

## 9. 層間変形角と剛性率の検討

## (1) 層間変形角の確認

2階 X左加力方向

偏心率 0.284 =  $h * Q_e / D_i$ 

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
Y10	1.000	34.492	2892.600	286.5	3.42	1/84	NG
Y8	1.000	27.014	2265.480	286.5	3.42	1/84	NG
Y5	1.236	18.075	1226.400	286.5	4.22	1/68	NG
Y3	1.299	8.818	569.280	286.5	4.44	1/65	NG

2階 X右加力方向

偏心率 0.281 =  $h * Q_e / D_i$ 

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
Y10	1.000	35.153	2702.160	286.5	3.73	1/77	NG
Y8	1.000	26.687	2051.400	286.5	3.73	1/77	NG
Y5	1.228	16.789	1050.960	286.5	4.58	1/63	NG
Y3	1.288	9.539	569.280	286.5	4.80	1/60	NG

2階 Y下加力方向

偏心率 0.017( 0.15) =  $h * Q_e / D_i$ 

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
X3	1.000	23.447	1919.880	286.5	3.50	1/82	NG
X6	1.000	13.070	1070.160	286.5	3.50	1/82	NG
X9	1.000	5.124	419.520	286.5	3.50	1/82	NG
X10	1.000	7.737	633.480	286.5	3.50	1/82	NG
X11	1.000	18.302	1498.560	286.5	3.50	1/82	NG
X12.5	1.000	15.239	1247.760	286.5	3.50	1/82	NG

2階 Y上加力方向

偏心率 0.008( 0.15) =  $h * Q_e / D_i$ 

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
X3	1.000	22.565	1727.160	286.5	3.74	1/77	NG
X6	1.000	13.981	1070.160	286.5	3.74	1/77	NG
X9	1.000	8.276	633.480	286.5	3.74	1/77	NG
X10	1.000	5.481	419.520	286.5	3.74	1/77	NG
X11	1.000	16.314	1248.720	286.5	3.74	1/77	NG
X12.5	1.000	16.301	1247.760	286.5	3.74	1/77	NG

1階 X左加力方向

偏心率 0.051( 0.15) = h \* Qe / Di

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
Y11	1.000	38.411	2568.480	292.8	4.38	1/67	NG
Y9	1.000	26.215	1752.960	292.8	4.38	1/67	NG
Y8	1.000	13.443	898.920	292.8	4.38	1/67	NG
Y7	1.000	24.646	1648.080	292.8	4.38	1/67	NG
Y6.5	1.000	11.074	740.520	292.8	4.38	1/67	NG
Y6	1.000	15.688	1049.040	292.8	4.38	1/67	NG
Y5	1.000	26.886	1797.840	292.8	4.38	1/67	NG
Y4	1.000	11.203	749.160	292.8	4.38	1/67	NG
Y2	1.000	13.443	898.920	292.8	4.38	1/67	NG
Y1	1.000	13.443	898.920	292.8	4.38	1/67	NG

1階 X右加力方向

偏心率 0.051( 0.15) = h \* Qe / Di

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
Y11	1.000	38.411	2568.480	292.8	4.38	1/67	NG
Y9	1.000	26.215	1752.960	292.8	4.38	1/67	NG
Y8	1.000	13.443	898.920	292.8	4.38	1/67	NG
Y7	1.000	24.646	1648.080	292.8	4.38	1/67	NG
Y6.5	1.000	11.074	740.520	292.8	4.38	1/67	NG
Y6	1.000	15.688	1049.040	292.8	4.38	1/67	NG
Y5	1.000	26.886	1797.840	292.8	4.38	1/67	NG
Y4	1.000	11.203	749.160	292.8	4.38	1/67	NG
Y2	1.000	13.443	898.920	292.8	4.38	1/67	NG
Y1	1.000	13.443	898.920	292.8	4.38	1/67	NG

1階 Y下加力方向

偏心率 0.019( 0.15) =  $h * Q_e / D_i$ 

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
X1	1.000	36.406	2538.360	292.8	4.20	1/70	NG
X4	1.000	10.745	749.160	292.8	4.20	1/70	NG
X5	1.000	23.282	1623.360	292.8	4.20	1/70	NG
X6	1.000	10.745	749.160	292.8	4.20	1/70	NG
X7	1.000	12.892	898.920	292.8	4.20	1/70	NG
X8	1.000	10.745	749.160	292.8	4.20	1/70	NG
X9	1.000	10.745	749.160	292.8	4.20	1/70	NG
X11	1.000	21.489	1498.320	292.8	4.20	1/70	NG
X12	1.000	10.745	749.160	292.8	4.20	1/70	NG
X13	1.000	46.660	3253.320	292.8	4.20	1/70	NG

1階 Y上加力方向

偏心率 0.019( 0.15) =  $h * Q_e / D_i$ 

通口	割増 係数 Ce	水平力 Qe (kN)	剛性 Di (kN/rad)	h (cm)	(cm)	/h	判定 1/120
X1	1.000	36.406	2538.360	292.8	4.20	1/70	NG
X4	1.000	10.745	749.160	292.8	4.20	1/70	NG
X5	1.000	23.282	1623.360	292.8	4.20	1/70	NG
X6	1.000	10.745	749.160	292.8	4.20	1/70	NG
X7	1.000	12.892	898.920	292.8	4.20	1/70	NG
X8	1.000	10.745	749.160	292.8	4.20	1/70	NG
X9	1.000	10.745	749.160	292.8	4.20	1/70	NG
X11	1.000	21.489	1498.320	292.8	4.20	1/70	NG
X12	1.000	10.745	749.160	292.8	4.20	1/70	NG
X13	1.000	46.660	3253.320	292.8	4.20	1/70	NG

## (2) 剛性率の確認

$$= h \times Q_i / D_i$$

$$r_s = h /$$

$$R_s = r_s / \text{平均}r_s$$

方向	階	Q <sub>i</sub> (kN)	D <sub>i</sub> (kN/rad)	h (cm)	(cm)	r <sub>s</sub>	r <sub>s</sub> 120	平均r <sub>s</sub>	R <sub>s</sub>	R <sub>s</sub> 0.60
X左加力	2	82.918	6953.760	286.5	3.42	83	NG	74	1.12	OK
	1	194.452	13002.840	292.8	4.38	66	NG		0.89	OK
X右加力	2	82.918	6373.800	286.5	3.73	76	NG	71	1.07	OK
	1	194.452	13002.840	292.8	4.38	66	NG		0.92	OK
Y下加力	2	82.918	6789.360	286.5	3.50	81	NG	75	1.08	OK
	1	194.452	13558.080	292.8	4.20	69	NG		0.92	OK
Y上加力	2	82.918	6346.800	286.5	3.74	76	NG	72	1.05	OK
	1	194.452	13558.080	292.8	4.20	69	NG		0.95	OK