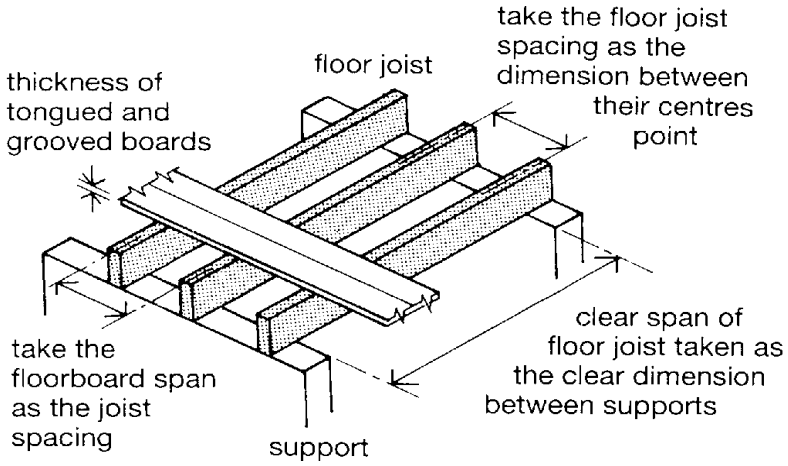
The following table gives details of allowable spans and spacing between joists for the most common timber sizes used in floor construction. All the figures are based on normal floor loadings in dwellings where the floor construction is typically 18-25mm floor boards/sheets with up to 12.5mm thick plasterboard and skim underneath. For any other situation these tables may not be appropriate and you should refer to the Approved Document to Part A of the Building Regulations or ask your Building Control Officer for advice. When choosing a joist spacing you should also check that your floorboards (or sheets) are themselves strong enough to span over the width chosen.

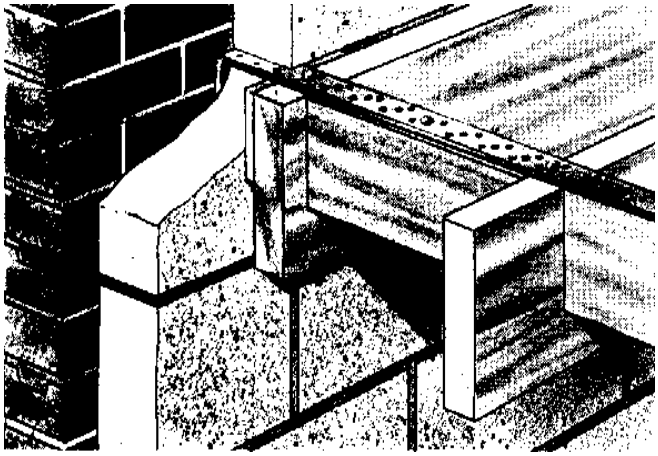
FLOOR JOISTS SUITABLE FOR DOMESTIC FLOOR LOADINGS

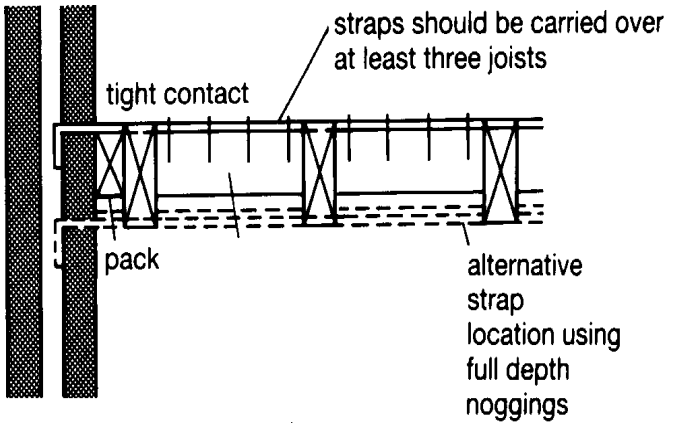
Size of joists in mm	Maximum clear span in metres for joist spacing of		
	400mm	450mm	600mm
97 x 50	1.98	1.87	1.54
122 x 50	2.60	2.50	2.19
147 x 50	3.13	3.01	2.69
170 x 50	3.61	3.47	3.08
195 x 50	4.13	3.97	3.50
220 x 50	4.64	4.47	3.91
147 x 75	3.56	3.43	3.13
170 x 75	4.15	3.96	3.61
195 x 75	4.68	4.52	4.13
220 x 75	5.11	4.97	4.64



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 details below. Normally these straps need 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 opening in the floor. The galvanised mild steel straps must have a minimum cross sectional area of 30 x 5mm

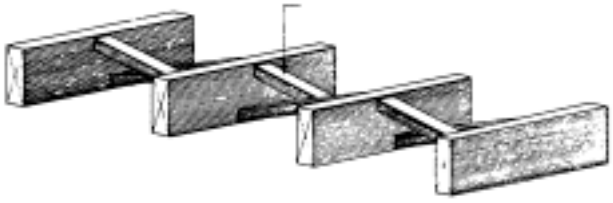




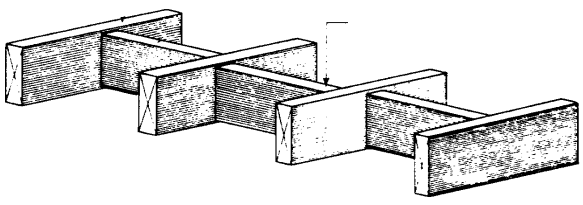
2/ Around stairwells and similar openings it is often necessary to use trimmer beams to support the ends of joists. These details are dealt with separately on guidance note number 009.

3/ Where joists support a partition wall or under baths they usually need to be 'doubled up' to support the increased localised loading.

4/ On joist spans over 2.5m, strutting is required to prevent joists twisting when loaded. For spans of between 2.5 and 4.5 m only one row of strutting is needed, at the mid span position. For spans over 4.5 m two rows of strutting will be required, positioned at the one third and two third span positions. Solid strutting should be at least 38 mm thick timber extending to at least three quarters the depth of the joist. For example, 200 x 50mm joists would need at least 150 x 38mm timber used as strutting. Herringbone strutting 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. Hence for a 150 x 50 joist, herring bone strutting can only be used up to a spacing of 450mm but for a 200 x 50 joist, a spacing of up to 600mm would be satisfactory. See the details below.



Herringbone strutting using
Min 38 x 38mm section timber



Solid (staggered) strutting
Using 38mm (minimum)
thickness timber