

Hollowcore Floors



BISON PRECAST

a Forterra brand

Hollowcore Floors



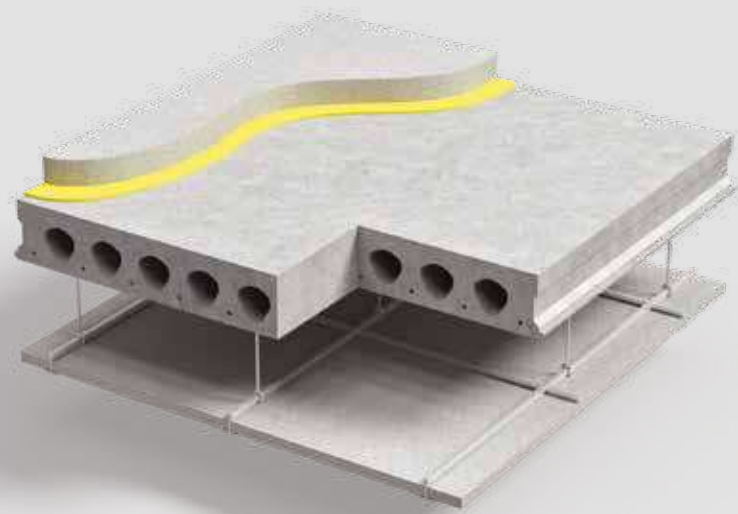
**The ideal structural
floor solution for
all building types
in all sectors.**

Prestressed hollowcore units form part of the comprehensive range of precast concrete flooring products from Bison Precast.

The Bison Precast range of hollowcore units is available in 150, 200 and 250mm deep sections and can be supplied nationwide, either on a supply and install basis by specialised teams from Bison Precast, or supply only for installation by the main contractor.

Hollowcore has excellent sound reducing qualities and inherent fire resistance making it the solution of choice for specifiers of floors for apartments, care homes and commercial projects.

Separating floors are required to comply with Part E of the Building Regulations. In order for a new development to meet the standard, pre-completion testing will be required to demonstrate the required sound attenuation has been incorporated into the building. The alternative is to adopt the standard set of details which have been tested by Robust Details and are contained within their handbook. Further information can be found at robustdetails.com.



BIM Objects for hollowcore available to download

Forterra.co.uk/bim



Hollowcore Benefits



Can be used in all types of structure - masonry, steel & concrete

Excellent sound & fire resistance

Compatible with robust details for part E of the building regulations

Cost of construction

Clear, unpropped spans provide an immediate working platform

Fast and simple to erect

Easier installation of services, with holes and notches preformed during manufacture

Service

Available nationwide either supply only or supply and install

Design support provided at concept stage and throughout the project

Quality

Complies with all relevant standards and manufactured in accordance with BS EN ISO 9001 and BS EN ISO 140001

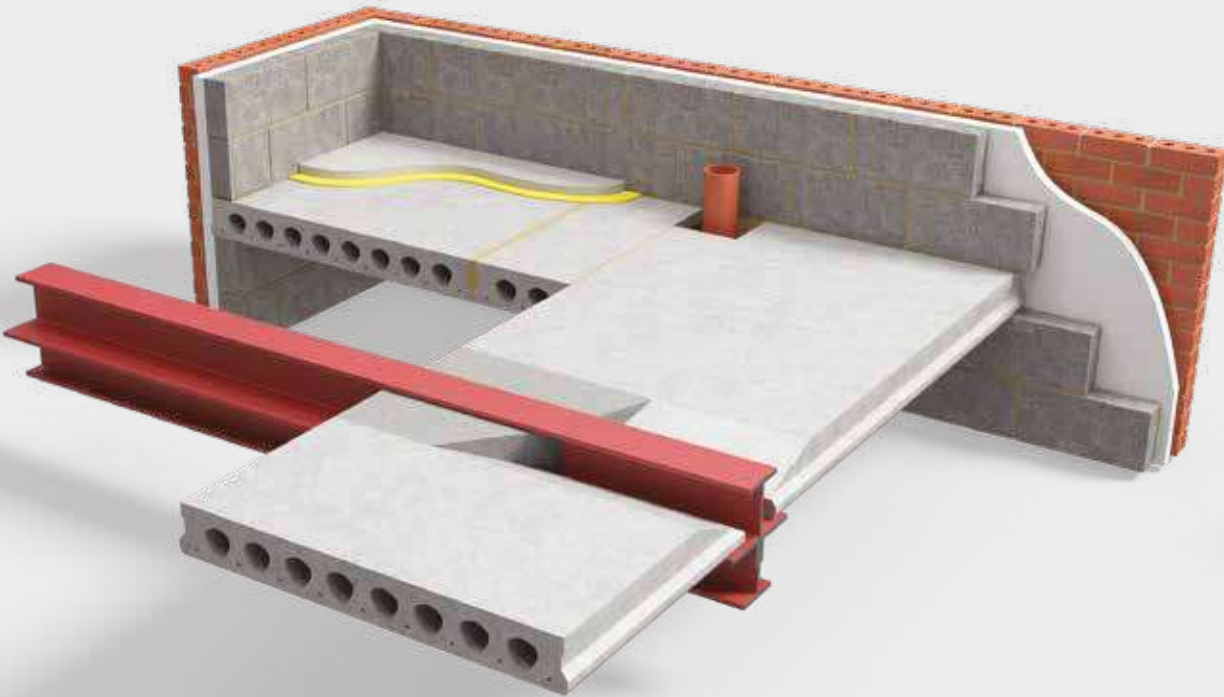
Units are CE marked against BS EN 1168

Factory manufacture to consistent quality standards



Bearings can be taken from brickwork, blockwork, steel beam flanges or shelf angle and concrete.

Longitudinal joints - the sides of the slabs are cast with a shear key profile which when filled with C25/30 grade concrete distributes loads to adjacent units.

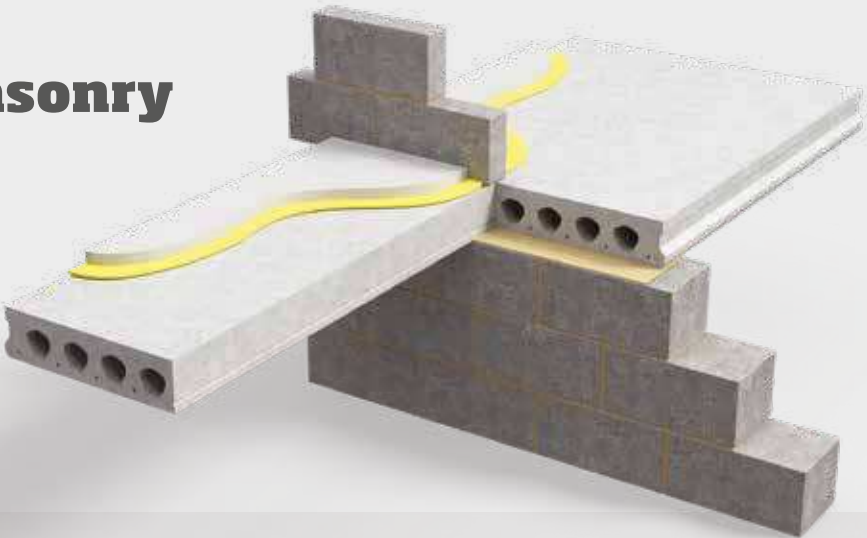


The nominal bearing for:

Masonry	100mm
Steel	75mm
Concrete	75mm

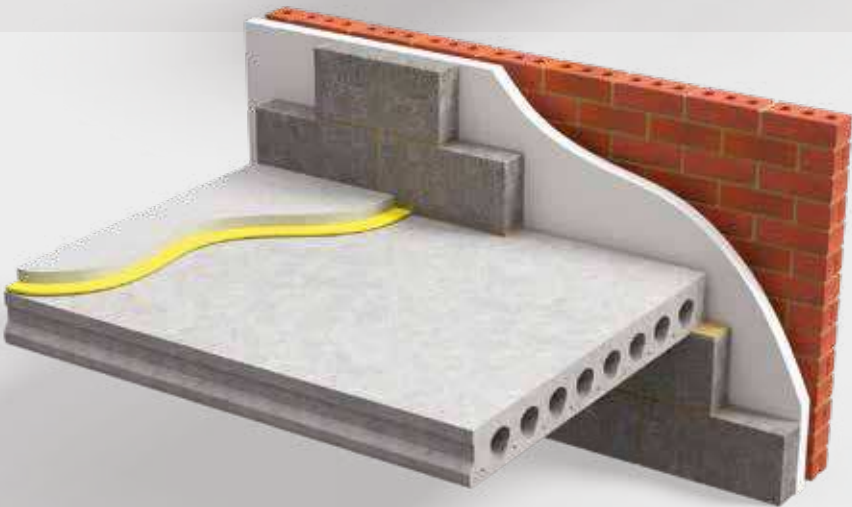
Bearing on masonry

Typically slabs are manufactured to have 100mm bearing onto a 100mm wide wall. However, a common detail is for the slabs to share an intermediate wall. In this situation the minimum thickness of the wall required is 190mm.



Side bearing

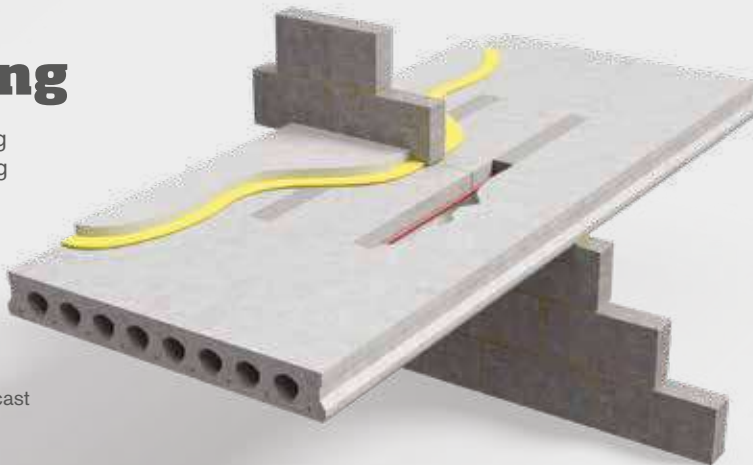
To provide effective lateral restraint the slabs are built into parallel spanning walls with a continuous bed of mortar between the slab and wall. This not only seals the joint but ensures the wall loads are transferred through the slab. Where high wall line loads are present the outer core can be filled solid to further enhance the load transfer capacity of the slab.



Narrow wall bearing

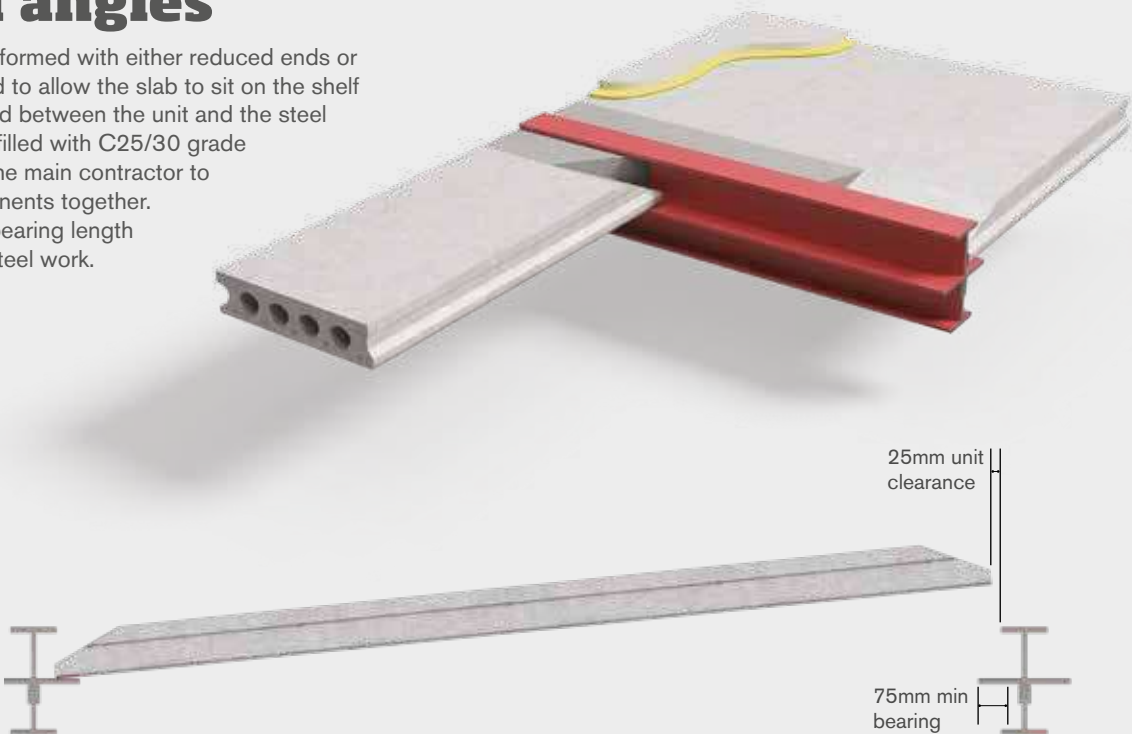
For walls narrower than 190mm the slabs need tying together to allow for construction and manufacturing tolerances. Typically two cores per 1200mm wide slab are formed open so that a reinforcement bar can be inserted across the slabs. The cores are then filled with in-situ concrete to form the tie detail. The cores on opposing slabs need to line up to facilitate this detail.

Further safe installation guidance can be found in the Precast Flooring Federations Code of Practice - precastfloors.info



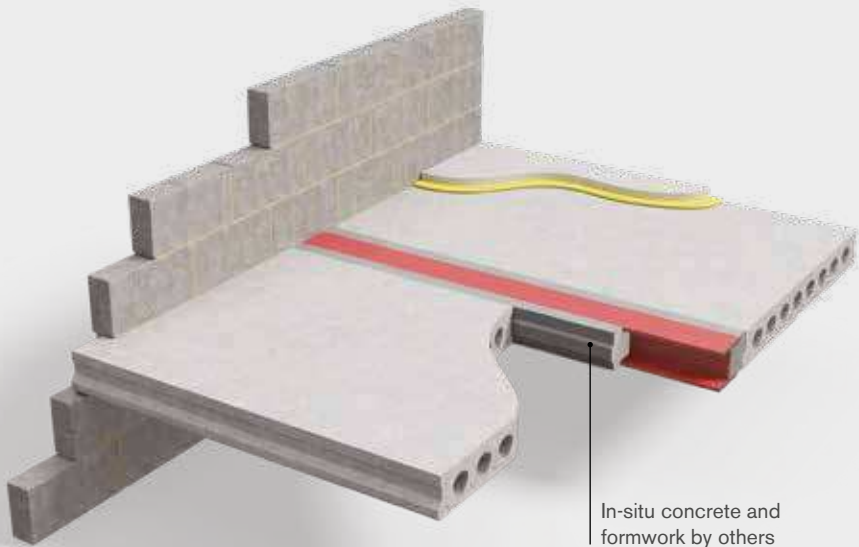
Bearing on shelf angles

Slabs can be formed with either reduced ends or a notched end to allow the slab to sit on the shelf angle. The void between the unit and the steel beam is then filled with C25/30 grade concrete by the main contractor to tie the components together. The nominal bearing length is 75mm on steel work.



Beams within the floor depth

To provide lateral restraint to the steel beam and to meet sound/fire requirements it is necessary to fill the void between the hollowcore unit and the steel beam with C25/30 grade concrete.



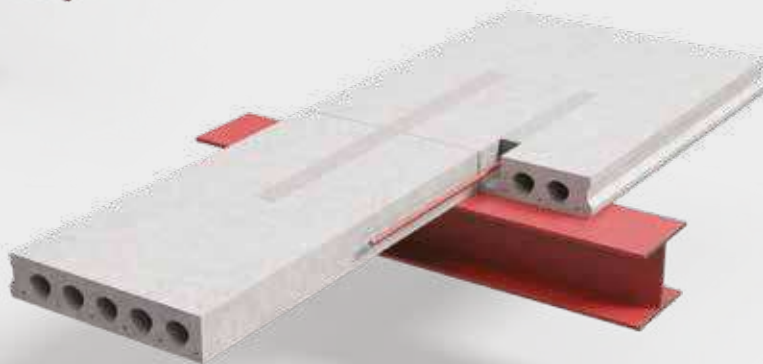
Bearing on top of steelwork

Standard units can be provided for class 1 and 2A buildings with a nominal bearing of 75mm.



Continuity over steelwork

Where the nominal bearing is less than 75mm the same detail as used for masonry walls less than 190mm is required.



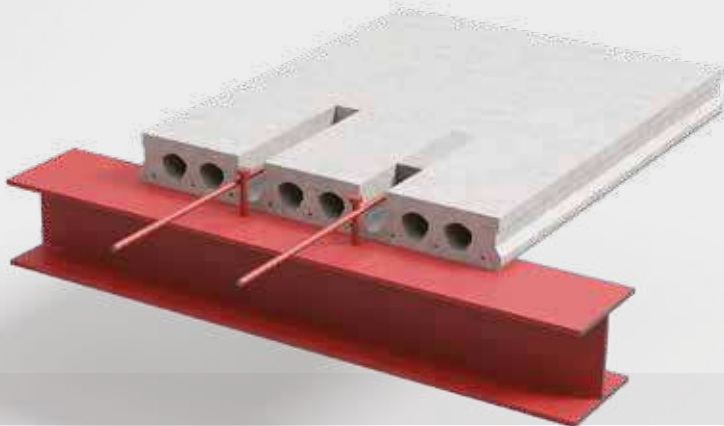
Continuity with concrete

Should continuity be required then the same detail as for masonry walls less than 190mm can be used. Note that the cores on opposing slabs need to line up to facilitate this detail.



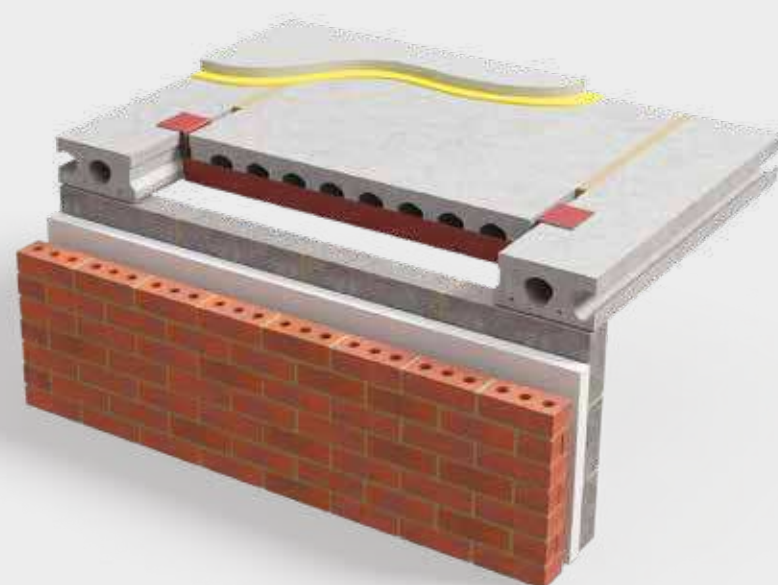
Tie details

To comply with disproportionate collapse requirement, open cores can be provided to allow the slabs to be tied to shear studs. This requires close cooperation to ensure that the setting out of the cores and shear studs align.



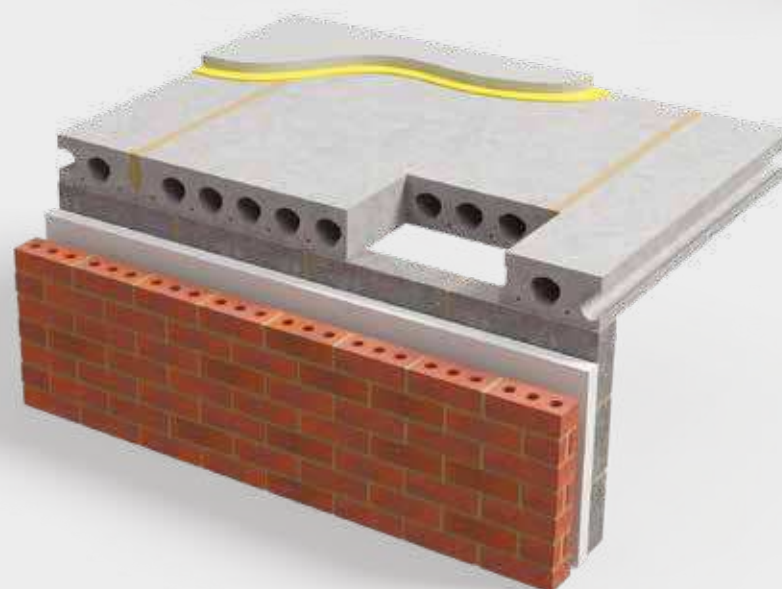
To accommodate service voids and column notches, the hollowcore can be pre-formed to individual requirements. Large openings may require steel trimming supports.

It is recommended that holes of less than 100mm diameter are drilled on site, on the centerline of cores.



Ceiling finishes

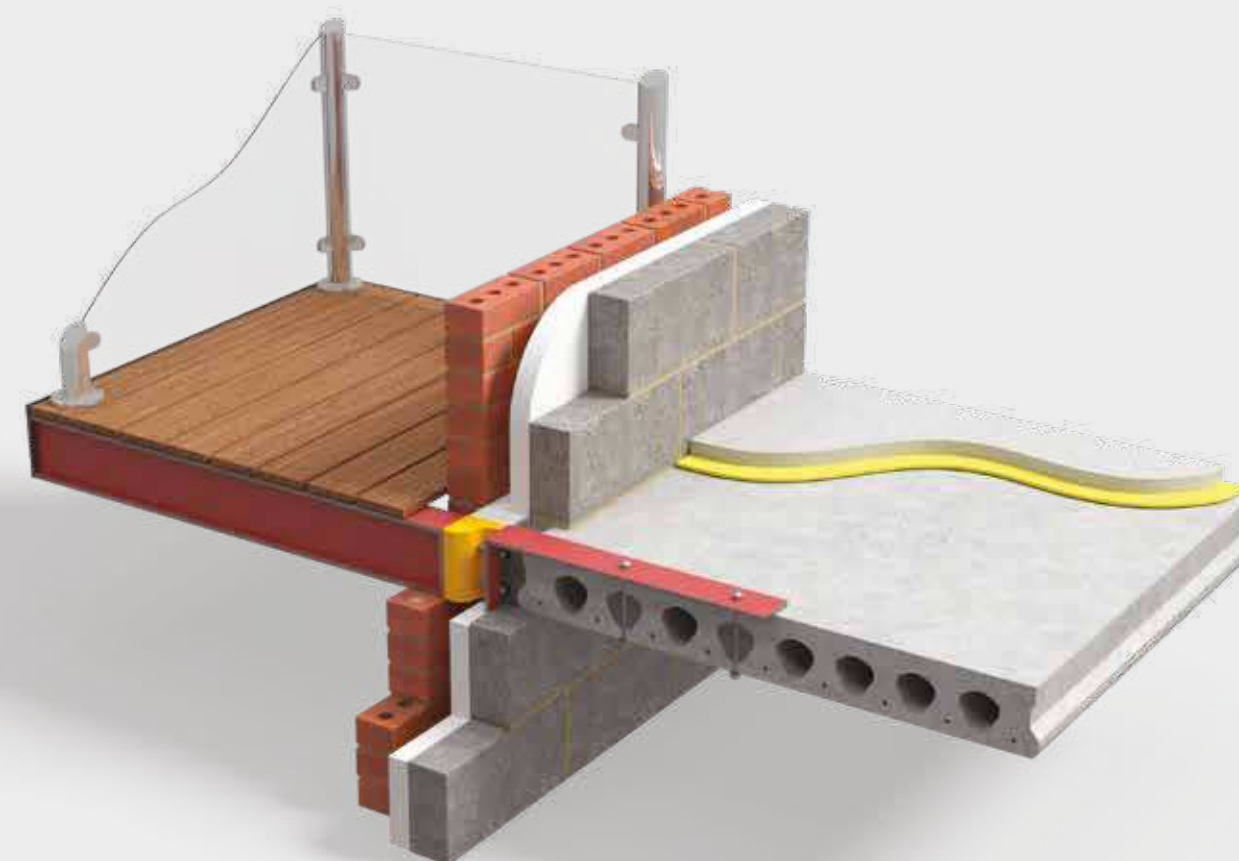
A number of ceiling finishing options are suitable for hollowcore units: Soffits can be plastered using a suitable bonding agent. Proprietary suspended ceiling systems can be hung from supports located between units. Counter battens can be screw fixed to the soffit for a plaster board finish.



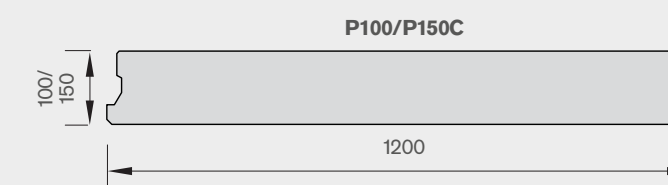
Bison Precast are able to offer several solutions to incorporate balconies into a floor layout:

Additional reinforcement can be incorporated into hollowcore slabs to accept bolt on steel balconies. 100mm thick solid prestressed slabs can be used as permanent formwork for a cast in-situ balcony.

We have 150mm thick solid prestressed slabs that incorporate top reinforcement to form the balcony and backspan slab as a single unit. Alternatively we can supply RC units cast with integrated thermal breaks.

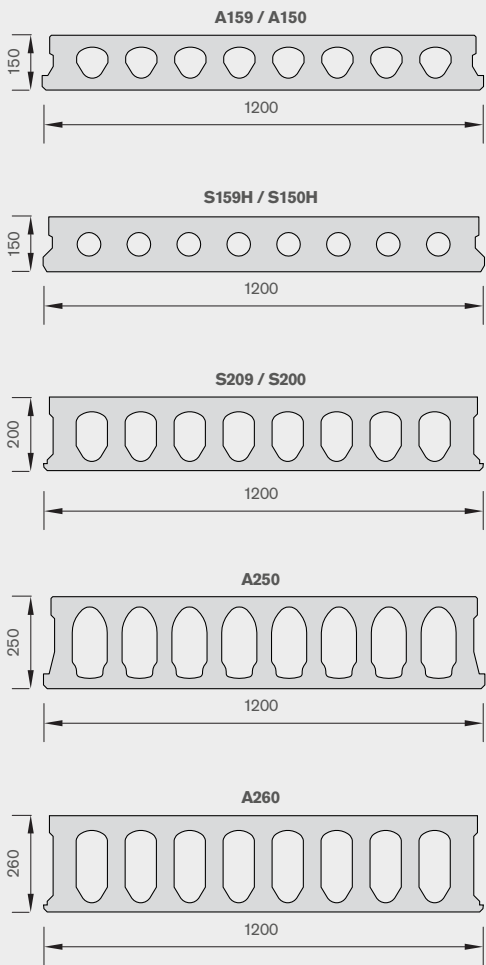


Section detail





Section details



Load-span tables

Ref	Weight kN/m ²	Finishes of 2.1kN/m ²									
		Characteristic imposed load kN/m ²									
		0.75	1.5	2	2.5	3.0	4.0	5.0	5.0	10.0	15.0
		Maximum clear span (m)									
100 Solid plank	2.40	5.15	5.00	4.80	4.60	4.45	4.15	3.95	3.80	3.10	2.70

Ref	Weight kN/m ²	Finishes of 2.1kN/m ²									
		Characteristic imposed load kN/m ²									
		0.75	1.5	2	2.5	3.0	4.0	5.0	5.0	10.0	15.0
		Maximum clear span (m)									
150	2.40	7.45	7.45	7.40	7.40	6.90	6.55	6.25	5.75	4.55	3.95
150 Sound slab	3.10	7.35	7.30	7.30	7.05	6.80	6.40	6.05	5.85	4.65	4.05

Ref	Weight kN/m ²	Finishes of 2.1kN/m ²									
		Characteristic imposed load kN/m ²									
		0.75	1.5	2	2.5	3.0	4.0	5.0	5.0	10.0	15.0
		Maximum clear span (m)									
200	3.10	8.90	8.85	8.85	8.85	8.75	8.25	7.80	7.55	6.00	5.25

Ref	Weight kN/m ²	Finishes of 2.1kN/m ²									
		Characteristic imposed load kN/m ²									
		0.75	1.5	2	2.5	3.0	4.0	5.0	5.0	10.0	15.0
		Maximum clear span (m)									
250	3.30	10.10	10.05	10.05	10.00	9.80	9.20	8.70	8.55	6.95	6.00

Ref	Weight kN/m ²	Finishes of 2.1kN/m ²									
		Characteristic imposed load kN/m ²									
		0.75	1.5	2	2.5	3.0	4.0	5.0	5.0	10.0	15.0
		Maximum clear span (m)									
260	3.55	10.35	10.35	10.30	10.30	10.30	10.25	9.95	9.50	7.60	6.65

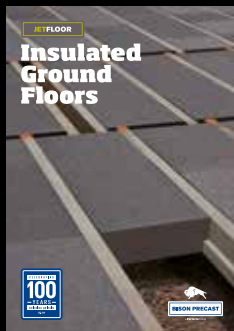
The above load-span table takes into account self weight, finishes, imposed load, service/ultimate conditions, deflection and natural frequency. They are given as a guide only, please contact us for further advice.



Forterra is a leading manufacturer of a diverse range of clay and concrete building products, used extensively within the construction sector, and employs over 1,900 people across 18 manufacturing facilities in the UK.

It is the second largest brick and aircrete block manufacturer in the country, and the only producer of the iconic London Brick. Other trusted brands from Forterra include Thermalite, Conbloc, Ecostock, Butterley, Cradley, Red Bank, Bison Precast, Jetfloor and Formpave.

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