

DOMESTIC TIMBER FLOORS

Detailed below are typical domestic timber floor construction details – these details and span tables are not suitable for use with non-domestic situations, where the floor timbers must be calculated by a structural engineer due to the higher loadings carried. The following table gives details of allowable spans and spacing between joists for the most common timber sizes used in floor construction. All the figures are based on normal domestic floor loadings where the floor construction is typically 18-25mm floorboards/sheets with up to 12.5mm thick plasterboard and skim underneath. For any other situation these tables may not be appropriate, and you should refer to the TRADA Document – ‘Span tables for solid timber members in floors, ceilings and roofs for dwellings. When choosing a joist spacing, check that your floorboards (or sheets) are strong enough to span over the width chosen. As a rule - floorboards should be a minimum 16mm thick for joist centres up to 500mm and 19mm minimum for centres up to 600mm.

FLOOR JOISTS SUITABLE FOR DOMESTIC FLOOR LOADINGS @ GRADE C24			
Size of Joist (mm)	Maximum clear span in metres for joist spacing of		
	400mm	450mm	600mm
95x47	2.20	2.08	1.82
120x47	2.83	2.73	2.48
145x47	3.41	3.28	2.98
170x47	3.99	3.84	3.49
195x47	4.56	4.39	4.00
220x47	5.13	4.94	4.50
145x72	3.91	3.77	3.44
170x72	4.57	4.40	4.02
195x72	5.22	5.03	4.59
220x72	5.86	5.65	5.17

When constructing timber floors, you should also bear in mind the following points:

1. Floors are used to give lateral restraint to walls, and where the joists run parallel to the wall, straps need to be installed as shown in the detail below. Normally these straps have to be positioned every 2m along the wall, but up to 3m is acceptable where this is to allow the formation of a stairwell or similar floor opening - provided additional straps are fixed each side of the opening. The galvanised mild steel straps must have a minimum cross-sectional area of 30 x 5mm.
2. Around floor openings such as stairs, it will be necessary to install larger or double/ triple timber trimmers bolted together to carry the floor joists. With all joined timbers supported by fully nailed proprietary joist hangers.
3. Floor joists must also be doubled up and bolted together under timber partition walls, and in bathrooms due to the weight of a filled bath additional joists must be provided under the bath.
4. Where the joists span over 2.5m, strutting is required to prevent joists twisting when loaded. For spans of between 2.5 and 4.5 m one row of strutting is needed, at the mid span position. For spans in excess of 4.5 m two rows of strutting will be required, positioned at the one third and two third span positions.

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Guidance Note – Number 7

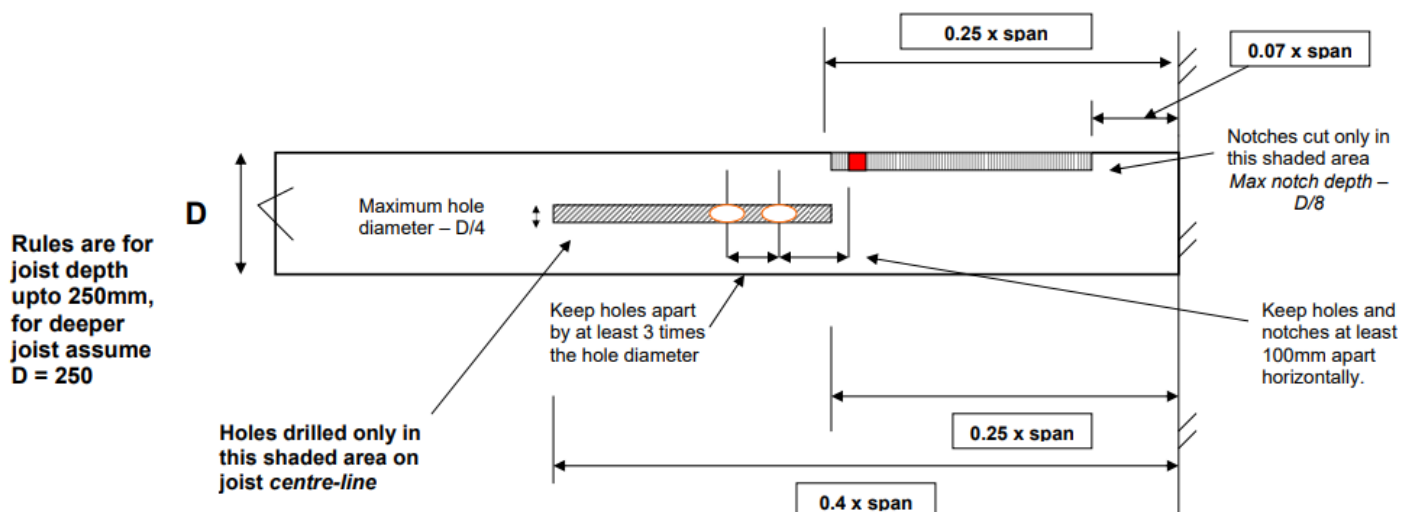
Solid strutting should be at least 38 mm thick timber extending to at least three quarters the joist depth e.g., 200 x 50mm joists would need at least 150 x 38mm timber used as strutting.

Herringbone strutting - if you are not using the proprietary galvanised steel systems, should be at least 38 x 38mm timber but can only be used where the spacing between the joists is less than three times the depth of the joist e.g., for a 150 x 50 joist, herringbone strutting can only be used up to a spacing of 450mm.

Notching and Drilling

Notching and drilling should not exceed the limits indicated below.

If notches on top of joists are limited to the area between 0.1 and 0.2 of span, the maximum notch depth may be increased to 0.15 x joist depth.



If you are unsure whether or not the work you propose requires approval please contact East Midlands Building Consultancy for advice. If you carry out work which requires approval without first submitting an application, you will not benefit from having the work independently inspected and you risk enforcement action. The lack of a completion certificate from the Council may affect the future sale of your home.

Please note that these guidance notes are for advice only and may not cover all situations. It is your responsibility to ensure that they are appropriate for use in your particular circumstance.

For further information contact East Midlands Building Consultancy.