

Design Conditions

Design Code : KDS2021-CONC. /ACI318

Material Data

 $f_{ck} = 24 \text{ N/mm}^2$
 $f_y = 400 \text{ N/mm}^2$
 $q_e = 200.0 \text{ kN/m}^2$

Dimension

Fdn : 3000 x 3000 x 500 mm ($c_c=75\text{mm}$)

Col. : 500 x 500 mm

Additional Load

Soil Load : H = 1.5 m (Weight = 238.3 kN)

Self Wt. : 105.9 kN

Applied Loads

 $P_s = 1000.0, \quad P_u = 1000.0 \text{ kN}$
 $M_{sx} = 500.0, \quad M_{ux} = 500.0 \text{ kN}\cdot\text{m}$
 $M_{sy} = 500.0, \quad M_{uy} = 500.0 \text{ kN}\cdot\text{m}$

기초치수
Lx : 3 m
Ly : 3 m
D : 500 mm
Cc : 75 mm

재료강도
 f_{ck} : 24 N/mm²
 f_y : 400 N/mm²
 Q_e : 200 kN/m²

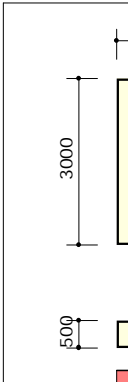
기둥
형상 : 사각기둥
Cx : 500 mm
Cy : 500 mm

사용철근
최소 : D25

추가 하중
기초판 자중 추가 : ☒
표면재하하중 : 0 kN/m²
상부 흙 높이 : 1500 mm

2방향 전단력의 계산
ACI기준식(추천)

재하 하중
☐ 복속 입력
 P_s : 1000 kN P_u : 1000 kN
 M_{sx} : 500 kN·m M_{ux} : 500 kN·m
 M_{sy} : 500 kN·m M_{uy} : 500 kN·m



Check Soil Bearing Capacity

Check Service Load

 $q_{s, \max} = 379.9 \text{ kN/m}^2 > q_e = 200.0 \text{ kN/m}^2 \text{ ---> N.G.}$

Factored Soil Pressure

 $q_{u, \max} = 394.1 \text{ kN/m}^2$

Check Bending Moment

Location	Mu (kN·m/m)	ρ (%)	Ast (mm ² /m)	Spacing			
				D25	D29	D32	D35
Y-Y Dir.	194.47	0.348	1436	@300	@300	@300	@300
X-X Dir.	194.63	0.398	1540	@300	@300	@300	@300
Min Bar		0.200	1000	@300	@300	@300	@300

Check Shear Force

Strength Reduction Factor $\phi = 0.750$

Check Beam Shear

 $V_{uy} = 625.2 \text{ kN} < \phi V_{cy} = 757.4 \text{ kN} \text{ ---> O.K.}$
 $V_{ux} = 642.1 \text{ kN} < \phi V_{cx} = 710.8 \text{ kN} \text{ ---> O.K.}$

Check Punching Shear

 $V_{u, \text{col}} = 910.1 \text{ kN} < \phi V_c = 1743.5 \text{ kN} \text{ ---> O.K.}$

■ Design Conditions ■

Design Code : KDS2021-CONC. /ACI318

Material Data

$$f_{ck} = 24 \text{ N/mm}^2$$

$$f_y = 400 \text{ N/mm}^2$$

$$q_e = 200.0 \text{ kN/m}^2$$

Dimension

$$Fdn : 3000 \times 3000 \times 500 \text{ mm } (c_c=75\text{mm})$$

$$Col. : 500 \times 500 \text{ mm}$$

Additional Load

$$\text{Soil Load : } H = 1.5 \text{ m (Weight = 238.3 kN)}$$

■ Applied Loads ■

$$P_s = 1000.0,$$

$$P_u = 1000.0 \text{ kN}$$

$$M_{sx} = 500.0,$$

$$M_{ux} = 500.0 \text{ kN}\cdot\text{m}$$

$$M_{sy} = 500.0,$$

$$M_{uy} = 500.0 \text{ kN}\cdot\text{m}$$

■ Check Soil Bearing Capacity ■

Check Service Load

$$q_{s, \max} = 373.6 \text{ kN/m}^2 > q_e = 200.0 \text{ kN/m}^2 \text{ ----> N.G.}$$

Factored Soil Pressure

$$q_{u, \max} = 383.1 \text{ kN/m}^2$$

■ Check Bending Moment ■

Location	Mu (kN·m/m)	ρ (%)	A _{st} (mm ² /m)	Spacing			
				D25	D29	D32	D35
Y-Y Dir.	183.86	0.329	1355	@300	@300	@300	@300
X-X Dir.	184.02	0.375	1452	@300	@300	@300	@300
Min Bar		0.200	1000	@300	@300	@300	@300

■ Check Shear Force ■

Strength Reduction Factor $\phi = 0.750$

Check Beam Shear

$$V_{uy} = 591.0 \text{ kN} < \phi V_{cy} = 757.4 \text{ kN} \text{ ----> O.K.}$$

$$V_{ux} = 606.9 \text{ kN} < \phi V_{cx} = 710.8 \text{ kN} \text{ ----> O.K.}$$

Check Punching Shear

$$V_{u, \text{col}} = 910.1 \text{ kN} < \phi V_c = 1743.5 \text{ kN} \text{ ----> O.K.}$$

* 기초판 자중 미고려

기초치수

Lx : 3 m

Ly : 3 m

D : 500 mm

Cc : 75 mm

재료강도

f_{ck} : 24 N/mm²

f_y : 400 N/mm²

Q_e : 200 kN/m²

기둥

형상 : 사각기둥

Cx : 500 mm

Cy : 500 mm

사용철근

최소 : D25

추가 하중

기초판 자중 추가 : ☐

표면재하하중 : 0 kN/m²

상부 흙 높이 : 1500 mm

2방향 전단력의 계산

ACI기준식(추천)

재하 하중

☐ 복수 입력

P_s : 1000 kN

M_{sx} : 500 kN·m

M_{sy} : 500 kN·m

P_u : 1000 kN

M_{ux} : 500 kN·m

M_{uy} : 500 kN·m

■ Design Conditions ■

Design Code : KDS2021-CONC. /ACI318

Material Data

$$f_{ck} = 24 \text{ N/mm}^2$$

$$f_y = 400 \text{ N/mm}^2$$

$$q_e = 200.0 \text{ kN/m}^2$$

Dimension

$$Fdn : 3000 \times 3000 \times 500 \text{ mm } (c_c=75\text{mm})$$

$$Col. : 500 \times 500 \text{ mm}$$

Additional Load

$$Self \text{ Wt.} : 105.9 \text{ kN}$$

■ Applied Loads ■

$$P_s = 1000.0,$$

$$P_u = 1000.0 \text{ kN}$$

$$M_{sx} = 500.0,$$

$$M_{ux} = 500.0 \text{ kN}\cdot\text{m}$$

$$M_{sy} = 500.0,$$

$$M_{uy} = 500.0 \text{ kN}\cdot\text{m}$$

■ Check Soil Bearing Capacity ■

Check Service Load

$$q_{s, \max} = 367.5 \text{ kN/m}^2 > q_e = 200.0 \text{ kN/m}^2 \text{ ----> N. G.}$$

Factored Soil Pressure

$$q_{u, \max} = 368.9 \text{ kN/m}^2$$

■ Check Bending Moment ■

Location	Mu (kN·m/m)	ρ (%)	A _{st} (mm ² /m)	Spacing			
				D25	D29	D32	D35
Y-Y Dir.	163.56	0.291	1201	@300	@300	@300	@300
X-X Dir.	163.73	0.333	1287	@300	@300	@300	@300
Min Bar		0.200	1000	@300	@300	@300	@300

■ Check Shear Force ■

Strength Reduction Factor $\phi = 0.750$

Check Beam Shear

$$V_{uy} = 525.7 \text{ kN} < \phi V_{cy} = 757.4 \text{ kN} \text{ ----> O. K.}$$

$$V_{ux} = 539.5 \text{ kN} < \phi V_{cx} = 710.8 \text{ kN} \text{ ----> O. K.}$$

Check Punching Shear

$$V_{u, \text{col}} = 910.1 \text{ kN} < \phi V_c = 1743.5 \text{ kN} \text{ ----> O. K.}$$

상부 흙높이(0mm)

3000

500

기초치수

Lx : 3 m
Ly : 3 m
D : 500 mm
Cc : 75 mm

재료강도

fck : 24 N/mm²
fy : 400 N/mm²
Qe : 200 kN/m²

기둥

형상 : 사각기둥
Cx : 500 mm
Cy : 500 mm

사용철근

최소 : D25

추가 하중

기초판 자중 추가 : ☒
표면재하하중 : 0 kN/m²
상부 흙 높이 : 0 mm

2방향 전단력의 계산

ACI기준식(추천)

재하 하중

☐ 복수 입력
Ps : 1000 kN Pu : 1000 kN
Msx : 500 kN·m Mux : 500 kN·m
Msy : 500 kN·m Muy : 500 kN·m

■ Design Conditions ■

Design Code : KDS2021-CONC./ACI318

Material Data

$$f_{ck} = 24 \text{ N/mm}^2$$

$$f_y = 400 \text{ N/mm}^2$$

$$q_e = 200.0 \text{ kN/m}^2$$

Dimension

$$\text{Fdn} : 3000 \times 3000 \times 500 \text{ mm } (c_c=75\text{mm})$$

$$\text{Col.} : 500 \times 500 \text{ mm}$$

Additional Load

$$\text{Soil Load} : H = 1.5 \text{ m (Weight} = 238.3 \text{ kN)}$$

$$\text{Surcharge} : W_s = 10.0 \text{ kN/m}^2$$

$$\text{Self Wt.} : 105.9 \text{ kN}$$

■ Applied Loads ■

$$P_s = 1000.0, \quad P_u = 1000.0 \text{ kN}$$

$$M_{sx} = 500.0, \quad M_{ux} = 500.0 \text{ kN}\cdot\text{m}$$

$$M_{sy} = 500.0, \quad M_{uy} = 500.0 \text{ kN}\cdot\text{m}$$

■ Check Soil Bearing Capacity ■

Check Service Load

$$q_{s, \max} = 387.3 \text{ kN/m}^2 > q_e = 200.0 \text{ kN/m}^2 \text{ ---> N. G.}$$

Factored Soil Pressure

$$q_{u, \max} = 408.4 \text{ kN/m}^2$$

■ Check Bending Moment ■

Location	Mu (kN·m/m)	ρ (%)	A _{st} (mm ² /m)	Spacing			
				D25	D29	D32	D35
Y-Y Dir.	206.71	0.371	1530	@300	@300	@300	@300
X-X Dir.	206.86	0.424	1641	@300	@300	@300	@300
Min Bar		0.200	1000	@300	@300	@300	@300

■ Check Shear Force ■

Strength Reduction Factor $\phi = 0.750$

Check Beam Shear

$$V_{uy} = 664.5 \text{ kN} < \phi V_{cy} = 757.4 \text{ kN} \text{ ---> O. K.}$$

$$V_{ux} = 682.7 \text{ kN} < \phi V_{cx} = 710.8 \text{ kN} \text{ ---> O. K.}$$

Check Punching Shear

$$V_{u, \text{col}} = 910.1 \text{ kN} < \phi V_c = 1743.5 \text{ kN} \text{ ---> O. K.}$$

표면재하하중 : 10kN/m2

기초치수

Lx : 3 m
Ly : 3 m
D : 500 mm
Cc : 75 mm

재료강도

fck : 24 N/mm²
fy : 400 N/mm²
Qe : 200 kN/m²

기둥

형상 : 사각기둥
Cx : 500 mm
Cy : 500 mm

사용철근

최소 : D25

추가 하중

기초판 자중 추가 : ☒
표면재하하중 : 10 kN/m²
상부 흙 높이 : 1500 mm

2방향 전단력의 계산

ACI기준식(추천)

재하 하중

☐ 복수 입력
Ps : 1000 kN Pu : 1000 kN
Msx : 500 kN·m Mux : 500 kN·m
Msy : 500 kN·m MUY : 500 kN·m