NOTATIONS

a	lever arm distance; column dimension
a_b	clear distance between bars
a_v	lever arm distance to shear force
a_w	weldment throat thickness
b	breadth of section; column dimension; base plate dimension
b_e	effective breadth; contact breadth in composite section
c	cover distance; distance to centre of bar
d	effective depth of section to tension steel; depth of web in steel sections; depth of shear key; base plate dimension
d'	effective depth to the compression reinforcement; distance from bolt centroid to edge of steel plate
e	eccentricity
e_a	deflection due to slenderness effect
e_x	transverse load eccentricity
f_b	perimeter bond stress; compressive strength of bearing materials
f_{bc}, f_{tc}	bottom and top fibre stress due to prestress after losses
f_{bu}	ultimate anchorage bond stress
f_c	flexural compressive stress in concrete
f_{ci}	characteristic compressive cube strength of concrete at transfer
f_{cp}	prestress at centroidal axis
f_{cu}	characteristic compressive cube strength of concrete
f_{cw}	compressive strength of mortar
f_{cyd}	cylinder compressive strength of concrete
f_{pe}	final effective prestress in tendons/wires after losses
f_{ps}	design tensile stress in tendons/wires
f_{pi}	initial prestress in tendons/wire
f_{pu}	characteristic strength of prestressing tendons/wires
f_s	steel tensile stress
f_t	limiting direct (splitting) tensile stress in concrete; transverse tensile stress in joint concrete
f_y	characteristic strength of reinforcing steel bars
f_{yb}	characteristic strength of bolts
f_{yn}	characteristic strength of horizontal steel reinforcement
f_{yv}	characteristic strength of reinforcing steel links/stirrups
g_k	characteristic uniformly distributed dead load
h	depth of section; height of shear key
h'	net height of infill wall
l	span distance between column-to-column centres; span
l_b	bearing length; overhang of base plate; compressive anchorage length of steel bars
l_e	effective length; effective contact length in composite section
l_o	clear height of column/wall between end restraints
l_p	prestress development strength; embedment length of bars/wires; tension anchorage of steel bars
l_r	distance between columns or walls (stability ties)
l_s	floor to ceiling height (structural tie design)
l_w	length of weldment
n_w	vertical load capacity per unit length in wall or in horizontal wall joint
p	perimeter of steel section
p_w	strength of weld material
p_y	yield strength of steel plate
q	distributed line load
q_k	characteristic uniformly distributed live load
r	bend radius of reinforcing bar
r_s	percentage of tension reinforcement ($100A_s/bd$)
$1/r_b$	curvature at mid-span or, for cantilevers, at the support section
s	leg length of weld; first moment of area of section
s_v	spacing of shear links
t	thickness of section; torsional strength of wall system
t_w	width of joint concrete in precast wall panel; thickness of steel web
v	ultimate shear stress
v_{ave}	average interface shear stress
v_c	design concrete shear stress
v_h	design interface shear stress
w	uniformly distributed load; breadth of compressive strut; width of bearing
w'	diagonal length of infill shear wall
x	distance to centroid of stabilising system; co-ordinate in Cartesian system
y	co-ordinate in Cartesian system
z	lever arm

NOTATIONS (CONT'D)

A	area; cross-section area
A_b	area of bolts
A_{bst}	area of bursting reinforcement
A_c	cross-section area of concrete
A_{ps}	area of prestressing reinforcement
A_s,	area of tension reinforcement
A_s'	area of compression reinforcement
A_{sc}	area of vertical reinforcement in column/wall
A_{sn}	area of horizontal reinforcement
$A_{SA,}$ A_{SB}	ring reinforcement in column socket wall design
A_{sh}	shear friction reinforcement in corbel within 2/3 x effective depth of a section
A_{sv}	area of shear reinforcement
B	breadth of void in slab; breadth of building
C	compressive force in steel section inserts design
D	depth of hollow core unit; beam depth
E	Young's modulus of elasticity
E_c	Young's modulus of concrete
E_{ce}	effective Young's modulus of concrete
E_s	Young's modulus of steel
F	force
F_c	compressive force in concrete
F_R	sliding force parallel to the slope of shear key
F_s	tensile force in reinforcing bars
F_t	notional tensile force in stability ties
G_k	characteristic dead load
H	horizontal force; beam depth; overall column dimension
$H_{A,}$ $H_{B,}$ H_D	horizontal force in column socket design
H_{bst}	bursting force
H_v	horizontal component of diagonal resistance of infill wall
I	second moment of inertia
I_e	effective moment of inertia
I_{em}	effective moment of inertia at mid-span of beam
I_g	gross uncracked moment of inertia
I_{cr}	cracked moment of inertia
K_t	bond length parameter
L	span; length of building; longitudinal force
L'	net length of infill wall
L_b	bond length
L_1, L_2, L_3, L_4	length of stress block (insert design)
M	bending moment
M_{cr}	cracking moment
M_o	decompression bending moment
M_p	plastic moment of resistance of steel section/plate
M_s	serviceability moment of resistance; service load moment
M_u	ultimate moment of resistance
N	ultimate axial force; ultimate column load; horizontal force at bearing
P	prestressing force; propping force
P_e	effective prestressing force after all losses
P_i	initial prestressing force
P_w	strength of fillet weld
Q	first moment of area in floor diaphragm action design
Q_k	characteristic live load
R	reaction force
R_v	diagonal resistance of infill wall
T	tension force; torque
V	shear force; vertical force
V_{co}	shear resistance in flexurally uncracked prestressed section
V_{cr}	shear resistance in flexurally cracked prestressed section
V_h	horizontal shear force
V_{uh}	ultimate horizontal shear force
Z	elastic section modulus
$Z_{b,}$ Z_t	elastic section modulus at extreme bottom and top fibres
Z_p	plastic section modulus of steel section

NOTATIONS (CONT'D)

α	angle; characteristic contact length in infill wall; load distribution factor for hollow core slabs
ß	column effective length factor; angle; anchorage bond stress coefficient; load distribution factor for hollow core slabs
ε	strain
ε_c	concrete strain
ε_s	steel strain
ø, ϕ	rotation; bar diameter; creep coefficient
η	total losses in prestressing force; force reduction factor
λ	joint deformability
μ	coefficient of friction
μ_s	static coefficient of friction
θ	angle
ρ_s	reinforcement ratio (A_s/bd)
ζ	bursting coefficient
δ	deflection; ratio of joint width to joint thickness
χ	depth of neutral axis
σ	normal stress
τ	shear stress