

A Timber Floor Joist Layout Is Typically Used To Construct the Roof, Floors or Ceilings of a Building

It is a horizontal supporting member which spans from wall to wall, or wall to the beam, or at times, beam to beam in ceilings, floors, and roofs.

A beam may have such functions, however it is distinguished from a joist because it has a bigger cross sectional dimensions. Joists are at times supported by a beam and will be repetitive in its layout. The depth of a joist will vary. depending on the length of the spans and the load it supports.

Generally, load tables calculations are supplied by joist manufacturers so that an engineer can decide on the design parameters of the joist layout.

Where Are Joists Used?

Joists are commonly used for floors, ceilings and roofs.

Though at times, the floors are built on a flat concrete slab on the ground, they are mostly constructed and raised above ground level. A raised floor uses a wooden framework from wall to wall, with joists being placed equidistant and parallel to each other.

Depending on load considerations, the framework may have to have the support of girders, beams or walls. The support points will depend on the design of the building. The advantage of a raised floor is that it is more resilient and also provides access for heating, insulation, plumbing, cabling and other equipment.

Since these are items that are generally concealed, the space afforded beneath a raised floor is an ideal location. In a house, the underside of the upper floor ceiling joist framework, forms the frame for ceiling materials. A ceiling, being more decorative and not load bearing, is Made Of Lighter Materials.

Typical Layout Of Floor Joists:

In a floor, the framework consists of joists which are placed equidistant and parallel to one another. They span the distance between support points such as walls, girders, foundations, beams etc.

The ends of the joist are capped by joist headers.

Weak spots such as stairway openings are reinforced by using doubled up joists at the perimeter which are capped by perpendicular headers.

The size of the joist and the spacing between them depends on building codes and engineering design parameters such as load, deflection, stress etc.

Normally, a spacing of 450cm from centre to centre is used. In some places.300cm or 600cm centres are used. As a cost saving measure cheaper wood may be used, however, you need to check with the structural engineer first. with cheaper materials, it may have less strength, and the joists are made from cheaper building materials, so you may need to double up on timber sizes to take the same load

The Sill Which Is The Point Where The Floor Joists Rest On The Foundation Has To Be Treated With Preservatives.

This will prevent rot or termite attack as time goes by. They are connected to the wall by studs, however, the exact method of construction will depend on the type of framework that is being used. The sub flooring is placed on top of the joists and it acts as the base for the finish flooring.

It also serves as a platform during the construction of the building. It is usually made of boards and, is placed on top of the joists either in a perpendicular or diagonal arrangement.

Plywood or other panel products can also be used as sub flooring. The sub flooring should be of sufficient thickness to take care of daily wear and tear. Care must be taken at the points where the joists meet the beams or other supports. They have to be spliced over the beams and usually are butted end to end. They can be connected by means of a plywood gusset plates or they could be lapped.

At times a solid blocking or metal bridge prevents the joists from twisting and this will help the loads to be distributed evenly. All floor joist applications use the same design principles. A well-constructed floor joist layout will have sufficient strength to withstand daily wear and tear. It should have a long and trouble free service life. The floor joist layout is the heart of the building