LIST OF SYMBOLS

A  depth of effective compression zone of concrete

$a_1,a_2$  dimension parameters of channel members

$A_p$  nominal cross sectional area of the sheeting (reinforcing)

$A_s$  area of channel member

$A_{sv}$  area of shear reinforcing

$b$  breadth of slab or beam

$b_1,b_2$  dimension parameters of channel members

$b_v$  breadth of contact area

$b_{lip}$  breadth of contact area of lip of channel member

$\delta A$  infinitesimal element of area $A$

$\delta M$  increase in bending moment over section of beam

$d$  effective depth

$d_p$  effective depth of slab

$n_{cs}$  modular ratio

$E_c$  modulus of elasticity of concrete

$E_{\text{concrete}}$  modulus of elasticity of concrete member
F  point load on beam

$f', \nu$  horizontal, shear stresses in beam

$f_b$  flexural strength of concrete

$f_c'$  cylinder strength of concrete

$f_r$  modulus of rupture of concrete beam

$f_{s1}, f_{s2}, f_{s3}$  horizontal stresses in channel section of transformed composite section

$f_y$  yield strength of steel

$f_{yv}$  yield strength of shear reinforcing steel

$\gamma_{VS}$  partial safety factor

$h$  beam depth

$I_c$  moment of inertia of transformed uncracked section

$I_{cr}$  moment of inertia of transformed cracked section

$I_e$  effective moment of inertia

$I_g$  moment of inertia of gross transformed section

$I_x$  sectional moment of inertia about x axis

$k$  empirical factor from slab tests for the m-k method
I  length of member

L  total length of beam

L'  shear length

L_s  shear span

m  empirical factor from slab tests for the m-k method

μ  coefficient of friction between steel and concrete

M  maximum bending moment

M_{cr}  cracking moment of concrete beam

M_n  nominal flexural resistance of composite beam

M_u  ultimate bending moment at beam failure

P  point load on beam member

P_c  load at first slip

P_u  ultimate load

ρ  reinforcing ratio

Q_c  statical moment of the transformed steel section about the neutral axis of transformed composite section

σ  longitudinal bending stresses

T  tensile force in the steel channel member
t  
thickness of channel

$u_{ub}$  
ultimate shear bond stress between concrete and channel member

$U_b$  
bond strength in kN/m

$v_h$  
horizontal shear stresses in composite member at concrete/channel interface

$v_{h,\text{conc}}$  
horizontal shear stresses in composite member at concrete/channel interface

$V$  
shear force

$V_{1,Rd}$  
design shear resistance for slab

$V_c$  
nominal shear resistance of composite beam

$V_{cr}$  
calculated shear resistance of composite beam

$V_{Ed}$  
maximum design vertical shear

$V_b$  
longitudinal shear force per unit length

$V_n$  
external applied shear force

$V_{nh}$  
nominal horizontal shear strength

$V_u$  
ultimate transverse shear-bond capacity or ultimate applied shear force

$x,y,z$  
x,y or z distance along co-ordinate axis
$y, y_1, y_2, y_3$  distances between the horizontal interface surfaces and the centroid axis of composite section

$\bar{y}$  distance of area A from the centroid of the section

$y_s$  distance to centroid of steel channel

$Z$  elastic section modulus of beam