distance is generally 15-in., and for 1¼-in. boards it is usual to specify the joists to be at " 16-in. centres."

(*c*), The minimum safe superimposed load (or live load) allowed on floors varies with the type of building, thus it is 30-lb. per sq. ft. for a house and 200-lb. per sq. ft. for a warehouse.

(*d*), Suitable timbers for floors are referred to in Table I. Redwood is the best softwood for this purpose.

TABLE II

Maximum clear span.	Size of Joist (spaced at 15-in. centres).	Maximum clear span.	Size of Joist (spaced at 15-in. centres).
4 ft.	3 in. by 2 in.	13 ft.	9 in. by 2 in.
5 ,,	4 ,, by 2 ,,	14 ,,	9 ,, by 2½ ,, or
6 ,,	4½ ,, by 2 ,,		11 ,, by 2 ,,
7 ,,	5 ,, by 2 ,,	15 ,,	9 ,, by 3 ,, or
8 ,,	6 ,, by 2 ,,		11 ,, by 2 ,,
9 ,,	7 ,, by 2 ,,	16 ,,	11 ,, by 2 ,,
10 ,,	7 ,, by 2 ,,	17 ,,	11 ,, by 2½ ,,
11 ,,	8 ,, by 2 ,,	18 ,,	11 ,, by 3 ,,
12 ,,	9 ,, by 2 ,,		

The sizes given in Table II. will satisfy the requirements of the building bye-laws of most local authorities. The approximate depth in *inches* of 2-in. thick joists may be found by dividing the span in *feet* by 2 and adding 2 to the quotient. Thus the depth of a 2-in. thick joist with a span of 10-ft. would be $\frac{10}{2}+2=7$-in.

The maximum span for single floor joists should not exceed 16-ft.

WALL PLATES.—These are wood members, generally 4-in. by 3-in. or 4½-in. by 3-in. which : (*a*) serve as a suitable bearing (4 to 4½-in.) for the joists, (*b*) uniformly distribute loads from the joists to the wall below, (*c*) provide suitable means of bringing the upper edges of the joists to a horizontal plane to receive the floor boards and to ensure a level surface and (*d*) afford a fixing for the ends of the joists.[1] They are solidly bedded level on lime mortar by the bricklayer for the full length or width of the floor (see broken lines at F, Fig. 32). Joints in long lengths are formed as shown at G. This is called a *half lapped joint* or *scarf*. The vertical cut extends to half the thickness of each plate and after the cut surfaces have been fitted together, nails are driven in to make the joint secure. Intersections between wall plates are formed as shown at H.

[1] Wall plates are frequently omitted in cheap work (as shown at L, Fig. 36) and the ends of the joists are packed up with pieces of slate, etc. This is an undesirable practice as repeated vibration tends to disturb such bearings, resulting in unequal settlement of the joists and an uneven floor surface.

Ground floor wall plates are usually placed immediately over the horizontal damp proof course.

It is the usual practice to rest the ends of the joists upon the wall plate and fix them by driving nails through their sides into it (see U). If the joists vary slightly in depth, their upper edges are levelled by removing a portion of the wall plate as required to form a *housed joint* (see K and L).[1] Other forms of joints which may be applied to the ends of deep joists are *notching* and *cogging*. A *single notched joint* is shown at M, the lower edge of the joist being cut to fit over the wall plate (such as may be supported by a sleeper wall). A *double notched joint* is shown at N and is formed by cutting both joist and wall plate. A *single cogged joint*, used at the ends of joists, is shown at O, the joist being cut on its lower edge to correspond to the uncut portion or *cog* on the plate, where the joist cut coincides with the cog after two sinkings have been formed in the plate, it forms a *double cogged joint* (see P) such as may be adopted when joists are supported by sleeper wall plates. Neither notching nor cogging (sometimes called *caulking*) are much used.

Reference is made on p. 58 to a particularly virulent disease of timber known as dry rot. It is necessary to safeguard against this disease by using only well seasoned timber and to *provide adequate ventilation.* Free circulation of air to all ground floor timbers is therefore essential, and it is for this reason that wall plates should be supported either (*a*) by sleeper walls built parallel to and about 2-in. from the main walls (see this construction shown by broken lines at E, Fig. 10) or (*b*) upon offsets (shown at A, C and D, Fig. 11) or (*c*) upon corbels (see L, M and N, Fig. 11). If, on the score of economy, the wall plates and ends of the joists are built into the wall, it is necessary to form an air space round the sides and tops of the joists (see K, Fig. 32), and it is also advisable to apply two coats of creosote (see p. 57) or other preservative to the wall plates and to the ends of the joists. Attention is drawn to the provision made to ensure an adequate circulation of air under the wood floor shown in Fig. 32 where air bricks (one type being shown at V) are fixed in the external wall, bricks are omitted in the 4½-in. division walls to form ventilating openings (abbreviated to " V.O.") and voids are formed in the sleeper wall (when it is said to be " honeycombed ").

An enlarged detail of an air brick built into a wall is shown at U. Air bricks are obtainable in various sizes, colours and textures to conform with the brickwork ; they must be well perforated ; an alternative form of ventilator is a cast iron ventilating grate.

Sleeper wall foundations have been referred to on p. 19. A sleeper wall is honeycombed simply by omitting bricks during its construction. The voids may be arranged haphazard, or as shown by the two alternative forms indicated in section DD. All sleeper walls must be provided with damp proof courses.

Some local authorities stipulate that no timber shall be built in party walls (those which are common to two buildings) within 4½-in. of the centre of the wall.

[1] A less satisfactory method of levelling up joists is frequently resorted to, *i.e.*, the ends of the lower joists are packed up by inserting thin pieces of wood between them and the wall plate.