

STRUCTUREPOINT - spColumn v4.20

General Information:

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Project:

Column:

Engineer:

Code: ACI 318-05

Units: Metric

Run Option: Investigation

Slenderness: **Not considered**

Run Axis: X-axis

Column Type: Structural

Material Properties:

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$f_c = 29.17 \text{ MPa}$

$f_y = 400 \text{ MPa}$

$E_c = 27306 \text{ MPa}$

$E_s = 200000 \text{ MPa}$

Ultimate strain = 0.003 mm/mm

Beta1 = 0.8416

Section:

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Circular: Diameter = 400 mm

Gross section area, $A_g = 125664 \text{ mm}^2$

$I_x = 1.25664\text{e}+009 \text{ mm}^4$

$I_y = 1.25664\text{e}+009 \text{ mm}^4$

$X_o = 0 \text{ mm}$

$Y_o = 0 \text{ mm}$

Reinforcement:

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Bar Set: User-defined

Size Diam (mm) Area (mm²) Size Diam (mm) Area (mm²) Size Diam (mm)

Area (mm²)

# 10	10	71	# 13	13	129	# 16	16	199
# 19	19	284	# 22	22	387	# 25	25	491
# 29	29	645	# 32	32	819	# 36	36	1006
# 43	43	1452	# 57	57	2581			

Confinement: Tied; #10 ties with #32 bars, #10 with larger bars.

$\phi(a) = 0.8$, $\phi(b) = 0.9$, $\phi(c) = 0.65$

Layout: Circular

Pattern: All Sides Equal (Cover to longitudinal reinforcement)

Total steel area: **$A_s = 4418 \text{ mm}^2$** at $\rho = 3.52\%$

9 #25 Cover = 30 mm

Factored Loads and Moments with Corresponding Capacities:

No.	Pu kN	Mux kNm	ϕM_{nx} kNm	$\phi M_n/M_u$	N.A. depth mm	eps_t	ϕ
1	800.00	183.20	187.18	1.022	199.12	0.00239	0.682

*** End of output ***

$\phi M_n/M_u = 1.022 > 1$ Đạt yêu cầu