

Lattice Girder Composite Floors

Composite floors using lattice girder normally consist of a temporarily propped precast plank, which also acts as fully participating permanent formwork in conjunction with the in-situ structural topping

THE BENEFITS OF LATTICE GIRDER COMPOSITE FLOORS

Fast to Erect

All planks which are manufactured to the specific needs of the building can be erected at a rate of up to 100m² per hour.

Robust Construction

Designs to resist progressive collapse are simply and economically achieved.

High Quality Finish

Level soffits which may be decorated direct and toppings that can be power floated allowing total floor zone to be minimised.

Services

Large or small holes, services in the topping, beams within the depth of the slab - all easily achieved.

High Load Capacity

Strong mechanical key between precast and in-situ concrete.

Fire Resistance

Cover to reinforcement and concrete depth may be varied to cope with required fire resistance.

Sound

Meets the highest standard for resistance of sound transmission.

In situations where self weight must be minimised, the lattice girder planks can be supplied with polystyrene void - formers bonded to their upper surface. These are then incorporated within the in-situ topping. Alternatively, the planks can be manufactured with lightweight aggregate concrete. This type of composite floor is equally suited to use in almost every building type, masonry, steel or concrete structures and particularly those with progressive collapse considerations.

LATTICE GIRDER PLANK DETAILS

Section Profiles

Profiles may vary in detail depending on the manufacturer.

Plank Depths

The typical thickness of planks ranges from 50mm to 100mm depending on the design specification.

Plank Widths

The plank widths are usually either 1200mm or 2400mm, but other widths are available.

Structural Performance

Span/load capacities may vary slightly between manufacturers, but Table 1 gives general guidance on performance characteristics.

Table 1 - Typical maximum spans in metres

Imposed Load (kN/m ²)	Slab Depth (mm)									
	115	125	150	175	200	225	250	300	350	400
1.5	3.0	3.0	4.0	5.0	5.5	6.0	6.5	7.5	8.5	9.5
3.0	3.0	3.0	4.0	4.5	5.5	6.0	6.5	7.5	8.5	9.5
5.0	2.5	3.0	3.5	4.5	5.0	5.5	6.5	7.5	8.5	9.0
7.5	2.5	2.5	3.5	4.0	5.0	5.5	6.0	6.5	7.5	8.0

Including 1.0kN/m² allowance for finishes

Design

Composite floors using lattice girder planks are designed in accordance with the relevant sections of Eurocode 2: Design of concrete structures - Part 1-1: General rules and rules for buildings.

Diaphragm Action

Composite lattice girder floors can be designed to provide diaphragm action to transmit horizontal forces to the primary supporting structure.

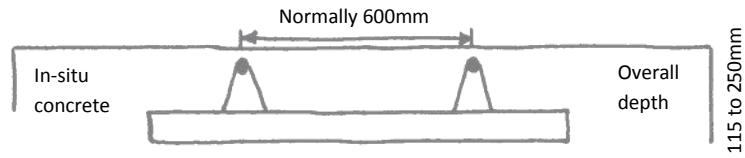
Fire Resistance

Composite lattice girder floors are usually designed with a minimum 1hour fire resistance, although periods of up to 4 hours are possible.

Sound Resistance

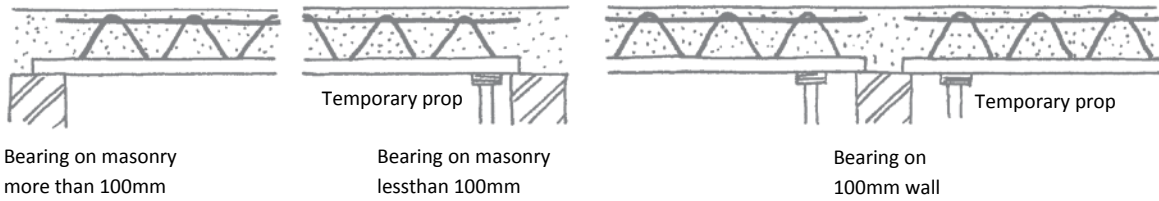
Composite lattice girder floors are suitable for use at first floor level in domestic housing to create a quiet home for the benefit of home owners, their families and neighbours.

LATTICE GIRDER PLANKS



TYPICAL DETAILS

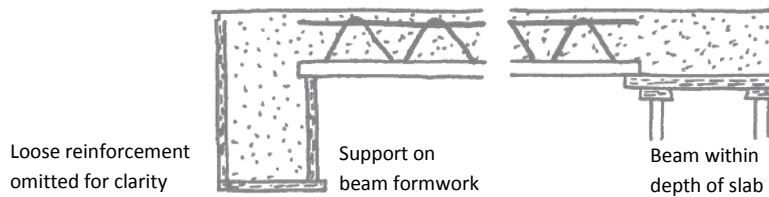
Composite Floors in Masonry Construction



Composite Floors in Steel Frame Construction



Composite Floors in Precast or In-situ Construction



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