

LOAD SPECIFICATIONS FOR FLOOR SYSTEMS

Floor trusses have been successfully used in residential and light commercial applications for a number of years and their many advantages are well understood.

However, it is important when specifying and designing floor trusses to fully understand the application and appreciate all of the loads that are to be applied.

One of the benefits of being an engineered wood product is that floor trusses can be designed for specific loads.

This makes it all the more important for floor loads to be correctly specified. When designing a floor system, there are two predominant types of load to consider: dead load and live load.

'Dead loads' are the permanent loads that usually comprise floor, ceiling and joist materials.

In AS1684 - Residential Timber Framed Construction, the span tables for solid floor joists typically allows for a dead load floor mass of 40kg/sq m.

It assumes common floor sheathing and lightweight floor coverings, such as carpet.

As we know, there is a large array of floor materials available, such as tiles and slates that weigh considerably more and therefore need to be correctly accounted for in the design of the floor structure.

'Live loads' are temporary loads due to construction, furniture or occupant loading that may vary throughout the life of the structure.

A percentage of live load is usually assigned to permanent loads to account for semi-permanent fixtures such as furniture, bathroom and kitchen fittings, and so on.

An appropriate floor live load should be specified in the plans to ensure correct engineering of the floor system.

The magnitude of live load depends

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on the use and application of the floor area.

For example, a residential dwelling will have different live loads for general areas, balconies, stairs and landings; whereas commercial premises, such as schools, will have different live loads in different zones, such as classrooms or gymnasiums.

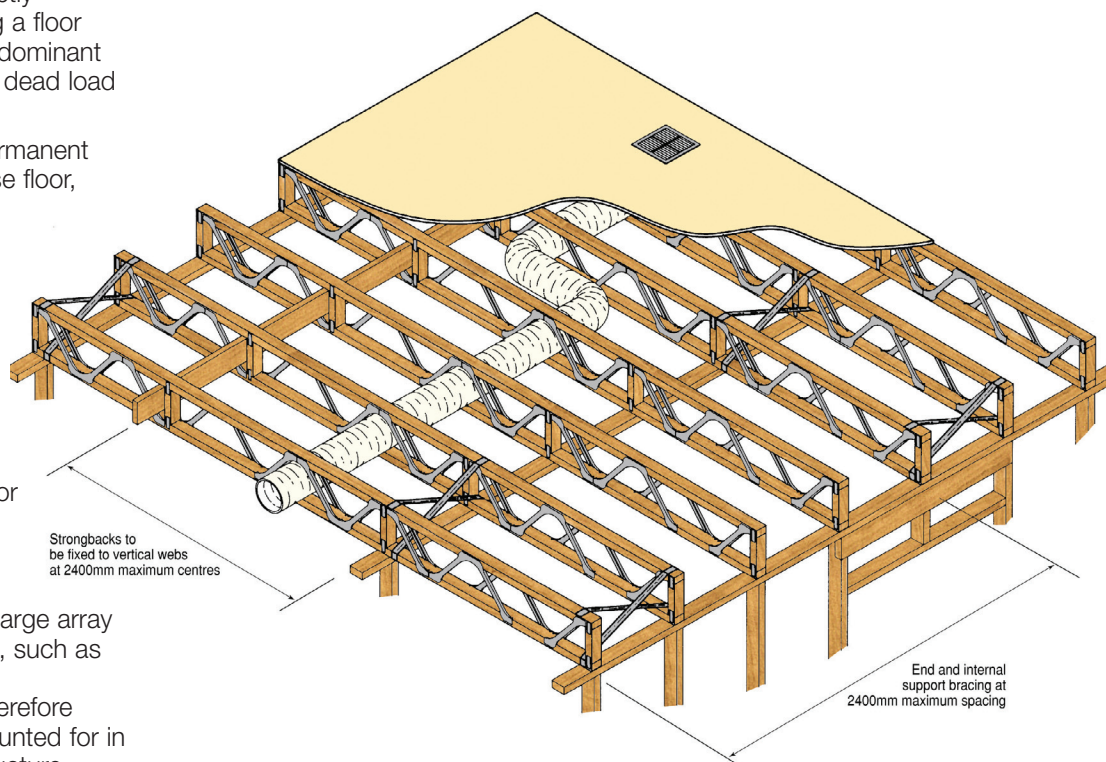
The live loads for various applications can be found in

AS1684 are limited only to residential floor live loads of 1.5kPa/1.8kN.

If the floor trusses support load bearing walls that carry upper level floor and/or roof, then these loads will also need to be included in the designs.

Care needs to be taken on how the dead and live loads are applied, especially if concentrated loads from girder trusses, beams or jamb studs are present.

Any very heavy fixtures, such as hot tubs or water beds that apply significant additional loads to the floor



AS1170.1 and they should be specified in the engineering drawings.

Floor live loads are usually specified in two formats: Uniformly Distributed Actions measured in kilopascals (kPa) and Concentrated Actions measured in kilonewtons (kN).

Span charts for floor trusses in a full range of residential and commercial live load applications can be obtained from the nailplate manufacturer.

By contrast, the span charts in

system should be clearly specified to be included in addition to the permanent dead loads for design.

In summary, to ensure that a floor system is correctly designed to meet the requirements, it is important to clearly specify all applied loads in the plans: Dead loads, especially those higher than generally assumed loads, such as tiled floors; Live loads, suitable for the application and intended use; and any additional significant loads, such as waterbeds or load bearing walls that are present.

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