

5. DEVELOPMENT LENGTH AND ANCHORAGE

5.1 DEVELOPMENT LENGTH OF BARS

The development length L_d , is given by

$$L_d = \frac{\phi \sigma_s}{4 \tau_{bd}}$$

where

ϕ is the diameter of the bar,

σ_s is the stress in the bar, and

τ_{bd} is the design bond stress given in 25.2.1.1 of the Code.

The value of the development length corresponding to a stress of $0.87 f_y$ in the reinforcement, is required for determining the maximum permissible bar diameter for

positive moment reinforcement [see 25.2.3.3(c) of the Code] and for determining the length of lap splices (see 25.2.5.1 of the Code). Values of this development length for different grades of steel and concrete are given in Tables 64 to 66. The tables contain the development length values for bars in tension as well as compression.

5.2 ANCHORAGE VALUE OF HOOKS AND BENDS

In the case of bars in tension, a standard hook has an anchorage value equivalent to a straight length of 16ϕ and a 90° bend has an anchorage value of 8ϕ . The anchorage values of standard hooks and bends for different bar diameters are given in Table 67.