Part 4 - Proportions for masonry chimneys above the roof surface

Height to width relationship

1.1.4.1 Where a chimney is not supported by adequate ties or otherwise made secure, its height (H), measured from the level of the highest point of intersection with the roof surface, gutter or other part of the building and including any flue pot or terminal, should not be greater than X multiplied by W, provided that the density of the masonry is greater than 1800 kg/m³.

With reference to Diagram 1, Figure 1a):

X = 4.0 where the site wind speed is less than 26 m/s;

X = 3.5 where the site wind speed is greater than 26 m/s.

W is the lesser horizontal dimension of the chimney measured at the same point of intersection (see Diagram 10).

The proportions given above are intended for general application and are valid when the associated building height to ridge level is not greater than that calculated by the procedure in Diagram 1. However, more slender chimneys may be built if they can be shown by calculation to be stable in the particular wind environment of the building.

Part 5 - Strip foundations of plain concrete

Conditions relating to the subsoil

1.1.5.1 There should not be -

(a) made ground or wide variation in type of subsoil within the loaded area, or

(b) weaker type of soil at such a depth below the soil on which the foundation rests as could impair the stability of the structure.

Design provisions

1.1.5.2 The following design provisions relate to foundations -

(a) the foundations should be situated centrally under the wall;

(b) strip foundations should have minimum widths in accordance with par. 1.1.5.3;

(c) concrete should incorporate a cement to I.S. EN 197-1 and fine and coarse aggregate conforming to I.S. EN 12620:2002 + S.R. 16:2004 and be one of the following grades -

(i) in accordance with Table NA.5 of I.S. EN 206-1:2002 for reinforced foundations, or

(ii) Class C12/15 (characteristic 28 day strength of 15 N/mm²) with minimum cement content 200 kg/m³ and maximum water cement ratio 0.85 for plain concrete unreinforced foundations in non-aggressive ground conditions (when volumetric mixing is required for small projects, a 1:7 cement/aggregate mix may be used);

(d) minimum thickness T of concrete foundation should be 200 mm or P, whichever is the greater, where P is derived using Table 5 (see Diagram 11);
(e) foundations stepped on elevation should overlap by:

(i) twice the height of the step, or

(ii) the thickness of the foundation, or

(iii) 300 mm,

whichever is greatest (see Diagram 12);

(f) steps in foundations should not be of greater height than twice the thickness of the foundation and should course with walling material (see Diagram 12);

(g) foundations for piers, buttresses and chimneys should project as indicated in Diagram 13, and the projection X should never be less than P.

Diagram 11  Foundation dimensions

The minimum thickness of the foundation (T) should either be P or 200mm, whichever is greater.

W = Wall thickness

Note: Backfill material should be in accordance with Technical Guidance Document C (Site Preparation and Resistance to Moisture)

Diagram 12  Elevation of stepped foundation

Foundations should unite at each change in level

Minimum overlap L = twice height of step, or thickness of foundation or 300mm, whichever is greatest

S should not be greater than 2T

Diagram 13  Piers and chimneys

Projection X should not be less than P

Minimum width of strip foundations

1.1.5.3 Providing the previous conditions relating to the subsoil (par. 1.1.5.1) and design provisions relating to the foundations (par. 1.1.5.2) are observed and the type and condition of subsoil is known and loading at the base of the wall is within acceptable limits, the recommended widths of foundations given in Table 5 may be used.