

SECTION 1 GENERAL

1 SCOPE

1.1 This standard deals with the general structural use of plain and reinforced concrete.

1.1.1 For the purpose of this standard, plain concrete structures are those where reinforcement, if provided is ignored for determination of strength of the structure.

1.2 Special requirements of structures, such as shells, folded plates, arches, bridges, chimneys, blast resistant structures, hydraulic structures, liquid retaining structures and earthquake resistant structures, covered in respective standards have not been covered in this standard; these standards shall be used in conjunction with this standard.

2 REFERENCES

The Indian Standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 4845 and IS 6461 (Parts 1 to 12) shall generally apply.

4 SYMBOLS

For the purpose of this standard, the following letter symbols shall have the meaning indicated against each; where other symbols are used, they are explained at the appropriate place:

A	Area
b	Breadth of beam, or shorter dimension of a rectangular column
b_{ef}	Effective width of slab
b_f	Effective width of flange
b_w	Breadth of web or rib
D	Overall depth of beam or slab or diameter of column; dimension of a rectangular column in the direction under consideration
D_f	Thickness of flange
DL	Dead load
d	Effective depth of beam or slab
d'	Depth of compression reinforcement from the highly compressed face
E_c	Modulus of elasticity of concrete

EL	Earthquake load
E_s	Modulus of elasticity of steel
e	Eccentricity
f_{ck}	Characteristic cube compressive strength of concrete
f_{cr}	Modulus of rupture of concrete (flexural tensile strength)
f_{ct}	Splitting tensile strength of concrete
f_d	Design strength
f_y	Characteristic strength of steel
H_w	Unsupported height of wall
H_{we}	Effective height of wall
I_{ef}	Effective moment of inertia
I_{gr}	Moment of inertia of the gross section excluding reinforcement
I_r	Moment of inertia of cracked section
K	Stiffness of member
k	Constant or coefficient or factor
L_d	Development length
LL	Live load or imposed load
L_w	Horizontal distance between centres of lateral restraint
l	Length of a column or beam between adequate lateral restraints or the unsupported length of a column
l_{ef}	Effective span of beam or slab or effective length of column
l_{ex}	Effective length about x-x axis
l_{ey}	Effective length about y-y axis
l_n	Clear span, face-to-face of supports
l'_n	l'_n for shorter of the two spans at right angles
l_x	Length of shorter side of slab
l_y	Length of longer side of slab
l_0	Distance between points of zero moments in a beam
l_1	Span in the direction in which moments are determined, centre to centre of supports
l_2	Span transverse to l_1 , centre to centre of supports
l'_2	l'_2 for the shorter of the continuous spans
M	Bending moment
m	Modular ratio
n	Number of samples
P	Axial load on a compression member
q_o	Calculated maximum bearing pressure

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q_u	- Calculated maximum bearing pressure of soil	γ_m	- Partial safety factor for material
r	- Radius	δ_m	- Percentage reduction in moment
s	- Spacing of stirrups or standard deviation	ϵ_{cc}	- Creep strain of concrete
T	- Torsional moment	σ_{cbc}	- Permissible stress in concrete in bending compression
t	- Wall thickness	σ_{cc}	- Permissible stress in concrete in direct compression
V	- Shear force	σ_{mc}	- Permissible stress in metal in direct compression
W	- Total load	σ_{sc}	- Permissible stress in steel in compression
WL	- Wind load	σ_{st}	- Permissible stress in steel in tension
w	- Distributed load per unit area	σ_{sv}	- Permissible tensile stress in shear reinforcement
w_d	- Distributed dead load per unit area	τ_{bd}	- Design bond stress
w_l	- Distributed imposed load per unit area	τ_c	- Shear stress in concrete
x	- Depth of neutral axis	$\tau_{c, max}$	- Maximum shear stress in concrete with shear reinforcement
Z	- Modulus of section	τ_v	- Nominal shear stress
z	- Lever arm	ϕ	- Diameter of bar
α, β	- Angle or ratio		
γ_f	- Partial safety factor for load		