3.5.2.2 *Distribution of concentrated loads on slabs*

If a slab is simply supported on two opposite edges and carries one or more concentrated loads in a line in the direction of the span, it should be designed to resist the maximum bending moment caused by the loading system. Such bending moment may be assumed to be resisted by an effective width of slab (measured parallel to the supports) as follows.

a) For solid slabs, the effective width may be taken as the sum of the load width and $2.4x(1 - x/l)$ where x is the distance from the nearer support to the section under consideration and l is the span.

b) For other slabs, except where specially provided for, the effective width will depend on the ratio of the transverse and longitudinal flexural rigidities of the slab. When these are approximately equal, the value for the effective width as given for solid slabs may be used, but as the ratio decreases a smaller value should be taken. The minimum value which need be taken, however, is the load width plus $4x/l(1 - x/l)$ metres where x and l are as defined in a) so that, for a section at mid-span, the effective width is equal to 1 m plus the load width.

c) Where the concentrated load is near an unsupported edge of a slab the effective width should not exceed the value in a) or b) above as appropriate, nor half that value plus the distance of the centre of the load from the unsupported edge (see Figure 3.6).

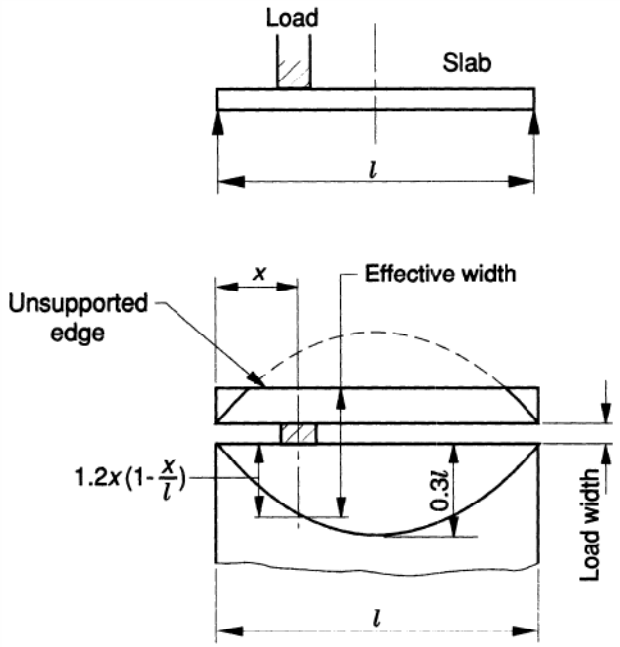

Figure 3.6 — Effective width of solid slab carrying a concentrated load near an unsupported edge