3.11.4 Maximum spacing of reinforcement

No maximum spacing is stipulated in BS 8110 for the main bars in a column other than those implied by the recommendations for containment of compression reinforcement. However, for practical reasons it is considered that the maximum spacing of main bars should not exceed 250 mm.

3.11.5 Lateral reinforcement

Lateral reinforcement in columns is commonly referred to as links or ties or sometimes binders. Its purpose is to prevent lateral buckling of the longitudinal main bars due to the action of compressive loading, and the subsequent spalling of the concrete cover. This is illustrated in Figure 3.39.

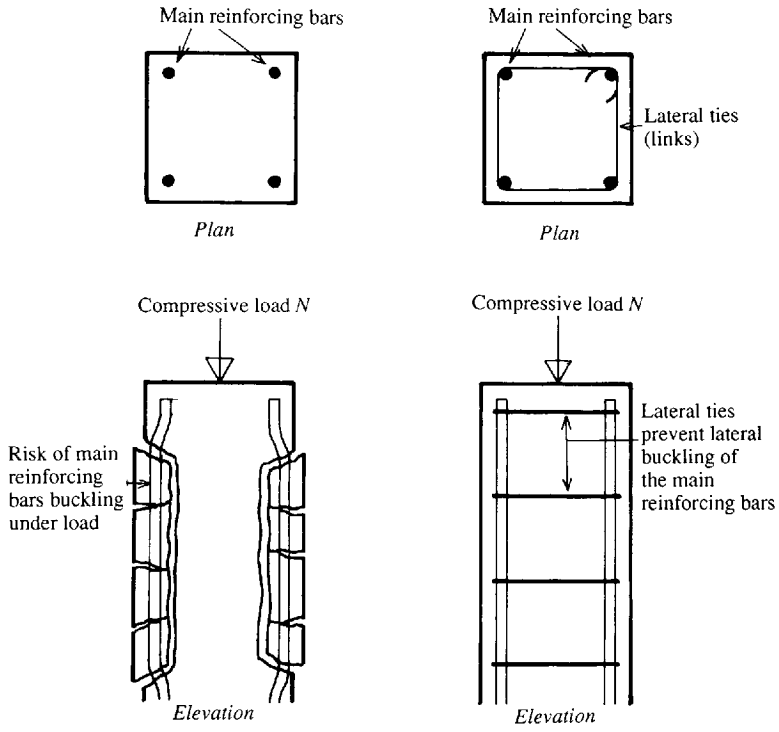

Figure 3.39 *Function of lateral ties*

The diameter of lateral ties must not be less than one-quarter the size of the largest main compression bar and in no case less than 6 mm. The maximum spacing of lateral ties must not be more than twelve times the diameter of the smallest main compression bar. Furthermore it is common practice to ensure that the spacing never exceeds the smallest cross-sectional dimension of the column.

A main compression bar contained by a link passing around it and having an internal angle of not more than 135° is said to be restrained. BS 8110 stipulates that every corner bar and each alternate bar should be restrained. Intermediate bars may be unrestrained provided that they are not more than 150 mm away from a restrained bar.

The compression bars in a circular column will be adequately restrained if circular shaped links are provided passing around the main bars.

Lateral reinforcement arrangements to satisfy these requirements are illustrated in Figure 3.40.

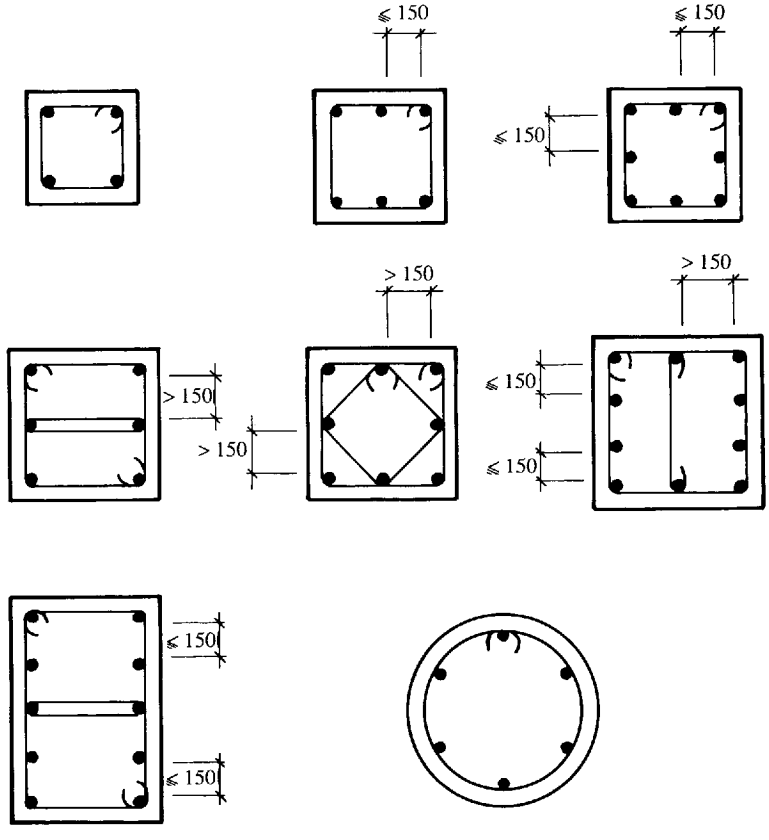

Figure 3.40 *Typical arrangement of lateral ties*

3.11.6 Compressive ULS

The compressive ULS analysis for short braced columns given in BS 8110 may basically be divided into three categories:

(a) Short braced axially loaded columns.

(b) Short braced columns supporting an approximately symmetrical arrangement of beams.