

2.2.1 FLOORS

2.2.1.3 COMPOSITE FLOORING

2 Beam and Infill

GENERAL DESCRIPTION

The system, known as *Ultrafloor* and similar, comprises precast, prestressed concrete inverted T-beams, spaced apart with an infill material spanning between the flanges of the beams. This assembly provides the strength to support the weight of the (subsequently placed) wet insitu concrete topping. After the insitu concrete hardens, its compressive strength acts compositely with the tensile strength of the precast beams to efficiently carry the design loading on the floor.

In longer spans where the load of the fresh concrete would be critical, a row of temporary props can be placed under the centre of the beams during concreting. These remain in place for approximately three days until the prestressed beams are able to act compositely with the insitu concrete topping.

This system has wide application in residential, commercial and industrial buildings. In addition to offering the well-established advantages of precast flooring, it has a number of further benefits, including ready accommodation of site tolerances and service penetrations (with adjustment of beam positions) and enhanced acoustic performance with appropriate detailing.

COMPONENT DETAILS

Precast Prestressed Beams

There are two standard beam types, designated 'R' and 'C', with a variety of depths (see *Typical Section*). The 'R' series are for normal domestic and similar loadings, while the 'C' series are for heavier loads or longer spans.

The system has been tested in accordance with AS 1530.4 and can be used in applications that require a Fire Resistance Level of up to 240/240/240.

Infill Sheeting

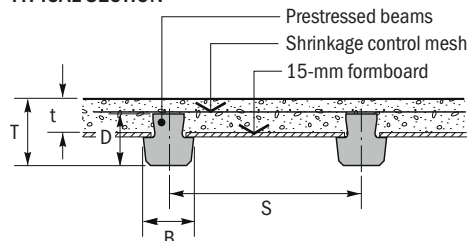
Typically, a purpose-made fibre-cement formboard product or Bondek is used, although other alternatives may be considered.

Topping Concrete

It is important to use a high-quality concrete for topping as well as best placing and curing practices. A typical topping concrete is Normal Class concrete, strength grade N32.

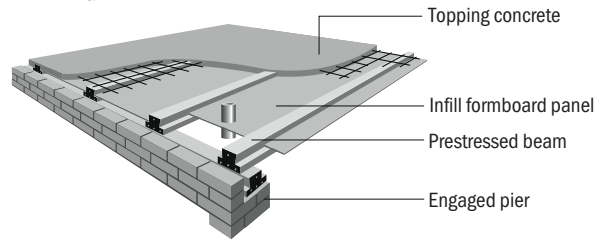
Shrinkage control reinforcement in the form of mesh should also be provided.

TYPICAL SECTION

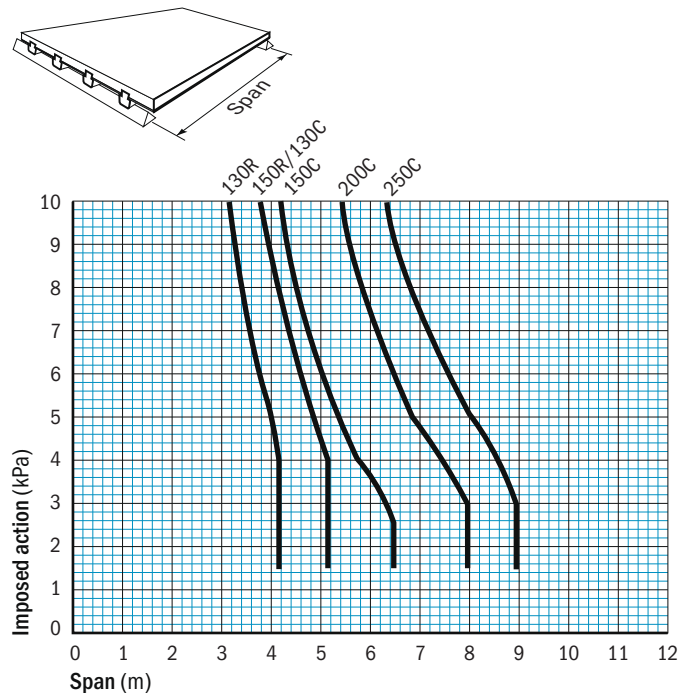


Beam	D (mm)	B (mm)	T (mm)	t (mm)	S (mm)	Selfweight (kPa)
130R	130	130	190	105	680	3.1
150R	150	130	210	95	680	3.0
130C	130	190	190	105	740	3.2
150C	150	250	210	95	800	3.2
200C	200	250	260	95	800	3.6
250C	250	250	330	115	800	4.6

TYPICAL ARRANGEMENT



IMPOSED ACTION CAPACITY - CASE 1 (Unpropped/simply supported)



IMPOSED ACTION CAPACITY - CASE 2 (Temporarily-propped with continuity reinforcement)

