

14

REINFORCED CONCRETE DESIGN¹

Nomenclature

a	short side length, or height of stress block	in
A	area	in ²
b	long side length, or width	in
c	distance from neutral axis to extreme compression fiber	in
C	compressive force	lbf
d	depth or diameter	in
D	depth of footing	ft
e	eccentricity	in
E	modulus of elasticity	psi
f	stress or strength	psi
f'_c	compressive strength of concrete	psi
f_r	modulus of rupture	psi
f_y	yield strength of steel	psi
h	height	in
I	moment of inertia	in ⁴
j	a fraction	-
k	a fraction, or end condition factor	-
l	length	in
l_d	development length	in
m	a factor	-
M	moment	in-lbf
n	modular ratio (E_{st}/E_c)	-
p	factored soil pressure	psi
P	load or force	lbf
r	radius of gyration	in
R_u	coefficient of resistance	psi
s	spacing	in
SR	slenderness ratio	-
t	thickness	in
T	tensile force	lbf
v	shear stress	psi
V	shear, or shear strength	lbf
w	density, or load per unit length	pcf or lbf/in
z	crack parameter	kips/in

Symbols

α	ratio of column to footing area	-
β	ratio of long side to short side	-
β_1	a factor	-
γ	unit weight	pcf
δ	magnification factor	-
ϵ	fraction eccentricity	-
ξ	timespan factor	-
ρ	reinforcement ratio	-
λ	long term deflection factor	-
θ	angle from the horizontal	-
ϕ	capacity reduction factor	-

Subscripts

A	active
b	base, bar, bending, or bearing
c	concrete, column, cover, or core
cr	cracked
D	dead
e	effective
f	footing or flexure
g	gross
h	horizontal
i	initial
L	live
n	nominal or clear
o	zero eccentricity
p	prestress
r	rupture
s	stem or spiral
st	steel
t	tension
u	ultimate
v	shear
w	service load
y	yield

¹ This chapter is no substitute for the ACI code, and covers only a fraction of the relevant material.

