

No. 74

No. 75

梁-梁接合部の設計

使用部位	梁-梁	上, 下フランジ添板部 ①, ②, ③, ④, ⑤, ⑥						ウェブ添板部 ⑦, ⑧							
		(1) 上, 下添板許容引張耐力 $Nt(t)$, 許容曲げ耐力 $(t \cdot m)$ $Nt = (B - nf \times d) \times t \times ft$ $Mt = Nt \times H$ B: 板幅 (cm) H: 上下板間中心距離 (cm) nf: 幅方向ボルト列数 (本) d: ボルト穴径 (cm) t: 板厚 (cm) ft: 短期許容引張応力度 (t/cm^2) (2) H, T, Bの許容剪断耐力 $Qt(t)$, 許容曲げ耐力 $M_B(t \cdot m)$ $Q_B = n \times Ts$ $M_B = Q_B \times H$ n: ボルト本数 (本) Ts: 短期許容剪断力 $(t/本)$						(1) 添板の許容剪断耐力 $Qt(t)$ $Qt = (C - nf \times d) \times t \times ft$ C: 板厚 (cm) nf: ボルト列数 (本) d: ボルト穴径 (cm) t: 板厚 (cm) ft: 短期許容剪断応力度 (t/cm^2) (2) H, T, Bの許容剪断耐力 $Q_B(t)$ $Q_B = n \times Ts$ n: ボルト本数 (本) Ts: 短期許容剪断力 $(t/本)$							
分類番号	M-14-1														
採用印	組合せ部材サイズ		①, ②添板短期許容引張耐力		③, ④添板短期許容引張耐力		⑤ H, T, B短期許容剪断耐力		⑥ H, T, B短期許容剪断耐力		短期許容曲げ耐力	⑦添板短期許容剪断耐力		⑧ H, T, B短期許容剪断耐力	
	梁		板厚 (mm)	Nt (t)	板厚 (mm)	Nt (t)	径本数	$Q_B (t)$	径本数	$Q_B (t)$	$Mt (t \cdot m)$	板厚 (mm)	$Qt (t)$	径本数	$Q_B (t)$
	(注)	H-248・124・5・8	12	236			4-M20	28.3			5.7	6	13.3	2-M20	28.3
	"	H-250・125・6・9	"	"			"	"		"	"	"	"	"	"
	"	H-298・149・5.5・8	"	30.8			6-M20	42.4			8.9	"	17.7	3-M20	42.4
◎		H-300・150・6.5・9	"	"			"	"		"	"	"	"	"	"
◎		H-346・174・6・9	9	47.3			"	84.8			15.9	9	26.6	"	"
		H-350・175・7・11	"	"			"	"		"	"	"	"	"	"
		H-396・199・7・11	"	56.2			"	"			21.6	"	33.3	4-M20	56.6
		H-400・200・8・13	"	"			"	"		"	"	"	"	"	"
		H-446・199・8・12	12	74.9			"	"			32.5	"	39.9	5-M20	70.7
		H-450・200・9・14	"	"			"	"		"	"	"	"	"	"
		H-496・199・9・14	"	"			"	"			36.1	"	46.6	6-M20	84.8
		H-500・200・10・16	"	"			"	"		"	"	"	"	"	"
		H-596・199・10・15	16	99.8			8-M20	113.1			58.0	"	53.2	7-M20	99.0
		H-600・200・11・17	"	"			"	"		"	"	"	"	"	"
		H-606・201・12・20	19	118.6			"	"			69.5	12	70.9	"	"
		H-612・202・13・23	"	"			"	"		"	"	"	"	"	"

(注) H-250×125, H-300×150シリーズはフランジ内側添板①, ②は無し。

2-4 柱の断面設計

(X₁, X_v, X₃列 = 角柱)

Y₁, Y₄ 柱

	X	Y		X	Y
VM	11.9	0.62	WN	11.86	11.86
HM	11.24	0.13	HN	2.85	0.64
SM	12.43	0.8	SN	14.71	12.4 ^t

H-300 x 300 x 10 x 15 A = 119.8 i_y = 7.51 i_x = 13.1
 E_x = 1360 E_y = 450 i = 0.23

$l_x = 1200$ $\lambda = 97$ $f_c = 0.97 (1.455)$

$l_y = 800$ $\lambda_y = 80$

$f_n = 1.6 (2.4)$

X方向 $\sigma_c / f_c = 14.71 / 119.8 \times 1.455 = 0.034$

$\sigma_x / f_n = 1243 / 1360 \times 2.4 = 0.381$

$\sigma_y / f_n = 62 / 450 \times 2.4 = 0.058$
 0.527 < 1.0

Y方向 $\sigma_c / f_c = 12.4 / 119.8 \times 1.455 = 0.092$

$\sigma_x / f_n = 119 / 1360 \times 2.4 = 0.037$

$\sigma_y / f_n = 880 / 450 \times 2.4 = 0.815$
 0.924 < 1.0

Y₂, Y₃ 柱

	X	Y		X	Y
VM	0.23	0.62	WN	16.83	16.83
HM	15.11	0.13	HN	1.03	0.64
SM	15.34	0.8	SN	17.86	17.47

$H = 300 \times 300 \times 10 \times 15$

$A = 119.8$

$Z_x = 1360 \quad Z_y = 450$

$f_c = 1.455 \quad f_u = 2.4$

X方向

$\sigma_c / f_c = 19.46 / 119.8 \times 1.455 = 0.103$

$\sigma_x / f_u = 1524 / 1360 \times 2.4 = 0.47$

$\sigma_y / f_u = 62 / 450 \times 2.4 = 0.058$
 $\underline{\hspace{1.5cm}} = 0.631 < 1.0$

Y方向

$\sigma_c / f_c = 19.47 / 119.8 \times 1.455 = 0.1$

$\sigma_x / f_u = 23 / 1360 \times 2.4 = 0.009$

$\sigma_y / f_u = 880 / 450 \times 2.4 = 0.915$
 $\underline{\hspace{1.5cm}} = 0.922 < 1.0$

(X方向 X3 列 1: 1 間))

Y1, Y4 柱

	X	Y		X	Y
VM	0.32	0.08	VM	5.67	5.67
HM	8.46	9.03	HM	2.57	0.69
SM	8.93	9.11	SN	8.24	0.56

$H = 300 \times 300 \times 10 \times 15$

$A = 119.8$

$Z_x = 1360$

$Z_y = 450$

$f_c = 1.455 \quad f_u = 2.4$

X方向

$\sigma_c / f_c = 8.24 / 119.8 \times 1.455 = 0.048$

$\sigma_x / f_u = 893 / 1360 \times 2.4 = 0.269$

$\sigma_y / f_u = 8 / 450 \times 2.4 = 0.008$
 $\underline{\hspace{1.5cm}} = 0.325 < 1.0$

Y方向 $\sigma_c/f_c = 0.56 / 119.8 \times 1.455 = 0.033$
 $\sigma_{xy}/f_n = 32 / 1360 \times 2.4 = 0.01$
 $\sigma_{yz}/f_n = 911 / 450 \times 2.4 = 0.845$
 $\underline{\hspace{2cm}}$
 $0.893 < 1.0$

fy, Yz 柱

	X	Y		X	Y
UM	0.76	0.08	LN	11.11	11.11
HM	10.95	9.03	HN	1.77	0.89
SM	11.11	9.11	SN	12.84	12.0

H = 300 x 300 x 10 x 15 A = 119.8 Zx = 1360
 Zy = 450

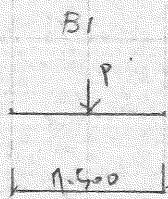
$f_n = 2.4$ $f_c = 1.455$

X方向 $\sigma_c/f_c = 12.84 / 119.8 \times 1.455 = 0.094$
 $\sigma_{xz}/f_n = 1111 / 1360 \times 2.4 = 0.341$
 $\sigma_{yz}/f_n = 8 / 450 \times 2.4 = 0.009$
 $\underline{\hspace{2cm}}$
 $0.422 < 1.0$

Y方向 $\sigma_c/f_c = 12.0 / 119.8 \times 1.455 = 0.069$
 $\sigma_{xz}/f_n = 76 / 1360 \times 2.4 = 0.011$
 $\sigma_{yz}/f_n = 911 / 450 \times 2.4 = 0.844$
 $\underline{\hspace{2cm}}$
 $0.924 < 1.0 \quad \text{OK}$

No. 79

§3. Z次部找設計



$$P = (0.035 + 0.045) \times 3.5 \times 3.75 = 1.97^t$$

$$M = 1.97 \times 1.5 \times 1/4 = 0.71^t \cdot m$$

$$\theta = 1.97 \times 1/4 = 0.49^t$$

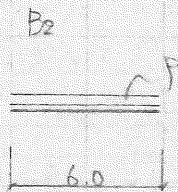
$$H-298 \times 149 \times 5.5 \times 8$$

$$Z_x = 424, \quad I_x = 6320$$

$$f_b = 900 \times 14.9 \times 0.08 / 29.8 \times 375 = 0.96 (1.44)$$

$$S_b / f_b = 370 / 424 \times 1.44 = 0.61 < 1.0$$

$$\delta = 10 \times 1.97 \times 1.5^3 / 6320 = 1.32 \text{ cm } \times 568$$



$$P = (0.035 + 0.06) \times 3.5 = 0.33^t \cdot m$$

$$M = 0.33 \times 6^2 \times 1/8 = 1.5^t \cdot m$$

$$\theta = 0.33 \times 6 \times 1/2 = 0.99^t$$

$$H-198 \times 99 \times 4.5 \times 7$$

$$Z_x = 160, \quad I_x = 1580, \quad f_b = 900 \times 9.9 \times 0.7 / 100 \times 198 = 1.05 (1.511)$$

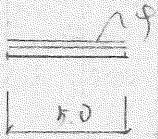
$$S_b / f_b = 170 / 160 \times 1.511 = 0.6 < 1.0$$

$$\delta = 5 \cdot W l^4 / 384 E I = 1.68 \text{ cm } \times 3511$$

$$\text{use } H-200 \times 100 \times 5.5 \times 8$$

$$\delta = 1.68 \times 1580 / 1840 = 1.36 \text{ cm } \times 44.1$$

B3



$$l = 5.0 \quad @ 4.5$$

$$f = 0.095 \times 4.5 = 0.43 \text{ 寸}$$

$$M = 0.43 \times 5^2 \times \frac{1}{8} = 1.34 \text{ 寸}^2$$

$$Q = 0.43 \times 5 \times \frac{1}{2} = 1.08 \text{ 寸}$$

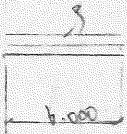
H-198 × 99 × 4.5 × 7

$$Z_x = 160 \quad I_x = 1580 \quad f_b = 900 \times 99 \times 0.7 / 19.8 \times 500 = 0.63 \text{ (0.94)}$$

$$\sigma_b / f_b = 134 / 160 \times 0.94 = 0.89 < 1.0$$

$$\delta = 5 \mu l^4 / 384 EI = 1.05 \text{ 寸} \quad l / 476$$

底鼻先 B4



$$l = 9.0 \quad @ 1.25$$

$$f = 0.095 \times 1.25 = 0.12 \text{ 寸}$$

$$w = 0.035 \times 1.25 - 0.147 \times 2.0 \times 1.25 = -0.32 \text{ 寸}$$

$$M = 0.32 \times 6.0^2 \times \frac{1}{8} = 1.44 \text{ 寸}^2$$

$$Q = 0.32 \times 6.0 \times \frac{1}{2} = 0.96 \text{ 寸}$$

H-198 × 99 × 4.5 × 7

$$Z_x = 160 \quad I_x = 1580 \quad f_b = 900 \times 99 \times 0.7 / 19.8 \times 300 = 1.05 \text{ (1.575)}$$

$$\sigma_b / f_b = 144 / 160 \times 1.575 = 0.57 < 1.0$$

$$\delta = 5 \mu l^4 / 384 EI = 1.67 \text{ 寸} \quad l / 368$$

側緣

$$l = 3.75 @ 0.6$$

$$f_x = 0.147 \times 0.8 \times 0.6 = 0.07 \text{ t/m}$$

$$f_y = 0.02 \times 0.6 = 0.012$$

$$M_x = 0.07 \times 3.75^2 \times \frac{1}{8} = 0.123 \text{ t.m}$$

$$M_y = 0.012 \times 3.75^2 \times \frac{1}{8} = 0.021$$

$$C-100 \times 50 \times 20 \times 2^3 \quad Z_x = 16.1 \quad Z_y = 6.06 \quad f_b = f_t = 1.6 (2.4)$$

$$G_b x / f_b = 12.3 / 16.1 \times 2.4 = 0.92$$

$$G_b y / f_b = 2.1 / 6.06 \times 2.4 = 0.14$$

$$\frac{0.46 < 1.0$$

裏側緣

$$l = 3.0$$

$$f_x = 0.147 \times 0.9 \times 0.6 = 0.079 \text{ t/m}$$

$$f_y = 0.012$$

$$M_x = 0.079 \times 3.0^2 \times \frac{1}{8} = 0.089 \text{ t.m}$$

$$M_y = 0.012 \times 3.0^2 \times \frac{1}{8} = 0.0135$$

$$C-100 \times 50 \times 20 \times 2^3 \quad Z_x = 16.1 \quad Z_y = 6.06 \quad f_b = f_t = 1.6 (2.4)$$

$$G_b x / f_b = 8.9 / 16.1 \times 2.4 = 0.23$$

$$G_b y / f_b = 1.35 / 6.06 \times 2.4 = 0.09$$

$$\frac{0.32 < 1.0$$

桁間柱 P₁



$$l = 6.0 @ 3.75$$

$$f = 0.147 \times 0.8 \times 3.75 = 0.441 \text{ t/m}$$

$$M = 0.441 \times 6.0^2 \times \frac{1}{8} = 1.98 \text{ t.m}$$

$$Q = 0.441 \times 6.0 \times \frac{1}{2} = 1.32 \text{ t}$$

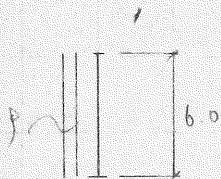
H-198 × 99 × 4.5 × 7

$Z_x = 160 \quad I_x = 1580 \quad f_b = f_t = 1.6 (2.4)$

$\sigma_b / f_b = 178 / 160 \times 2.4 = 0.52 < 1.0$

$S = 5 \omega l^4 / 384 EI = 2.67 \text{ cm} \quad l / 224$

垂直柱 P₁



$l = 6.0 \quad @ \quad 3.5$

$f = 0.147 \times 0.9 \times 3.5 = 0.46 \text{ t/m}$

$M = 0.46 \times 6^2 \times 1/8 = 2.08 \text{ t}\cdot\text{m}$

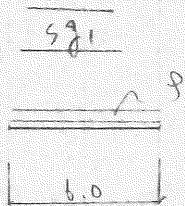
$Q = 0.46 \times 6 \times 1/2 = 1.38 \text{ t}$

H-198 × 99 × 4.5 × 7

$Z_x = 160 \quad I_x = 1580 \quad f_b = f_t = 1.6 (2.4)$

$\sigma_b / f_b = 208 / 160 \times 2.4 = 0.54 < 1.0$

$S = 5 \omega l^4 / 384 EI = 2.34 \text{ cm} \quad l / 256$



$l = 6.0$

$f = 0.12 \times 0.8 \times 3.0 = 0.288 \text{ t/m}$

$M = 0.288 \times 6.0^2 \times 1/8 = 1.3 \text{ t}\cdot\text{m}$

$Q = 0.288 \times 6.0 \times 1/2 = 0.86 \text{ t}$

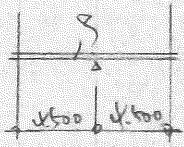
H-200 × 100 × 5.5 × 8

$Z_x = 184 \quad I_x = 1840 \quad f_b = f_t = 1.6 (2.4)$

$\sigma_b / f_b = 130 / 184 \times 2.4 = 0.3 < 1.0$

$S = 5 \omega l^4 / 384 EI = 1.26 \text{ cm} \quad l / 476$

592



$$y = 0.1 \times 3.0 = 0.3 \text{ m}$$

$$M_0 = 0.3 \times 4.5^2 \times \frac{1}{3} = 0.176 \text{ t.m}$$

$$Q = 0.3 \times 4.5 \times \frac{1}{2} = 0.675 \text{ t}$$

$$H = 198 \times 150 \times b \times 9 \quad I_x = 67.6 \quad I_y = 5.9$$

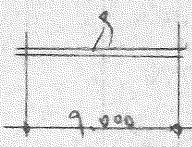
$$f_u = 16$$

$$\sigma_u / f_u = 16 / 67.6 \times 1.0 = 0.24 < 1.0$$

$$s = 6.2 \times 0.3 \times 4.5^2 / 5.9 = 1.51 \text{ m} \quad \frac{1}{2} 98$$

另找一 25-65x65x6

997



$$y = 0.12 \times 0.9 \times 3.0 = 0.377 \text{ m}$$

$$M_0 = 0.377 \times 9^2 \times \frac{1}{3} = 3.34 \text{ t.m}$$

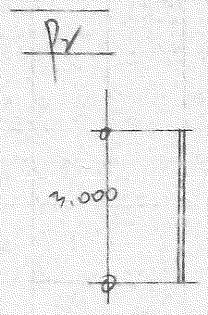
$$Q = 0.377 \times 9 \times \frac{1}{2} = 1.49 \text{ t}$$

$$H = 300 \times 150 \times 0.5 \times 9 \quad I_x = 481 \quad I_y = 1710$$

$$f_u = 300 \times 15 \times 0.9 / 30 \times 450 = 0.9 \quad (1.25)$$

$$\sigma_u/f_u = 334/481 \times 1.35 = 0.62 < 1.0$$

$$\int = 0.62 \times 1.33 \times 9^4 / 7210 = 1.06 \text{ mm} \quad \sqrt{483}$$

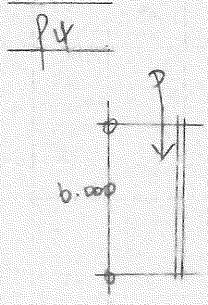


$$\int = 0.127 \times 0.9 \times 4^5 = 0.52 \text{ mm}$$

$$M_0 = 0.52 \times 3^2 \times 1/8 = 0.58 \text{ mm}$$

∴ H-150 × 175 × 5 × 7. o.k.

P_m H-150 × 175 × 5 × 7. o.k.



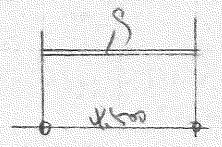
$$\int = 0.05 \times b \times 3^5 = 1.05 \text{ mm}$$

$$H-198 \times 99 \times 4.5 \times 7. \quad A = 27.18. \quad i_y = 2.21$$

$$b = 300 \quad \lambda = 1.76 \quad f_c = 0.517$$

$$\sigma_c/f_c = 1.05/27.18 \times 0.517 = 0.09 < 1.0$$

内部向如何明細



$$\int = 0.02 \times 0.6 = 0.012 \text{ mm}$$

$$M_f = 0.012 \times 4.5^2 \times 1/8 = 0.03 \text{ mm}$$

C-100 × 50 × 20 × 2.3 $\int = 6.06$

$$f_u = 1.6$$

$$\sigma_u/f_u = 3/6.06 \times 1.6 = 0.71 < 1.0$$

§.5 基礎設計

柱軸方向力

No. 86

符号	階	床	W (ton)	梁、壁、etc	W (ton)	ΣW (ton)
		<u>倉庫棟</u>				
		床板: 冷蔵庫部分 : 100 kg/m ² 倉庫, : 50 "				
		外壁 角波鉄板 40 kg/m ²		柱 90 kg/m		
		70mm 260 "		地中梁 870 kg/m		
		コンクリート壁 780 "				
		軽量コンクリート 50 kg/m ²				
		冷蔵庫				
X ₁ -Y ₁		床板 0.1 × 3.5 × 3.75 = 1.32		柱 0.09 × 5.5 = 0.50 加 0.04 × 5.4 × (3.5 + 3.75) = 1.57 " 0.44 × 1.2 × 7.25 = 3.83		
			1.32	地中梁 0.87 × 7.25 = 6.31	12.21	13.53
X ₁ -Y ₂		床板 0.1 × 7.0 × 3.75 = 2.63		柱 = 0.50 加 0.04 × 5.4 × 7.0 = 1.52 " 0.04 × 6.3 × 3.75 = 0.95 " 0.44 × 1.2 × 7.0 = 3.70		
			2.63	地中梁 0.87 × 10.75 = 9.36	16.03	18.66
X ₂ -Y ₁		床板 0.1 × 3.5 × 3.75 = 1.32 " 0.05 × 3.5 × 3.0 = 0.53		柱 = 0.50 加 0.04 × 5.4 × 3.75 = 0.81 " 0.44 × 1.2 × 3.75 = 1.98 " 0.04 × 3.3 × 3.5 = 0.47 " 0.44 × 3.3 × 3.5 = 5.09		
			1.85	梁 0.87 × 10.25 = 8.92	17.77	19.62
X ₂ -Y ₂		床板 0.1 × 7.0 × 3.75 = 2.63 " 0.05 × 7.0 × 3.0 = 1.05		柱 = 0.50 加 0.04 × 6.3 × 3.75 = 0.95 " 0.04 × 3.3 × 7.0 = 0.93 " 0.44 × 3.3 × 7.0 = 10.17		
			3.68	梁 0.87 × (7.0 + 6.75) = 11.97	24.52	28.2

No. 87

符号	階	床	W (ton)	梁、壁、etc	W (ton)	ΣW (ton)
		倉庫				
X3-Y1	1F	0.05 × 3.5 × 5.3 = 0.93	0.93	柱 = 0.50 柱 0.04 × 5.4 × 2.3 = 0.50 " 0.04 × 3.3 × 3.5 = 0.47 " 0.44 × 1.2 × 2.3 = 1.22 " 0.44 × 3.3 × 3.5 = 5.09 梁 0.87 × (3.5 + 5.3) = 7.66	15.49	16.37
X3-Y2	1F	0.05 × 7.0 × 5.3 = 1.86	1.86	柱 = 0.50 柱 0.04 × 3.3 × 7.0 = 0.93 " 0.44 × 3.3 × 7.0 = 10.17 梁 0.87 × (7.0 + 5.3) = 10.71	22.31	24.17
X5-Y1	1F	0.05 × 3.0 × 5.0 = 0.75	0.75	柱 = 0.50 柱 0.04 × 5.4 × 2.5 = 0.54 " 0.04 × 3.3 × (3.0 + 2.5) = 0.73 " 0.26 × 1/2 × 2.5 × 2.2 = 0.72 " 0.44 × 1.2 × 2.5 × 3/2 = 1.98 柱 0.05 × 3.0 × 5.5 = 0.83 梁 0.87 × 8.0 = 6.96	12.26	13.01
X5-Y2'	1F	0.05 × 7.5 × 5.0 = 1.88	1.88	柱 = 0.5 柱 0.04 × 3.3 × 7.5 = 0.99 " 0.26 × 2.2 × 2.5 × 3/2 = 3.58 柱 0.05 × 3.0 × 7.5 = 1.13 梁 0.87 × (7.5 + 5.0 + 7.5) = 17.4	23.6	25.48
X7-Y1	1F	0.05 × 3.0 × 5.0 = 0.75	0.75	柱 = 0.50 柱 0.04 × 5.4 × 5.0 = 1.08 " 0.26 × 1/2 × 5.0 × 2.2 = 1.43 " 0.44 × 3.3 × 3.0 = 4.36 " 0.44 × 1.2 × 5.0 × 3/2 = 3.96 梁 0.87 × (3.0 + 2.5) = 9.2	20.53	21.28

§ 柱軸方向力

No. 88

符号	階	床	W (ton)	梁、壁、etc	W (ton)	ΣW (ton)
X7-Yz'	7	床 0.05 × 7.5 × 5.0 = 1.88	1.88	柱 = 0.50 加 0.26 × 2.2 × (7.5 + 12.5) = 11.94 0.44 × 1.2 × 20.0 = 10.56 梁 0.87 × 20.0 = 17.4	39.9	21.78
X8-Y	8	床 0.05 × 3.0 × 2.5 = 0.38	0.38	柱 = 0.50 加 0.04 × 5.2 × 2.5 = 0.54 0.26 × 1/2 × 2.2 × 2.5 = 0.72 0.44 × 3/2 × 1.2 × 2.5 = 1.98 0.04 × 3.3 × 3.0 = 0.40 加 0.05 × 3.0 × 3.0 = 0.45 梁 0.87 × (5.5 + 2.5/2) = 5.88	10.27	10.85
X8-Yz	8	床 0.05 × 7.5 × 2.5 = 0.94	0.94	柱 = 0.50 加 0.04 × 3.3 × 7.5 = 0.99 0.26 × 2.2 × 2.5 × 5/2 = 3.58 加 0.05 × 3.0 × 7.5 = 1.13 梁 0.87 × (7.5 + 2.5 × 5/2) = 11.97	18.17	19.11

基礎の設計

杭耐力 $R_a = 48 \text{ t}$

有効杭耐力 $R'_a = 48.0 - 2.0 \times 0.9^2 \times 1.5 = 45.57$

1本杭の場合 $R'_a = 0.8 \times 45.57 = 36.45$

X2-Yz $N = 28.2 < 36.45$ (OK)

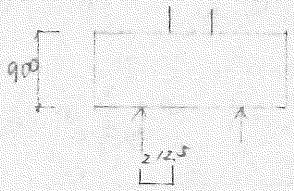
せん断力の検討のみ行う。

$b \times b' = 900 \times 900$ $D = 900$ $d = 800$

$N = 21.78 \text{ t}$ $\frac{Q}{A_d} = \frac{21780}{210 \times 7/8 \times 80} = 28.5$ 016 ~ 211e $\rightarrow 200 \text{ @}$

$\frac{Q}{b_d} = \frac{21780}{90 \times 7/8 \times 80} = 6.7 < 2.0$ (OK)

No. 89

符号	階	床	W (ton)	梁、壁、etc	W (ton)	ΣW (ton)	
		<p>$X_{2-1/2}$ $N = 41.78 > 36.85$</p> <p>$2A \text{ 根 } \times 33$ $41.78 < 45.57 \times 2 = 91.14$</p> <p>$\sigma = \frac{41.78}{2} = 20.89$</p> 					
				<p>$M = 20.89 \times 0.2125 = 4.5$</p> <p>$Q = 20.89$</p> <p>$\sigma_t = \frac{750}{2.0 \times 7/8 \times 80} = 3.3$</p>			
						<p>$\phi 16 \sim 542 @ \Rightarrow 200 @$</p>	