I_{c_1} vertical stress influence coefficients in Tables 1 and 2

I_{c_2} vertical stress influence coefficients in Tables 3 and 4

G non-dimensional integration value (parameter) whose value depends on r

$I_c\left(\frac{R}{z}\right)$ dimensionless influence coefficient for finding vertical stress distribution of any depth z under the centre of a circular foundation area of radius R carrying uniformly distributed load, p_0

$$\nabla^2 = \frac{\partial^2}{\partial r^2} + \frac{1}{r}\frac{\partial}{\partial r} + \frac{\partial^2}{\partial z^2}$$

∇^2 Laplace partial differential operator in axisymmetric cylindrical coordinates

∇^4 biharmonic (partial differential) operator in axisymmetric cylindrical coordinates

$$\nabla^4 = \nabla^2\nabla^2 = (\nabla^2)^2 = \left(\frac{\partial^2}{\partial r^2} + \frac{1}{r}\frac{\partial}{\partial r} + \frac{\partial^2}{\partial z^2}\right)^2$$

MATHEMATICAL SYMBOLS

$\frac{\partial}{\partial z}$ partial derivative with respect to z

$\frac{\partial^2}{\partial z^2}$ second partial derivative with respect to z

$\int_0^\infty (\,)\,d\beta$ integration with respect to β between the limits 0 and ∞

exp (−βz) exponential function

$f'(r)$ first derivative of $f(r)$ with respect to r

$f''(r)$ second derivative of $f(r)$ with respect to r

< less than

> greater than

$\frac{\partial}{\partial r}$ partial derivative with respect to r

$\frac{\partial^2}{\partial r^2}$ second partial derivative with respect to r