

6.5.3 Design of pins

6.5.3.1 General

The capacity of a pin connection should be determined from the shear capacity of the pin, see 6.5.3.2, and the bearing capacity on each connected part, see 6.5.3.3, taking due account of the distribution of load between the various parts. The moment in the pin should also be checked, see 6.5.3.4.

6.5.3.2 Shear capacity

The shear capacity of a pin should be taken as follows:

- a) if rotation is not required and the pin is not intended to be removable: $0.6p_{yp}A$
- b) if rotation is required or if the pin is intended to be removable: $0.5p_{yp}A$

where

A is the cross-sectional area of the pin;
 p_{yp} is the design strength of the pin.

6.5.3.3 Bearing capacity

The bearing capacity of a pin should be taken as follows:

- a) if rotation is not required and the pin is not intended to be removable: $1.5p_ydt$
- b) if rotation is required or if the pin is intended to be removable: $0.8p_ydt$

where

d is the diameter of the pin;
 p_y is the lower of the design strengths of the pin and the connected part;
 t is the thickness of the connected part.

6.5.3.4 Bending

The moments in a pin should be calculated on the basis that the connected parts form simple supports. It should generally be assumed that the reactions between the pin and the connected parts are uniformly distributed along the length in contact on each part. Alternatively, if the thickness of one or more connected parts exceeds that needed to provide sufficient bearing capacity according to 6.5.3.3, the moments may be calculated assuming that the reactions are distributed over reduced contact lengths adjacent to the interfaces, based upon the minimum thicknesses needed to provide sufficient bearing capacity.

The moment capacity of the pin should be taken as follows:

- a) if rotation is not required and the pin is not intended to be removable: $1.5p_{yp}Z$
- b) if rotation is required or if the pin is intended to be removable: $1.0p_{yp}Z$

where

p_{yp} is the design strength of the pin;
 Z is the section modulus of the pin.

6.6 Holding-down bolts

Holding-down bolts should be provided where necessary to resist the effects of the factored loads determined in accordance with 2.4. They should be designed to resist tension due to uplift forces and tension due to bending moments as appropriate.

Holding-down bolts required to resist tension should be anchored by a washer plate or other load distributing member embedded in the foundation. This plate or member should be designed to span any grout tube or adjustment tube provided for the holding-down bolt. Alternatively, a bend or hook in accordance with the minimum bend radius recommended in BS 8110 may be used.