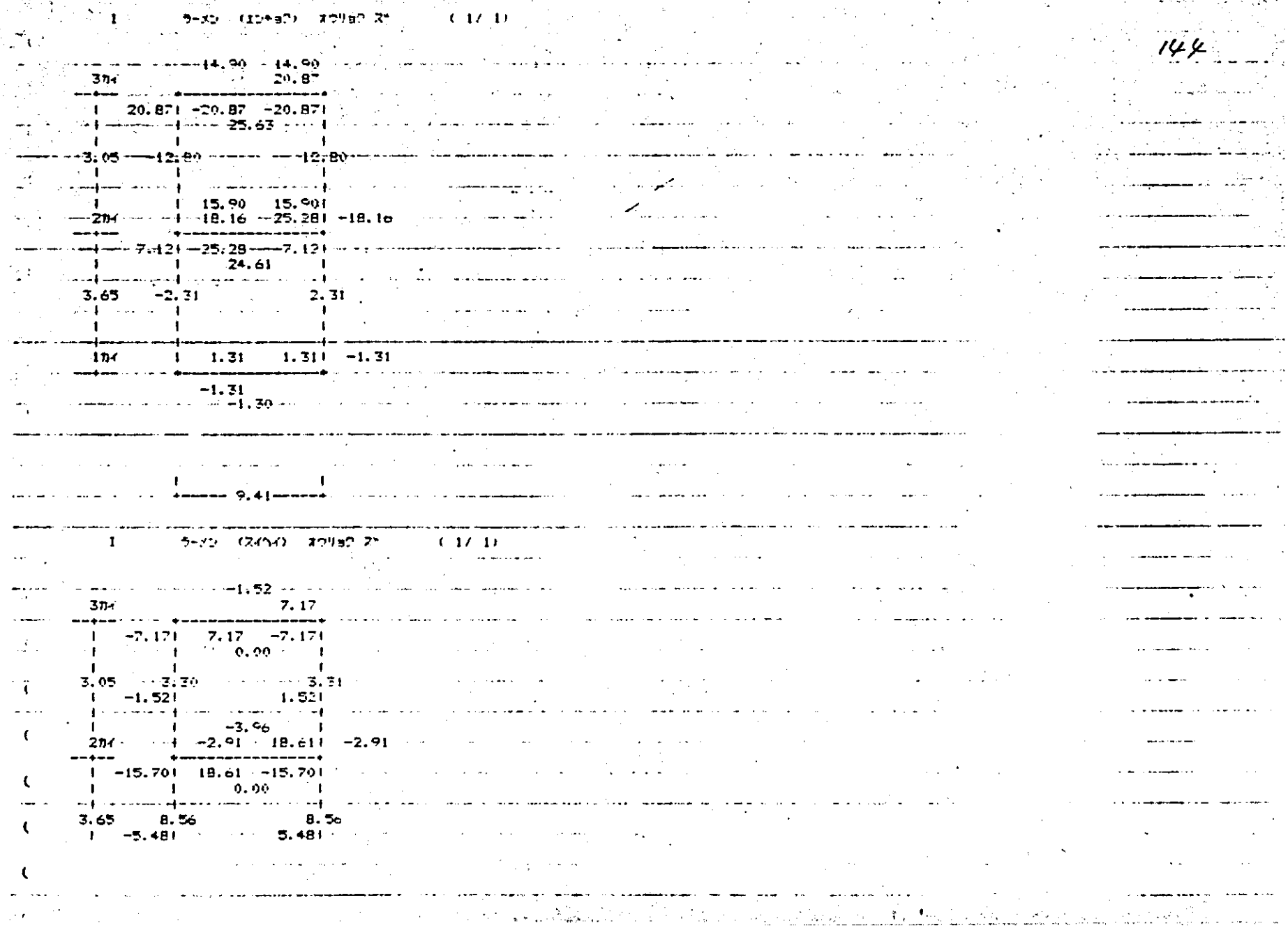
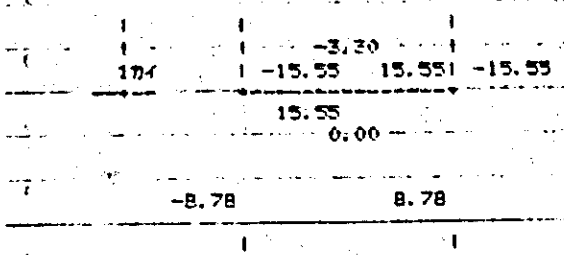
17.25
-17.25
17.25
0.00
-9.26
9.26
10.97




-3.30
1m
-15.55
15.551
-15.55
15.55
0.00
-8.78
8.78
9.41

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9     ﾗｰﾒﾝ (ｴﾝﾁｮｸ) ｵｳﾘｮｸ ｽﾞ     ( 1/ 2)

            4.04    5.16    4.56    4.64    5.34    3.86    0.85    8.35   17.20   17.20    8.36    0.51    3.87    5.33
  3ｶｲ               5.06            4.82            1.61            18.23           27.29            -0.1            5.23
    2.20|  -2.20   -0.44|  -4.62    0.41|  -5.24   -1.76|   0.15    9.05| -27.28   -9.05| -18.23    1.91|  -1.63   -0.42|
               3.06            1.97            3.27           -2.34            24.61           -2.33             3.26
 3.05   1.46            0.27           -0.20            0.86            4.69            4.70                           -0.21
           6.23    7.57|   7.01    6.79|   6.90    6.90|   6.37    7.43|   8.85    8.85|   7.38    6.4 |   6.97    6.83|
  2ｶｲ     -2.25   -7.25|  -0.38    6.11|  -0.21    6.29|  -0.88    8.04|  -5.25   14.29|  -5.27    5.  |   0.99   -6.37|  -0.22
    1.59|  -3.84   -0.20|  -6.07   -0.02|  -6.30    0.02|  -5.43   -1.03| -14.32   -1.05|  -7.97    0.  |  -6.71
               4.15            3.30            3.40            2.96            7.79            2.90             3.16
 3.65  -0.58            0.06            0.01           -0.02           -0.38            0.39                           -0.01
           0.13   -0.13|  -0.04    0.04|  -0.01    0.01|  -0.08   -0.08|                 -0.07    0.  |   0.01   -0.01|
  1ｶｲ      0.52   -0.13|  -0.02    0.04|  -0.03    0.05|   0.04   -0.29|   0.37    0.09|  -0.37    0.  |   0.01    0.01|   0.02
          -0.52            0.15           -0.01           -0.09           -0.08            0.29            0.07
               -0.19            0.05           -0.03            0.10           -0.08            0.11           -0.04

            5.10            5.10            4.90            4.90           10.00            4.50            4.90

9     ﾗｰﾒﾝ (ｴﾝﾁｮｸ) ｵｳﾘｮｸ ｽﾞ     ( 2/ 2)

            4.64    4.56    5.16    4.04
  3ｶｲ               4.62            2.20
   -0.42|  -4.83    0.44|  -5.07   -2.20|
               1.97            3.06
 3.05    0.21           -0.27            1.46
           6.80    7.00|   7.57    6.23|
  2ｶｲ     -0.22    6.66|   0.38    3.84|  -2.25
          -6.14    0.20|  -7.25   -1.60|
               3.29            4.15
 3.65   -0.01           -0.06            0.58
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         |       0.03   -0.03|  -0.13    0.13|
  1ｶｲ    |       0.02   -0.15|   0.02    0.52|  -0.52
  -------+-------------------+----------------+
                -0.03            0.13
                   0.05             -0.19

         +------ 5.10 ------+------ 5.10 -----+
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ﾗｰﾒﾝ (ｽｲﾍｲ) ｵｳﾘｮｸ ｽﾞ (1/ 2)

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             -1.05         -0.80         -0.88         -0.95         -0.29         -0.95         -0.88
  3ｶｲ               2.43          2.06          2.12          2.42          1.46          2.25          2.17
  ---+---------------+-------------+-------------+-------------+-------------+-------------+-------------+
     |  -2.95|  2.95  -4.42| 1.99  -4.24| 2.17  -4.37| 2.25  -3.88| 1.46  -3.88| 2.42  -4.77| 2.12  -4.24|
     |       |    -0.25    |   -0.03    |   -0.02    |   -0.08    |   -0.00    |   0.08     |   -0.02    |
  3.05   1.44          2.60          2.46          2.56          2.18          2.18                     2.46
     |  -1.05|         0.26|        -0.08|        -0.08|         0.66|        -0.66|         0.00|         0.08|
     |         -3.50       |   -2.70     |   -2.96     |   -3.20     |   -0.97     |   -3.20     |   -2.96     |
  2ｶｲ        -1.45   8.15| -3.51   6.97| -3.27   7.18| -3.45   8.11| -2.76  -4.84| -2.76   7.50| 3.45   7.30|  -3.27
  ---+---------------+-------------+-------------+-------------+-------------+-------------+-------------+
     |  -8.22|  9.68  -11.44| 6.80 -11.00| 7.30 -11.31| 7.58 -10.19| 4.84 -10.19| 8.11 -11.71| 7.18 -11.00|
     |       |    0.76     |   -0.08     |   0.06      |   -0.26     |             |   0.26      |   -0.06     |
  3.65   4.60          6.40          6.13          6.32          5.68          5.68                     6.13
     |  -4.55|        -1.06|        -0.34|        -0.32|         2.89|        -2.89|         0.00|        -0.34|
     |         -3.00       |   -2.10     |   -2.35     |   -2.65     |   -0.74     |   -2.65     |   -2.35     |
  1ｶｲ    |   -8.58   6.72|-11.92   5.52|-11.39   5.63|-11.75   6.84|-10.55   3.71|-10.55   6.11|-11.75   5.87| -11.39
  ---+---------------+-------------+-------------+-------------+-------------+-------------+-------------+
              8.58          5.19          5.87          6.12          3.71          6.84          5.63
                 0.92          -0.16         0.11         -0.36                       0.36         -0.11

       -7.55          1.95         -0.58         -0.62          4.80         -4.80          0.58          0.58

         +----- 5.10 ----+---- 5.10 ---+---- 4.90 ---+---- 4.90 ---+--- 10.00 ---+---- 4.90 ---+---- 4.90 ---+
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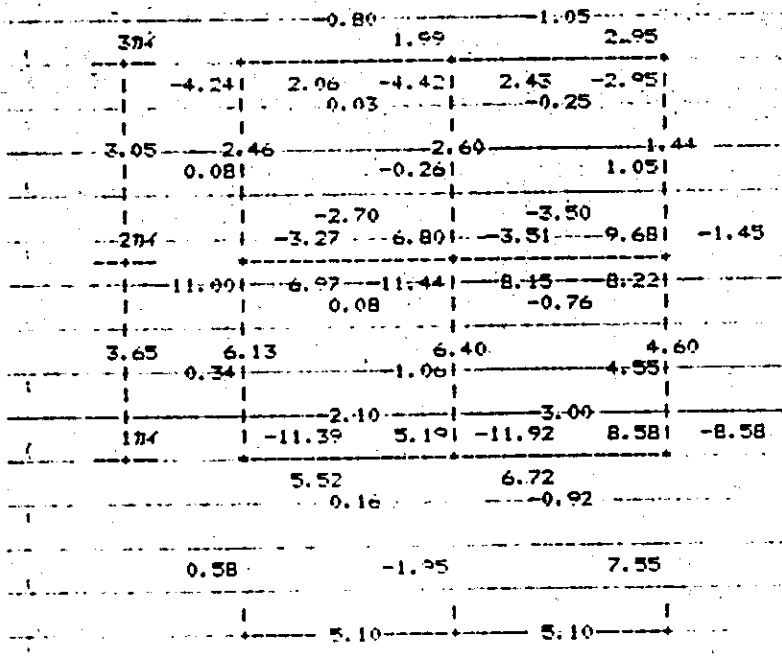
9 5-ｽﾗﾌﾞ (2400) ｵﾌﾘｽﾎﾞ 2" (2/ 2)



PLANE FRAME ANALYSIS

TITLE -- KOTAINTAN PLAT

PLACE -- IND

DATE -- 1984. 1.10

SIGN

DENCO - A3 Ver 4.02

by Tokyo Denco Co.,Ltd.

***** DATA ECHO *****

1 CONTROL DATA

NUMBER OF JOINTS	5
NUMBER OF SUPPORTS	2
NUMBER OF MATERIAL	2
NUMBER OF MEMBERS	4
NUMBER OF LOAD CASE	2
NUMBER OF LOAD DATA	4
NUMBER OF MIX LOAD CASE	1
NUMBER OF MIX LOAD DATA	2
OUTPUT OPTION	1
SHEAR DEFORMATION	0
COMBINATION OPTION	1

2 COORDINATE OF JOINTS

J.NO	X(m)	Y(m)
1	0.000	0.000
2	4.300	0.000
3	0.000	4.450
4	4.300	5.300
5	6.000	5.620

3 SUPPORT OF JOINT

	J.NO	X(t/m·mm)	Y(t/m·mm)	M(rad/tm·rad/10)
1	1	1.0000	1.0000	0.0000
2	2	1.0000	1.0000	0.0000

4 MATERIAL TABLE

	E(t/cm**2)	G(t/cm**2)	A(cm**2)	I(cm**4)
1	2100.0	810.0	92.18	10800.00
2	2100.0	810.0	46.78	7210.00

5 MEMBER TABLE

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	kspra	beta
1	1	3	2	1	1.00	1.00	0.00	0.00	1.00	1.00
2	2	4	2	1	1.00	1.00	0.00	0.00	1.00	1.00
3	3	4	1	2	1.00	1.00	0.00	0.00	1.00	1.00
4	4	5	1	2	1.00	1.00	0.00	0.00	1.00	1.00

6 LOAD DATA TABLE

L.NO	M/J type	way	1	2	3	4	5	6
1	1	3	5	2	0.40	1.00		
2	1	4	5	2	0.40	1.00		
3	2	3	5	1	-0.25	1.00		
4	2	4	5	1	-0.25	1.00		

7 COMBINATION DATA TABLE

C.NO	L.NO	VALUE
1	1	1.00
2	2	1.00

***** PROPERTIES OF MEMBERS *****

M.NO	Im	Jm	L(m)	cos	sin	k(cm**3)	E*I*(I/Io)/L	E*A*(A/Ao)
1	1	3	4.450	0.000	1.000	24.26	5.096E+004	4.350E+00
2	2	4	5.300	-0.000	-1.000	20.37	4.279E+004	3.652E+00
3	3	4	4.383	0.981	0.193	16.44	3.454E+004	2.241E+00
4	4	5	1.729	-0.982	-0.184	41.67	8.752E+004	5.678E+00

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
3	3	4	-0.628	0.942	0.628	0.860	-0.860	-0.170	0.170
4	4	5	-0.098	0.147	0.098	0.340	-0.340	-0.064	0.064

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
3	-0.00000	-0.87664	-0.62825
4	-0.00000	-1.22261	0.53023
5	-0.00000	-0.34597	0.09802
	-0.00000	-2.44522	

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
3	3	4	0.400	-0.600	-0.400	-0.547	0.547	0.000	0.000
4	4	5	0.062	-0.093	-0.062	-0.216	0.216	0.000	0.000

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
3	-0.10625	0.53750	0.40026
4	-0.14625	0.75000	-0.33791
5	-0.04000	0.21250	-0.06234
	-0.29250	1.50000	

***** LOAD CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	POTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	-0.0000000	0.0000000
3	0.0891683	-0.0017008	-0.0003292
4	0.0896782	-0.0046691	0.0000135
5	0.0945099	-0.0309466	-0.0002104

***** LOAD CASE NO 1 SUPPORT REACTION *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	-0.04426	-0.73986	0.00000
2	-0.04426	3.70536	0.00000
	0.00000	2.44522	

***** LOAD CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	3	0.000	-0.098	-0.196	-0.044	0.044	0.739	-0.739
2	2	4	0.000	0.117	0.234	0.044	-0.044	1.705	-1.705
3	3	4	0.196	0.432	-0.822	0.717	1.002	0.186	0.153
4	4	5	0.588	-0.147	-0.000	0.679	0.000	0.128	-0.000

***** LOAD CASE NO 2 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	POTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	-0.4643946	0.0002551	0.0006308
4	-0.4656307	0.0038029	0.0002563
5	-0.4772536	0.0655496	0.0003988

***** LOAD CASE NO 2 SUPPORT REACTION *****

J.NO	F-Y(t)	F-Y(t)	M-Z(tm)
1	0.14179	-0.11099	0.00000
2	0.15070	-1.38900	0.00000
	0.29249	-1.50000	

***** LOAD CASE NO 2 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	3	0.000	-0.315	-0.630	-0.141	0.141	-0.110	0.110
2	2	4	0.000	-0.399	-0.798	-0.150	0.150	-1.389	1.389
3	3	4	0.630	-0.329	1.172	-0.136	-0.959	0.117	-0.117
4	4	5	-0.374	0.093	0.000	-0.432	-0.000	-0.000	0.000

***** MIX CASE NO 1 *****

	C.NO	L.NO	VALUE
1	1	1	1.00
2	1	2	1.00

***** MIX CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	-0.0000000	0.0000000	0.0000000
3	-0.3752262	-0.0014456	0.0003016
4	-0.3759524	-0.0008661	0.0002699
5	-0.3827436	0.0346029	0.0001883

***** MIX CASE NO 1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	0.18606	0.62887	0.00000
2	2	0.10643	0.31635	0.00000
		0.29249	0.94522	

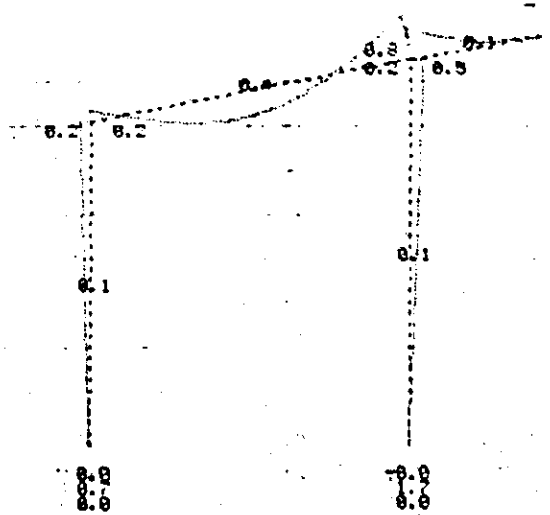
***** MIX CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	3	0.000	-0.413	-0.827	-0.186	0.186	0.628	-0.628
2	2	4	0.000	-0.282	-0.564	-0.106	0.106	0.316	-0.316
3	3	4	-0.827	-0.103	0.350	0.580	-0.043	0.304	-0.035
4	4	5	0.214	-0.053	0.000	0.247	-0.000	0.127	0.000

* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

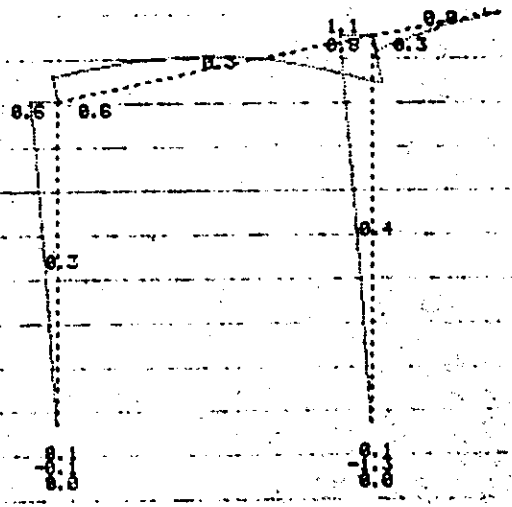
SCALE 1/ 70



* PLANE FRAME ANALYSIS LOAD NO 2

MOMENT

SCALE 1/ 70

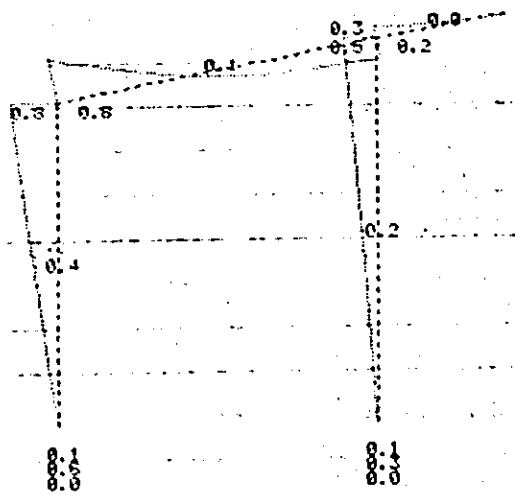


15B

* PLANE FRAME ANALYSIS - - MIX NO 1

MOMENT

SCALE 1/ 70



PLANE FRAME ANALYSIS

TITLE KOTAINTAN PLAT

PLACE IND

DATE 1984. 1.10

SIGN

DENCO - A3 Ver 4.02

by Tokyo Denco Co.,Ltd.

***** DATA ECHO *****

1 CONTROL DATA

NUMBER OF JOINTS	12
NUMBER OF SUPPORTS	6
NUMBER OF MATERIAL	2
NUMBER OF MEMBERS	11
NUMBER OF LOAD CASE	2
NUMBER OF LOAD DATA	11
NUMBER OF MIX LOAD CASE	1
NUMBER OF MIX LOAD DATA	2
OUTPUT OPTION	1
SHEAR DEFORMATION	0
COMBINATION OPTION	1

2 COORDINATE OF JOINTS

J.NO	X(m)	Y(m)
1	0.000	0.000
2	10.000	0.000
3	20.000	0.000
4	30.000	0.000
5	40.000	0.000
6	50.000	0.000
7	0.000	5.300
8	10.000	5.300
9	20.000	5.300
10	30.000	5.300
11	40.000	5.300
12	50.000	5.300

3 SUPPORT OF JOINT

	J.NO	X(t/m.mm)	Y(t/m.mm)	M(rad/tm.rad/10)
1	1	1.0000	1.0000	0.0000
2	2	1.0000	1.0000	0.0000
3	3	1.0000	1.0000	0.0000
4	4	1.0000	1.0000	0.0000
5	5	1.0000	1.0000	0.0000
6	6	1.0000	1.0000	0.0000

4 MATERIAL TABLE

	E(t/cm*2)	G(t/cm*2)	A(cm*2)	I(cm*4)
1	2100.0	810.0	92.18	3650.00
2	2100.0	810.0	46.78	7210.00

5 MEMBER TABLE

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	kappa	beta
1	1	7	2	1	1.00	1.00	0.00	0.00	1.00	1.00
2	2	8	2	1	1.00	1.00	0.00	0.00	1.00	1.00
3	3	9	2	1	1.00	1.00	0.00	0.00	1.00	1.00
4	4	10	2	1	1.00	1.00	0.00	0.00	1.00	1.00
5	5	11	2	1	1.00	1.00	0.00	0.00	1.00	1.00
6	6	12	2	1	1.00	1.00	0.00	0.00	1.00	1.00
7	7	8	1	2	1.00	1.00	0.00	0.00	1.00	1.00
8	8	9	1	2	1.00	1.00	0.00	0.00	1.00	1.00
9	9	10	1	2	1.00	1.00	0.00	0.00	1.00	1.00
10	10	11	1	2	1.00	1.00	0.00	0.00	1.00	1.00
11	11	12	1	2	1.00	1.00	0.00	0.00	1.00	1.00

6 LOAD DATA TABLE

L.NO	M/J	type	way	1	2	3	4	5	6	7
1	1	7	5	2	0.47	1.00				
2	1	8	5	2	0.47	1.00				
3	1	9	5	2	0.47	1.00				
4	1	10	5	2	0.47	1.00				
5	1	11	5	2	0.47	1.00				
6	2	7	1	1	0.47	0.00	0.00			
7	2	8	1	1	0.47	0.00	0.00			
8	2	9	1	1	0.47	0.00	0.00			
9	2	10	1	1	0.47	0.00	0.00			
10	2	11	1	1	0.47	0.00	0.00			
11	2	12	1	1	0.47	0.00	0.00			

7 COMBINATION DATA TABLE

C.NO	L.NO	VALUE
1	1	1.00
2	1	1.00

***** PROPERTIES OF MEMBERS *****

M.NO	Im	Jm	L(m)	cos	sin	k(cm*3)	E*I*(I/Io)/L	E*A*(A/Ao)/L
1	1	7	5.300	0.000	1.000	6.88	1.446E+004	3.652E+002
2	2	8	5.300	0.000	1.000	6.88	1.446E+004	3.652E+002
3	3	9	5.300	0.000	1.000	6.88	1.446E+004	3.652E+002
4	4	10	5.300	0.000	1.000	6.88	1.446E+004	3.652E+002
5	5	11	5.300	0.000	1.000	6.88	1.446E+004	3.652E+002
6	6	12	5.300	0.000	1.000	6.88	1.446E+004	3.652E+002
7	7	8	10.000	1.000	0.000	7.21	1.514E+004	9.823E+001
8	8	9	10.000	1.000	0.000	7.21	1.514E+004	9.823E+001
9	9	10	10.000	1.000	0.000	7.21	1.514E+004	9.823E+001
10	10	11	10.000	1.000	0.000	7.21	1.514E+004	9.823E+001
11	11	12	10.000	1.000	0.000	7.21	1.514E+004	9.823E+001

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im - Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
7	7 - 8	-3.916	5.875	3.916	2.350	-2.350	0.000	0.000
8	8 - 9	-3.916	5.875	3.916	2.350	-2.350	0.000	0.000
9	9 - 10	-3.916	5.875	3.916	2.350	-2.350	0.000	0.000
10	10 - 11	-3.916	5.875	3.916	2.350	-2.350	0.000	0.000
11	11 - 12	-3.916	5.875	3.916	2.350	-2.350	0.000	0.000

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
7	0.00000	-2.35000	-3.91666
8	0.00000	-4.70000	0.00000
9	0.00000	-4.70000	0.00000
10	0.00000	-4.70000	0.00000
11	0.00000	-4.70000	0.00000
12	0.00000	-2.35000	3.91666
	0.00000	-23.50000	

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im - Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
7	0.47000	0.00000	0.00000
8	0.47000	0.00000	0.00000
9	0.47000	0.00000	0.00000
10	0.47000	0.00000	0.00000
11	0.47000	0.00000	0.00000
12	0.47000	0.00000	0.00000
	2.82000	0.00000	

***** LOAD CASE-NO -1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	0.0000000	0.0000000	0.0000000
5	0.0000000	0.0000000	0.0000000
6	0.0000000	0.0000000	0.0000000
7	0.0074177	-0.0056321	-0.0040029
8	0.0040938	-0.0138164	0.0007625
9	0.0014116	-0.0127218	-0.0001721
10	-0.0014116	-0.0127218	0.0001721
11	-0.0040938	-0.0138164	-0.0007625
12	-0.0074177	-0.0056321	0.0040029

***** LOAD CASE NO -1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	0.32654	2.05711	0.00000
2	2	-0.06305	5.04632	0.00000
3	3	-0.01387	4.64656	-0.00000
4	4	-0.01387	4.64656	0.00000
5	5	0.06305	5.04632	0.00000
6	6	-0.32654	2.05711	0.00000
		0.00000	23.50000	

***** LOAD CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	7	0.000	-0.865	-1.730	-0.326	0.326	2.057	-2.057
2	2	8	0.000	0.167	0.334	0.063	-0.063	5.046	-5.046
3	3	9	0.000	-0.036	-0.073	-0.013	0.013	4.646	-4.646
4	4	10	0.000	0.036	0.073	0.013	-0.013	4.646	-4.646
5	5	11	0.000	-0.167	-0.334	-0.063	0.063	5.046	-5.046
6	6	12	0.000	0.865	1.730	0.326	-0.326	2.057	-2.057
7	7	8	1.730	-2.679	-4.659	2.057	2.642	0.326	-0.326
8	8	9	4.325	1.816	-3.791	2.403	2.296	0.263	-0.263
9	9	10	3.864	-2.010	-3.864	2.350	2.350	0.277	-0.277
10	10	11	3.791	1.816	-4.325	2.296	2.403	0.263	-0.263
11	11	12	4.659	2.679	-1.730	2.642	2.057	0.326	-0.326

***** LOAD CASE NO -2 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	0.0000000	0.0000000	0.0000000
5	0.0000000	0.0000000	0.0000000
6	0.0000000	0.0000000	0.0000000
7	4.0190297	0.0009993	-0.0028149
8	4.0182187	-0.0003259	-0.0012055
9	4.0179365	-0.0000732	-0.0015009
10	4.0179365	-0.0000732	-0.0015009
11	4.0182187	-0.0003259	-0.0012055
12	4.0190297	-0.0009993	-0.0028149

***** LOAD CASE NO -2 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	-0.39032	-0.36500	0.00000
2	2	-0.52195	0.11905	0.00000
3	3	-0.49772	-0.02674	0.00000
4	4	-0.49772	0.02674	0.00000
5	5	-0.52195	-0.11905	0.00000
6	6	-0.39032	0.36500	0.00000
		-2.82000	0.00000	

***** LOAD CASE NO 2 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	7	0.000	1.034	-2.068	0.390	-0.390	-0.365	0.365
2	2	8	0.000	1.383	2.766	0.521	-0.521	0.119	-0.119
3	3	9	0.000	1.318	-2.637	0.497	-0.497	-0.026	0.026
4	4	10	0.000	1.318	2.637	0.497	-0.497	0.026	-0.026
5	5	11	0.000	1.383	2.766	0.521	-0.521	-0.119	0.119
6	6	12	0.000	1.034	2.068	0.390	-0.390	0.365	-0.365
7	7	8	-2.068	0.243	-1.581	-0.365	0.365	0.079	-0.079
8	8	9	-1.185	-0.044	-1.274	-0.245	0.245	0.027	-0.027
9	9	10	-1.363	0.000	-1.363	-0.272	0.272	0.000	0.000
10	10	11	-1.274	0.044	-1.185	-0.245	0.245	-0.027	0.027
11	11	12	-1.581	-0.243	-2.068	-0.365	0.365	-0.079	0.079

***** MIX CASE NO 1 *****

	C.NO	L.NO	VALUE
1	1	1	1.00
2	1	2	1.00

***** MIX CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.0000000	0.0000000	0.0000000
4	0.0000000	0.0000000	0.0000000
5	0.0000000	0.0000000	0.0000000
6	0.0000000	0.0000000	0.0000000
7	4.0264475	-0.0046328	-0.0068179
8	4.0223125	-0.0141423	-0.0004429
9	4.0193482	-0.0126486	-0.0016731
10	4.0165248	-0.0127951	-0.0013288
11	4.0141249	-0.0134904	-0.0019680
12	4.0116119	-0.0066315	0.0011879

***** MIX CASE NO 1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	-0.06378	1.69210	0.00000
2	2	-0.58500	5.16338	0.00000
3	3	-0.48384	4.61982	0.00000
4	4	-0.51159	4.67330	0.00000
5	5	-0.45889	4.92726	0.00000
6	6	-0.71686	2.42211	0.00000
		-2.82000	23.50000	

***** MIX CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	7	0.000	0.169	0.338	0.063	-0.063	1.692	-1.692
2	2	8	0.000	1.550	3.100	0.585	-0.585	5.165	-5.165
3	3	9	0.000	1.282	2.564	0.483	-0.483	4.619	-4.619
4	4	10	0.000	1.355	2.711	0.511	-0.511	4.673	-4.673
5	5	11	0.000	1.216	2.432	0.458	-0.458	4.927	-4.927
6	6	12	0.000	1.899	3.799	0.716	-0.716	2.422	-2.422
7	7	8	-0.338	2.923	-6.240	1.692	3.007	0.406	-0.406
8	8	9	3.140	1.772	-5.065	2.157	2.542	0.291	-0.291

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
9	9	10	-2.501	2.010	-5.227	2.077	2.622	0.277	-0.277
10	10	11	2.516	1.861	-5.510	2.050	2.649	0.235	-0.235
11	11	12	3.078	2.436	-3.799	2.277	2.422	0.246	-0.246

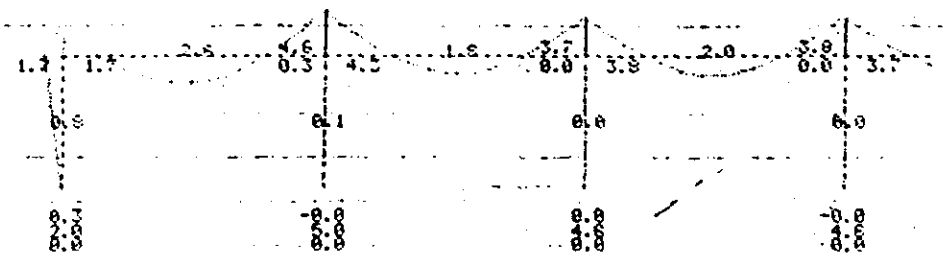
* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

SCALE 1/ 200

DESIGN OF BEAM

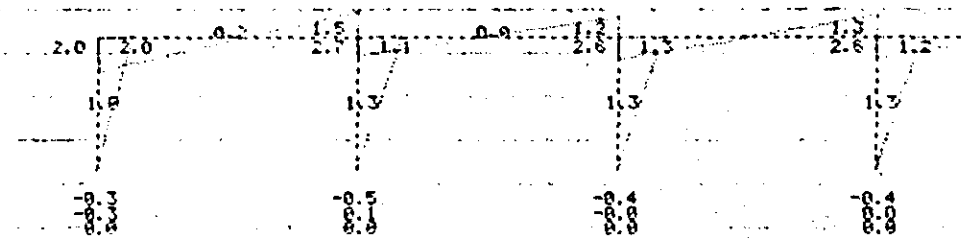
[kgf] Mc 4.60 *
≧ 1.50
5.6.10



* PLANE FRAME ANALYSIS LOAD NO 2

MOMENT

SCALE 1/ 200

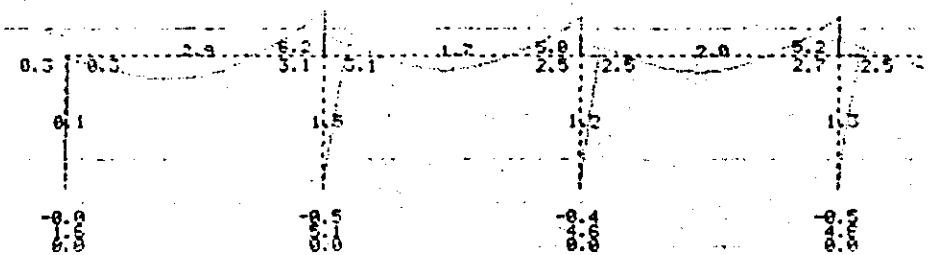


* PLANE FRAME ANALYSIS MIX NO 1

MOMENT

SCALE 1/ 200

170



PLANE FRAME ANALYSIS

TITLE KOTAINTAN PLAT

PLACE IND

DATE 1984. 1.10

SIGN _____

DENCO - A3 Ver 4.02

by Tokyo Denco Co.,Ltd.

***** DATA ECHO *****

1 CONTROL DATA

NUMBER OF JOINTS	7
NUMBER OF SUPPORTS	2
NUMBER OF MATERIAL	2
NUMBER OF MEMBERS	6
NUMBER OF LOAD CASE	2
NUMBER OF LOAD DATA	6
NUMBER OF MIX LOAD CASE	1
NUMBER OF MIX LOAD DATA	2
OUTPUT OPTION	1
SHEAR DEFORMATION	0
COMBINATION OPTION	1

2 COORDINATE OF JOINTS

J.NO	X(m)	Y(m)
1	1.700	0.000
2	6.000	0.000
3	0.000	5.620
4	1.700	-5.300
5	6.000	4.450
6	6.000	1.450
7	8.800	2.015

3 SUPPORT OF JOINT

	J.NO	X(t/m·mm)	Y(t/m·mm)	M(rad/tm·rad/10)
1	1	1.0000	1.0000	0.0000
2	2	1.0000	1.0000	0.0000

4 MATERIAL TABLE

	E(t/cm*2)	G(t/cm*2)	A(cm*2)	I(cm*4)
1	2100.0	810.0	92.18	10800.00
2	2100.0	810.0	46.78	8210.00

5 MEMBER TABLE

M.NO	Im	Jm	kc	mt	I/Io	A/Ao	Xi(cm)	Xj(cm)	Iappa	bata
1	1	4	2	1	1.00	1.00	0.00	0.00	1.00	1.00
2	2	6	2	1	1.00	1.00	0.00	0.00	1.00	1.00
3	5	6	1	1	1.00	1.00	0.00	0.00	1.00	1.00

M.NO	Im	Jm	kc	ml	I/Io	A/Ao	Xi(cm)	Yj(cm)	kappa	beta
4	3	4	1	2	1.00	1.00	0.00	0.00	1.00	1.00
5	4	5	1	2	1.00	1.00	0.00	0.00	1.00	1.00
6	6	7	1	2	1.00	1.00	0.00	0.00	1.00	1.00

6 LOAD DATA TABLE

	L.NO	M/J	type	way	1	2	3	4	5	6	7
1	1	4	5	2	1.20	1.00					
2	1	5	5	2	0.40	1.00					
3	1	6	5	2	1.20	1.00					
4	2	4	5	1	-0.25	1.00					
5	2	5	5	1	-0.25	1.00					
6	2	6	5	1	0.07	1.00					

7 COMBINATION DATA TABLE

C.NO	L.NO	VALUE
1	1	1.00
2	1	1.00

***** PROPERTIES OF MEMBERS *****

M.NO	Im	Jm	L(m)	cos	sin	k(cm*3)	E*I*(I/Io)/L	E*A*(A/Ao)
1	1	4	5.300	0.000	1.000	20.37	4.279E+004	3.652E+00
2	2	6	1.450	0.000	1.000	74.48	1.564E+005	1.335E+00
3	5	6	3.000	0.000	-1.000	36.00	7.560E+004	6.452E+00
4	3	4	1.729	0.982	-0.184	47.46	9.966E+004	5.678E+00
5	4	5	4.383	0.981	-0.193	18.73	3.933E+004	2.241E+00
6	6	7	2.856	0.980	0.197	28.74	6.035E+004	3.439E+00

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im - Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
4	3 4	-0.294	0.441	0.294	1.020	-1.020	0.192	-0.192
5	4 5	-0.628	0.942	0.628	0.860	-0.860	0.170	-0.170
6	6 7	-0.799	1.199	0.799	1.680	-1.680	-0.339	0.339

***** LOAD CASE NO 1 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
3	0.00000	-1.03791	-0.29407
4	0.00000	-1.91455	-0.33418
5	0.00000	-0.87664	-0.62825
6	-0.00000	-1.71386	-0.79980
7	-0.00000	-1.71386	0.79980
	0.00000	-7.25683	

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (MEMBER) *****

M.NO	Im - Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
4	3 4	0.062	-0.093	-0.062	-0.216	0.216	0.000	0.000
5	4 5	0.400	-0.600	-0.400	-0.547	0.547	0.000	0.000
6	6 7	-0.050	0.076	0.050	0.107	-0.107	0.000	0.000

***** LOAD CASE NO 2 EQUIVALENT JOINT LOAD (JOINT) *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
3	0.04000	0.21250	0.06234
4	0.14625	0.75000	0.33791

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
5	0.10625	-0.53750	-0.40026
6	0.02118	-0.10500	-0.05099
7	0.02118	-0.10500	0.05099
	-0.33487	1.29000	

***** LOAD CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	1.5398807	0.0343868	-0.0000913
4	1.5319059	-0.0061515	-0.0006814
5	1.5336603	-0.0062049	-0.0007956
6	0.7090679	-0.0037527	-0.0050554
7	1.1060364	-1.9760138	-0.0077056

***** LOAD CASE NO 1 SUPPORT REACTION *****

J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	-0.53506	2.24680	0.00000
2	-0.53506	5.01002	0.00000
	-0.00000	7.25683	

***** LOAD CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	1.417	2.835	0.535	-0.535	2.246	-2.246
2	2	6	0.000	-0.387	-0.775	-0.535	0.535	5.010	-5.010
3	5	6	2.417	-3.220	-4.022	-0.535	0.535	1.582	-1.582
4	3	4	-0.000	-0.441	-1.764	0.000	2.039	-0.000	-0.383
5	4	5	-1.071	0.269	-2.417	0.063	1.656	-0.558	0.219
6	6	7	4.798	-1.199	-0.000	3.360	-0.000	0.678	-0.000

***** LOAD CASE NO 2 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	0.0000000	0.0000000
2	0.0000000	0.0000000	0.0000000
3	0.5839728	0.0718004	-0.0004298
4	0.5712173	0.0040369	-0.0003047
5	0.5699527	-0.0000985	-0.0006479
6	0.2306022	-0.0001381	-0.0015447
7	0.3250402	-0.4681494	-0.0017137

***** LOAD CASE NO 2 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	-0.18723	-1.47445	0.00000
2	2	-0.14764	0.18445	0.00000
		-0.33487	-1.29000	

***** LOAD CASE NO 2 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	0.496	0.992	0.187	-0.187	-1.474	1.474
2	2	6	0.000	0.107	0.214	0.147	-0.147	0.184	-0.184
3	5	6	0.835	-0.677	-0.520	0.105	-0.105	-0.025	0.025
4	3	4	-0.000	0.093	-0.374	0.000	-0.432	-0.000	0.000
5	4	5	-1.366	-0.335	-0.835	-1.050	-0.045	0.098	-0.098
6	6	7	0.305	-0.076	-0.000	0.214	-0.000	-0.000	0.000

***** MIX CASE NO 1 *****

	C.NO	L.NO	VALUE
1	1	1	1.00
2	1	2	1.00

***** MIX CASE NO 1 JOINT DISPLACEMENT *****

J.NO	DISP-X(cm)	DISP-Y(cm)	ROTATION(rad)
1	0.0000000	-0.0000000	-0.0000000
2	0.0000000	0.0000000	0.0000000
3	2.1238535	0.1061873	-0.0005211
4	2.1031232	-0.0021146	-0.0009861
5	2.1036130	-0.0063035	-0.0014436
6	0.9396701	-0.0038909	-0.0066002
7	1.4310767	-2.4441632	-0.0094193

***** MIX CASE NO 1 SUPPORT REACTION *****

	J.NO	F-X(t)	F-Y(t)	M-Z(tm)
1	1	-0.72229	0.77234	0.00000
2	2	0.38741	5.19448	0.00000
		-0.33487	5.96683	

***** MIX CASE NO 1 MEMBER FORCE (MEMBER AXIS) *****

M.NO	Im	Jm	BEND-I(tm)	CENTER(tm)	BEND-J(tm)	SHEAR-I(t)	SHEAR-J(t)	AXIAL-I(t)	AXIAL-J(t)
1	1	4	0.000	1.914	3.828	0.722	-0.722	0.772	-0.772
2	2	6	-0.000	-0.280	-0.561	-0.387	0.387	5.194	-5.194
3	5	6	3.253	-3.898	-4.543	-0.429	0.429	1.556	-1.556
4	3	4	-0.000	-0.347	-1.390	0.000	1.607	-0.000	-0.383
5	4	5	-2.437	-0.065	-3.253	-0.986	1.610	-0.459	0.119
6	6	7	5.104	-1.276	-0.000	3.574	-0.000	0.678	-0.000

* PLANE FRAME ANALYSIS LOAD NO 1

MOMENT

SCALE 1/ 75

DESIGN OF BEAM.

[KG1] M_L 2.4 tm

$f_b = 430/2 = 215$

$f_b = 1.6$

$\sigma_b / f_b = 240 / 481 \times 1.6$

1.0 ok

M_L = 4.80

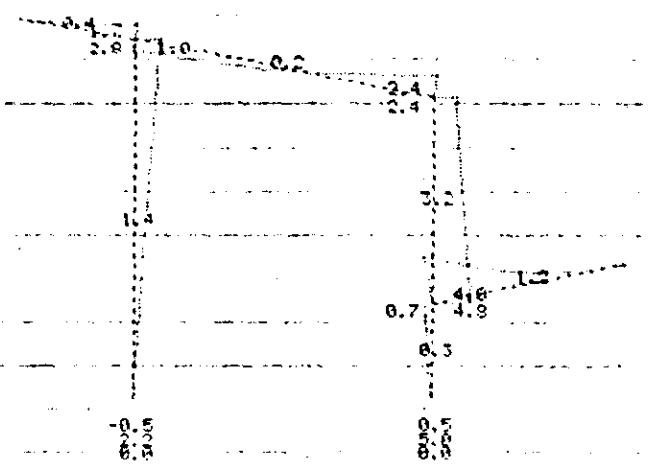
$l_b = 300$

$\lambda = 77.5$

$f_b = 1.3$

$\sigma_b / f_b = 480 / 491 \times$ ... < 1.0

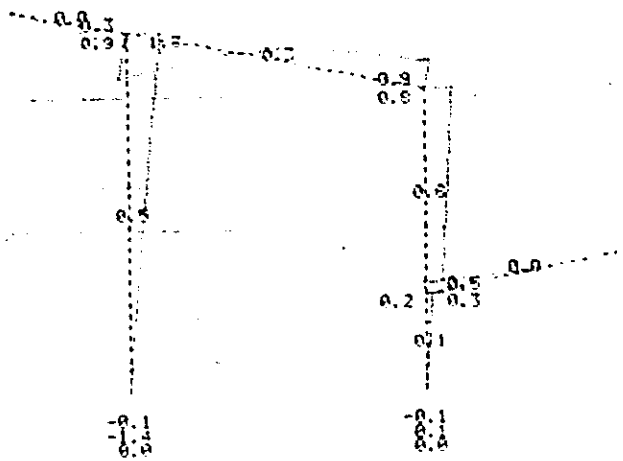
ok



* PLANE FRAME ANALYSIS LOAD NO 2

-MOMENT-

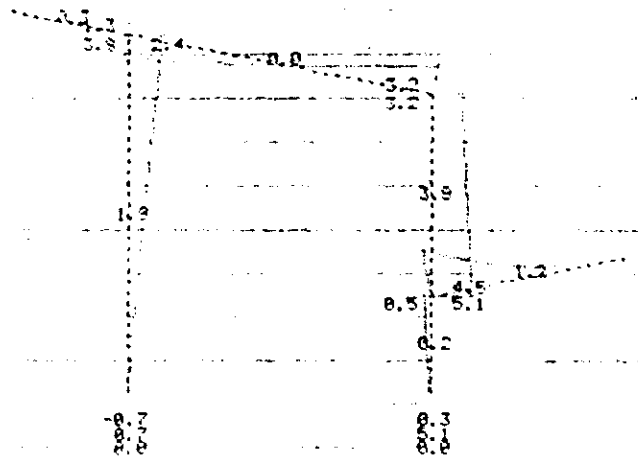
SCALE 1/ 75



* PLANE FRAME ANALYSIS MIX NO 1

MOMENT

SCALE 1/ 75



********** PARAMETER DATA (ﾊﾟﾗﾒｰﾀﾃﾞｰﾀ) **********

1)	ﾃﾝﾒｲ ----------	SIGNAL STATION (A)
2)	ﾆｭｳﾘｮｸ ﾃｰﾌﾞﾙ ｽｳ ----------	2
3)	ﾔﾝﾀﾞﾃｲｶｽｳ E (TON/CM**) ---	210
4)	ﾋｮｳｼﾞｭﾝ ｺﾞｳﾋ K0 (CM**) ---	1000
5)	ｶｲｷｭｳ ｼﾃｲ --------	0
6)	ﾆｭｳﾘｮｸ ｼﾃｲ --------	1

***** NO= 1 *** A PARMEN DATA N= 2 S= 2 KAIHOU= 3 ***** KENMEI * SIGNAL STA[illegible] (A)

H = 3.850 4.650

L = 7.000 8.000

**** HARI -- DATA -- **********

ﾀｲﾌﾟ	ﾀﾝ	FG	X	GD	XL	YP	B	F	*	a	a'	b	d	d'	*	CG	CL	CR		GL	GR
3	1	0.770	1							2.000	2.000	1.000	1.000	1.000			13.60	13.60		8.15	8.15
	2	0.680	1							2.000	2.000	1.000	1.000	1.000			13.60	13.60		8.15	8.15
	3																				
2	1	1.160	1							2.000	2.000	1.000	1.000	1.000			15.20	15.20		10.60	10.60
	2	1.010	1							2.000	2.000	1.000	1.000	1.000			15.20	15.20		10.60	10.60
	3																				
1	1	2.220	1							2.000	2.000	1.000	1.000	1.000							
	2	2.130	1							2.000	2.000	1.000	1.000	1.000							
	3																				

**** HASHIRA DATA **********

ﾀｲﾌﾟ	ﾀﾝ	YC	HO/H	H(N)	ｱｷｱｷ	CD	XU	YD	B	F	*	a	a'	b	Q (TON)
2	1	1.350	1.0000	3.850								2.000	2.000	1.000	5.600
	2	1.350	1.0000	-3.850								2.000	2.000	1.000	
	3	1.350	1.0000	3.850								2.000	2.000	1.000	
1	1	1.120	1.0000	-4.650								2.000	2.000	1.000	14.450
	2	1.120	1.0000	4.650								2.000	2.000	1.000	
	3	1.120	1.0000	4.650								2.000	2.000	1.000	

***** NO= 2 *** 1 RAHMEN DATA NN= 2 S= 1 KAIHOU= 3 ***** KEINEI - SIGNAL STA

H = 3.850 4.650

L = 4.000

***** HAFI ---- DATA ***********

n	*		KG	Y	GD	SL	YF	B	K	*	a	a'	b	d	d'	*	CG	CL	CF	QL	QR
3	1		1.350	1							2.000	2.000	1.000	1.000	1.000					0.90	0.90
		2																			
2	1		2.030	1							2.000	2.000	1.000	1.000	1.000					6.70	6.70
		2																			
1	1		4.270	1							2.000	2.000	1.000	1.000	1.000						
		2																			

**** HASHIPA DATA **********

n	*		HC	H0/H	H(M)	D=ST	CD	YU	YD	B	K	*	a	a'	b	Q (TON)
2	1		1.350	1.0000	3.850								2.000	2.000	1.000	5.600
		2	1.350	1.0000	3.850								2.000	2.000	1.000	
1	1		1.120	1.0000	4.650								2.000	2.000	1.000	14.400
		2	1.120	1.0000	4.650								2.000	2.000	1.000	

A

3	1	-9.48	7.84	15.63	-0.88	7.27	9.03	*	3.83	0.18	3.45	-1.04
	2	-15.53	7.73	9.80	0.72	8.87	7.43	*	3.08	-0.18	3.45	-0.82
2	1	-11.42	8.86	-17.06	-0.81	9.79	-11.41	*	10.81	-0.60	9.61	-2.92
	2	-16.94	8.74	11.77	0.65	11.25	9.95	*	8.55	-0.61	9.79	-2.29
1	1	-1.22	-0.30	-0.61	0.26	0.26	-0.26	*	10.73	1.55	7.63	-2.62
	2	0.62	-0.30	1.24	-0.23	-0.23	0.23	*	7.39	-1.52	10.44	-2.27

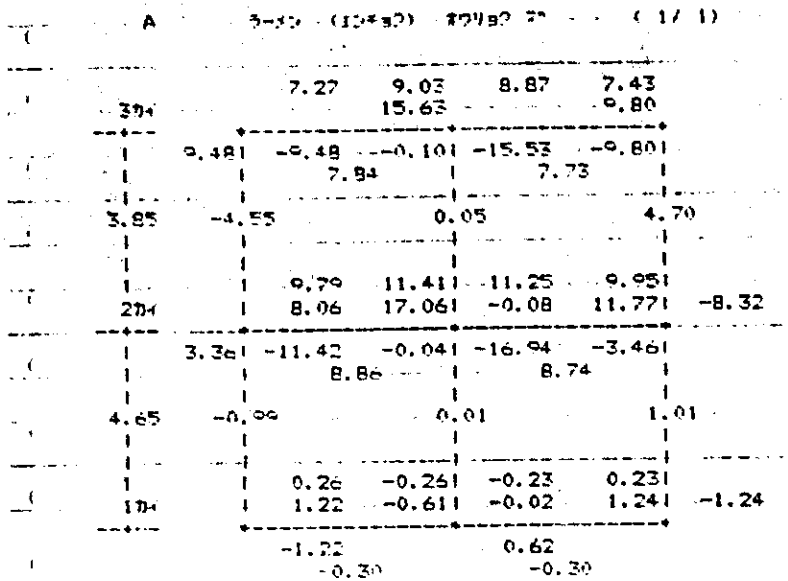
A

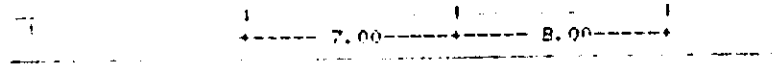
2	1	9.48	8.06	-4.55	*	-3.83	-1.62	1.41	-1.04	*	7.8[illegible]E-004	0.3032 1/ 1269
	2	-0.10	-0.08	0.05	*	-6.54	-5.08	3.02	0.22	*		
	3	-9.80	-8.32	4.70	*	-3.45	-1.05	1.17	0.82	*		
1	1	3.36	1.22	-0.99	*	-9.19	-10.73	4.28	-3.96	*	1.3675[illegible]	0.6342 1/ 733
	2	-0.04	-0.02	0.01	*	-13.08	-15.02	6.04	0.85	*		
	3	-3.46	-1.74	1.01	*	-8.77	-10.44	4.12	3.11	*		

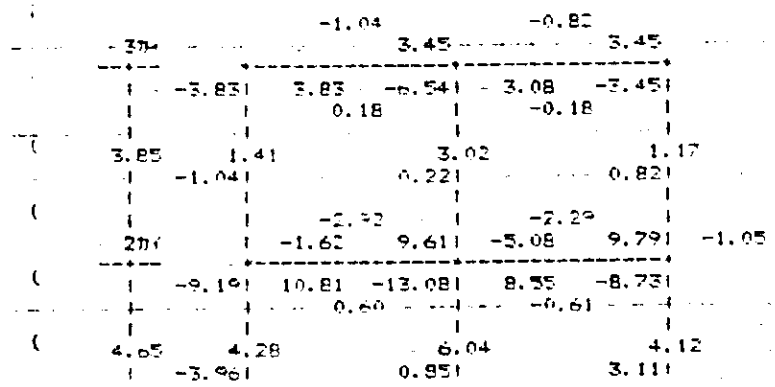
1

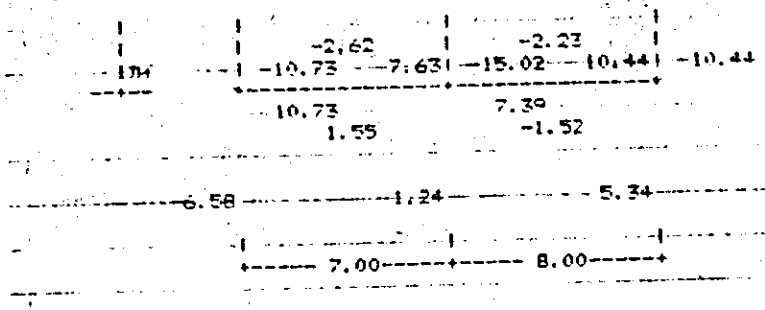
3	1	-0.73	0.16	0.73		0.90	0.90	*	6.52	-0.00	6.52	-3.26
2	1	-3.39	4.20	3.39		6.70	6.70	*	19.95	0.00	19.95	-9.97
1	1	-0.55	-0.54	0.55				*	17.80	-0.00	17.80	-8.90

No	**	MLT	MLB	OL	*	MLT	MLB	OI	NI	*	ｱﾝﾊﾞﾗﾝｽ	ﾉｰﾄﾞ(cm)	H/ﾉｰﾄﾞ
2	1	0.73	1.87	-0.68	*	-6.52	-4.26	2.80	-3.26	*	8.9[illegible]E-004	0.3458	1/ 1113
	2	-0.73	-1.87	0.68	*	-6.52	-4.26	2.80	3.26	*			
1	1	-1.52	0.55	-0.44	*	-15.68	-17.80	7.20	-13.23	*	1.7[illegible]E-003	0.8098	-1/ -574
	2	-1.52	-0.55	0.44	*	-15.68	-17.80	7.20	13.23	*			


7.27 9.03 8.87 7.43
15.63 -9.80
9.48 -9.48 -0.10 -15.53 -9.80
7.84 7.73
3.85 -4.55 0.05 4.70
9.79 11.41 -11.25 9.95
8.06 17.06 -0.08 11.77 -8.32
3.36 -11.42 -0.04 -16.94 -3.46
8.86 8.74
4.65 -0.00 0.01 1.01
0.26 -0.26 -0.23 0.23
1.22 -0.61 -0.02 1.24 -1.24
-1.22 0.62
-0.30 -0.30


7.00
8.00


-1.04 -0.82
3.45 3.45
-3.83 3.83 -6.54 3.08 -3.45
0.18 -0.18
3.85 1.41 3.02 1.17
-1.04 0.22 0.82
-2.32 -2.29
-1.62 9.61 -5.08 9.79 -1.05
-9.19 10.81 -13.08 8.55 -8.73
0.60 -0.61
4.65 4.28 6.04 4.12
-3.96 0.85 3.11


-2.62
-2.23
-10.73
-7.63
-15.02
-10.44
-10.44
10.73
7.39
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6.58
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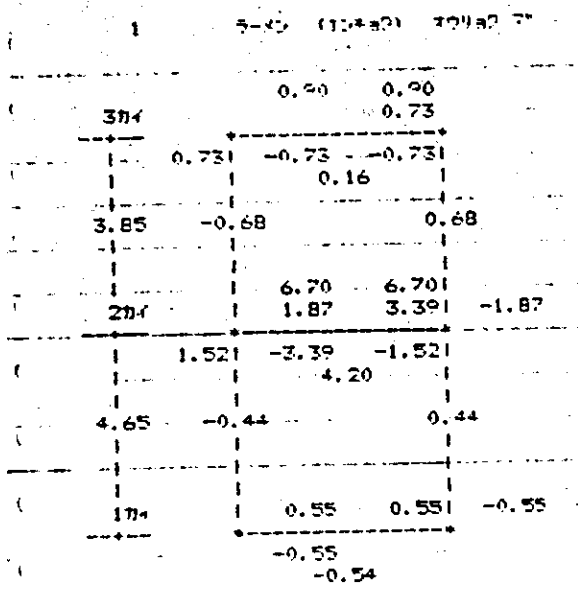
8.00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1.87
3.39
-1.87
1.52
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4.20
4.65
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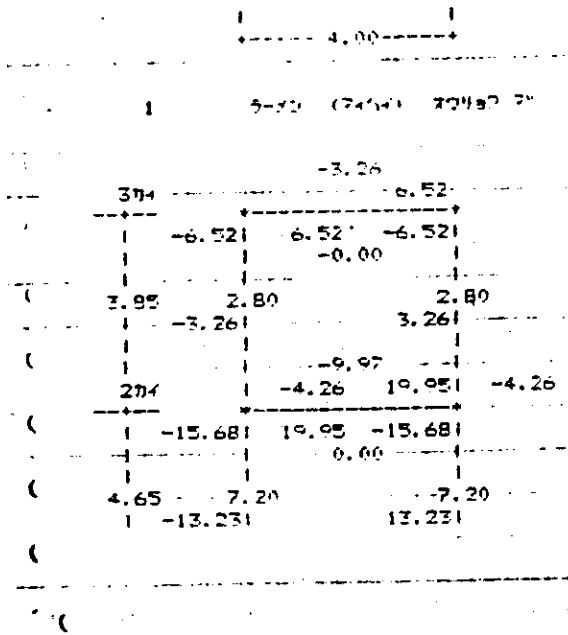
0.55
0.55
-0.55
-0.55
-0.54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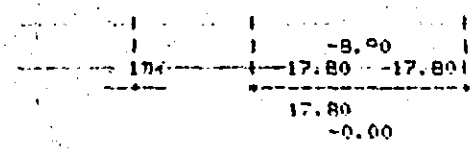

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