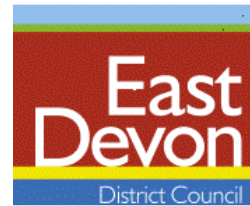


## BUILDING CONTROL

### GUIDANCE NOTE 7

#### GUIDANCE NOTES FOR CONSTRUCTION PROFESSIONALS ON THE NOTCHING AND DRILLING OF JOISTS



### Notching or drilling joists

When installing pipework or cabling, floor or ceiling joists may need to be drilled. But will this weaken the floor to such an extent that it becomes structurally unsound?

The guidance in this leaflet is only for use in domestic properties to determine the maximum sizes of notches and holes and the permitted location where they may be cut into timbers without structural calculations to justify their adequacy.

Beams, rafters, purlins and binders must never be notched or drilled without calculations to justify the remaining timber.

Rafters may be birdsmouthed by no more than  $\frac{1}{3}$ rd of the depth.

If joists are more than 250mm deep, seek structural advice.

### Remember

Before you start work check that the joist size is adequate - see below

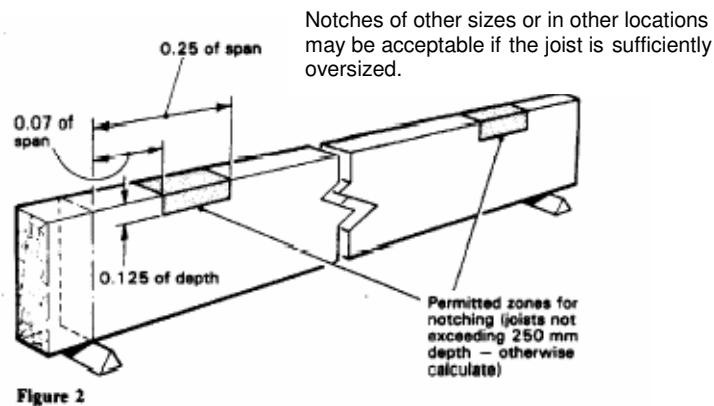
Notches may only be made in the top of the joists, within the permitted area.

Holes may only be made on the joists centreline within the permitted area.

***Please phone if you need further advice***

### Safe areas for notching

Depth and position of notches must be within the zones shown in this diagram and only in the top of the joists.



### Example to calculate safe areas

Measure the clear span between supports and joist height .E.g. 3.0m (10'0") and 150mm (6").

Figures in bold type are constants

Safe area for notching is between ....

$$\mathbf{0.07} \times 3.0 (10'0") = 210\text{mm} (8\frac{1}{2}") \text{ and}$$

$$\mathbf{0.25} \times 3.0 (10'0") = 750\text{mm} (30")$$

The maximum depth of notch is ....

$$\mathbf{0.125} \times 150\text{mm} (6") = 19\text{mm} (\frac{3}{4}")$$

So, safe areas to notch are from 210 to 750mm from either wall, and up to 19mm deep.

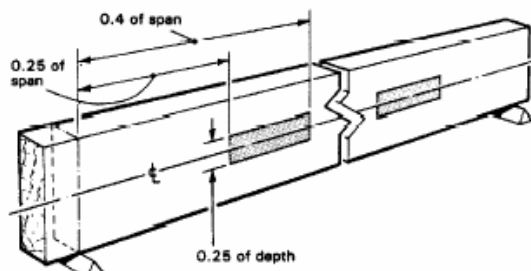


Figure 3

### Safe areas for drilling

Size and position of holes must be within the zones shown in the diagram overleaf and only on the centre line.

Adjacent holes must be at least twice their diameter apart and no hole may be within 100mm (4") of a notch.

### Example to calculate safe areas

Measure the clear span between supports and the joist height.

E.g. 3.0 m (10'0") and 150mm (6").

Figures in bold type are constants.

Safe area for drilling lies between ....

$$\mathbf{0.25} \times 3.0 (10'0") = 750\text{mm} (30") \text{ and}$$

$$\mathbf{0.40} \times 3.0 (10'0") = 1200\text{mm} (48")$$

The maximum diameter of hole is ....

$$\mathbf{0.25} \times 150\text{mm} (6") = 38\text{mm} (1\frac{1}{2}")$$

So safe areas to drill are from 750 to 1200mm from either end and up to 38mm diameter.

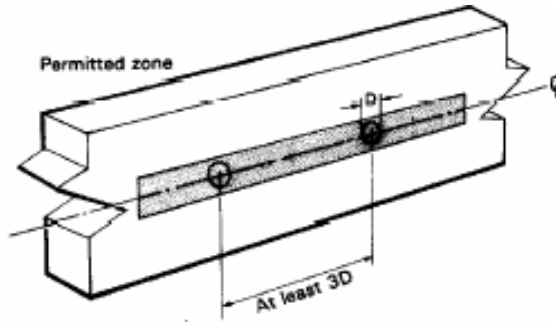


Figure 4

### Adequate floor and roof joist sizes

These tables are for floors and roofs of normal construction, and not coverings such as asphalt. Roof joists are not suitable for promenade decks. For other conditions please contact your designer or your Building Control surveyor.

- Measure the distance between the centres of adjacent joists and select the correct column.
- Look down the column until you find a length greater than or equal to the span of your joists.
- Read off the minimum joist size for that row.
- If your joists are this size or larger you may safely drill or notch them as recommended.

<b>Floor joists</b>				
<b>Minimum Joist size</b>	<b>Distance between joist</b>			
	<b>400mm</b>	<b>450mm</b>	<b>600mm</b>	
47 x 97	1.92	1.82	1.46	
47 x 122	2.55	2.45	2.09	
47 x 147	3.06	2.95	2.61	
47 x 170	3.53	3.40	2.99	
47 x 195	4.22	3.89	3.39	
47 x 220	4.72	4.35	3.79	

<b>Roof joists</b>				
<b>Minimum Joist size</b>	<b>Distance between joist centres</b>			
	<b>400mm</b>	<b>450mm</b>	<b>600mm</b>	
47 x 97	1.84	1.81	1.74	
47 x 122	2.47	2.43	2.31	
47 x 147	3.12	3.06	2.90	
47 x 170	3.72	3.64	3.40	
47 x 195	4.37	4.28	3.89	
47 x 220	4.99	4.81	4.38	