Notches should not be deeper than the lesser of 0.125 times the depth of a joist or 35mm, and should not be cut closer to the support than 0.07 of the span, nor further away from the nearest support than 0.25 times the span. Each end of the joist may be edge notched at either the top edge or the bottom edge.

Holes should have a diameter not greater than 0.25 times the depth of a joist or 65mm, whichever is smaller, and should be drilled equidistant from the top and bottom edges of the joist. They should be not less than 3 diameters (centre to centre) apart and should be located between 0.25 and 0.4 times the span from the support.

Drilled holes and edge notches in the same beam that comply with the above paragraphs must be horizontally separated by at least 200mm of full section.

Notches or holes should not be cut in rafters, purlins or binders unless approved by the building designer.

Rafters restrained by ceiling ties at eaves level may be birdsmouthed at supports to a depth not exceeding one third of the rafter depth.

Refer to *PD 6693* for further details.

3.2.3 Floor joists should be restrained at supports and points along the span using timber herringbone strutting or solid timber blocking, positioned as shown in *Table 3.2*. Proprietary herringbone strutting systems are also available; they should be used in accordance with the manufacturer's instructions.

Table 3.2 Strutting or blocking of joists

Joist span (m)	Rows of strutting or blocking between supports
Up to 2.5	None
2.5 to 4.5	1 at mid span
Over 4.5	2 at one third span positions

3.2.3.1 Timber herringbone strutting should be at least 38 x 38mm but should not be used where the distance between joists is greater than 3 times their depth.

3.2.3.2 Solid blocking should be at least 38mm thick.

3.2.3.3 Strutting and blocking should extend at least three-quarters of the joist depth.

3.2.3.4 At each end of a row of strutting the outer joist should be blocked solidly at the perimeter wall.

3.2.4 A traditional cut timber roof (ie one made using rafters, purlins and ceiling joists) generally has sufficient built in resistance to instability and wind forces. However, the building designer should consider whether the provision of bracing is appropriate, especially in the case of single-hipped and non-hipped roofs to detached houses with a pitch greater than 40°. Where required, bracing should be equivalent to that recommended for trussed rafter roofs in *PD 6693*.

3.3 Eurocode 5 considerations

3.3.1 Previous versions of these span tables followed the calculation procedure set out in *BS 5268-7* (seven parts). Much of the general information contained in these documents is still valid and hence can serve as valuable reference. This current edition follows the same principles as given in these documents, with *EC5* and *EC1*, together with recommendations of the Base Eurocode, *BS EN 1990* and the UK *National Annex to BS EN 1990* replacing *BS 5268-2* and *BS 6399* as appropriate.

3.3.2 For conventional floor build-ups lateral displacement of compressive edge and torsional rotation at supports of the joists are both prevented due to the timber decking. Therefore, no lateral buckling possibilities are considered and the relevant factor in *EC5*, k_{crit} is assumed to be 1.

3.3.3 Spacing between domestic floor joists is generally less than 600mm for conventional floor build-ups. Hence the joists are usually assumed to share loads with other joists in the system. Since the commonly used spacings of 400mm, 450mm and 600mm only are considered in this publication, load sharing can be assumed. A value of k_{sys} = 1.1 is therefore used where relevant.

3.3.4 In calculating the bearing stresses *EC5* allows an enhancement through the use of a modified bearing length that could be as much as 60mm greater than the actual bearing length depending on the support conditions used. However, the implementation of this enhancement is too complex to be considered in this publication and is not used except for trimmers and trimming joists. The compression perpendicular factor $k_{c,90}$ in *EC5* however is now clarified in *PD 6693* and is assumed to be 1.5 for all spans considered.