

P200, sandblasted lense, colour: grey, finish: textured, Precast Floor Panels.



Glass block flooring

Glass blocks flooring is used in all types of situations from bridge walkways, mezzanine floors, balconies, corridors and public highways outside buildings, allowing natural daylight to flood below.

Glass floor blocks and lenses used in horizontal applications are specially manufactured and differ from glass blocks used in vertical walling.

The most common way to specify or install glass block flooring is to use precast, manufactured to order under factory-controlled conditions to suit individual project specifications.

Precast glass block flooring ensures:

- Factory-controlled conditions of manufacture
- Correct quantity, gauge and positioning of reinforcement bars to specified loadings
- Consistency of premixed mortar to provide calculable mortar strength
- Vibration in special moulds to improve strength
- A dry trade product delivered to site that can be installed in minutes

Floor glass block characteristics

Solid, hollow, floor glass blocks are manufactured in the same way as wall blocks. They have a thicker face, are annealed for longer increasing the surface strength, also the face is totally flat where a wall glass block has a slightly concaved rim close to the edge of face.

Lens and paviour characteristics

Floor paviers are produced from molten pressed glass. They have a flat surface (circa 22mm thick) and have four walls but no secondary face and are available in square or circular formats.

Lenses are generally 20-22mm thick to ensure strength and also have a flat, smooth glass finish, available in 100x100mm and 200x200mm square formats. To increase the level of anti-slip resistance the surface can be sandblasted (removing a micro-layer of glass to create a slightly coarse surface).

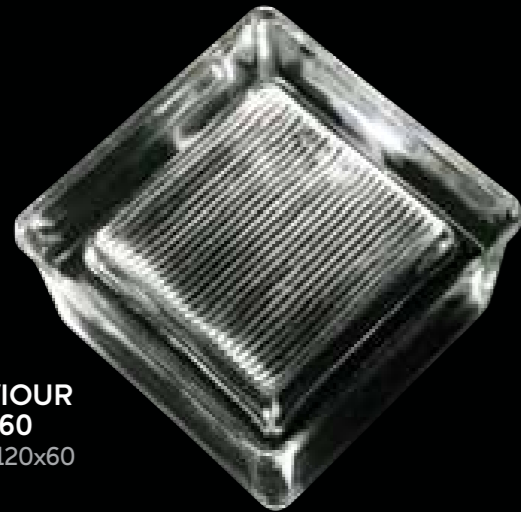
The level of anti-slip is increased by the concrete joints of the panel. Slip resistance is measured on the overall surface of the panel, not just the glass or concrete (a slip resistance factor of R11 is achieved).

It is possible to replace broken blocks/lenses but is advisable to use a specialist company as a horizontal support structure has to be erected and specialist mortars are required.

Paviour and Floor Glass Block					
Ref	P12.60	P15.55	P15.80	PR12.60	P19.100
Dim in mm	120x120x60	150x150x55	150x150x80	ø120x60	190x190x100
Weight/paver	1.2kg	1.6kg	2kg	1.1kg	3.5kg
Quantity/m ²	33-40	23-28	23-28	33-40	15-18
Surface	Clear	Clear	Clear	Clear	Clear
Appearance	Ribbed	Ribbed	Ribbed	Clear	Frosted

Mechanical Strength (Tested by public laboratory)			
Type	Average Load	Surface	Result
P12.60	194KN	144m ²	13.5MPA
P15.80	309KN	225m ²	13.8MPA
P19.100	535KN	361m ²	14.8MPA





**PAVIOUR
P12.60**
120x120x60



**PAVIOUR
P15.80**
150x150x80



**PAVIOUR
P12.60 SANDBLASTED**
120x120x60



**PAVIOUR
P15.80 SANDBLASTED**
150x150x80



**GLASS FLOOR
BLOCK
P19.100**
190x190x100



**PAVIOUR
PR12.60**
Ø120x80



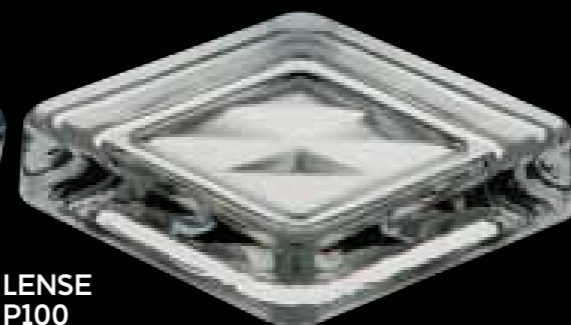
**GLASS FLOOR
BLOCK
P19.100 SANDBLASTED**
190x190x100



**PAVIOUR
PR12.60 SANDBLASTED**
Ø120x80



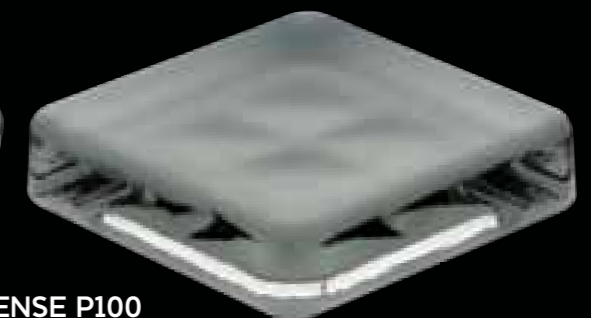
**LENSE
P200**
200x200x22



**LENSE
P100**
100x100x24



**LENSE P200
SANDBLASTED**
200x200x22



**LENSE P100
SANDBLASTED**
100x100x24

Note

For BGF1930 and BGF1960 Fire Glass Floor Blocks see Precast Floors (not sold individually).

Precast Floors

Specifying glass block flooring

At concept or feasibility stage there are a number of items to review before the specification or detailing process can begin. Initial questions to ask are:

- Will the elements be subject only to pedestrian traffic or vehicular loads?
- What loading requirements should the panels achieve?
- Is the precast and glass required to have a fire rating? What fire integrity and thermal isolation rating is required?
- What is the opening size and have you incorporated expansion joints?
- What type of bearing, perimeter frame and intermediate support do you need?

Most building regulations will require glass block flooring to achieve a minimum of 5Kn per square metre. Precast strength is achieved based on various factors:

- Block type, joint, border width and thickness
- Quantity and gauge of steel reinforcement used
- Panel size
- How many sides the panel is supported on
- Length of any unsupported span

The panel should be designed around the perimeter opening dimensions. Once panels are poured they cannot be altered, added to or cut, so planning the opening size and preparing the bearing is critical.

Ordering precast glass block flooring

Precast is always produced to order and not available as a stock item. Before being cast production drawings must be checked and signed off. It is imperative to allow lead time for curing and production.

Allow a minimum of between four and six weeks, excluding holiday periods, dependent on the number of panels required.

Joints and borders

As every flooring project is unique, panels are made specifically to suit. Border widths are a minimum of 70mm and joints 30mm wide. The perimeter framing or intermediate support bearing that the panel edge rests on must never be less than 40mm wide.

Fire-rated panel joints and borders have to be produced in accordance test data specification (available on request).

Calculating the opening size

Calculating the opening size is unique to each project. The dimensions will be determined by the block width, joint and border width, bearing, perimeter and intermediate expansion joint width and onsite tolerances.

Loading strength

Investigating what performance criteria is required of precast flooring at feasibility stage will offer advantages regarding what type of panels can be used. The size and type of support structure/pier would be most suitable, for example: steel, brick or concrete. These decisions can ease knock-on effects later. Even though glass block flooring is treated as a finishing trade, the planning is best considered as the building superstructure is being designed.

Loading calculations for panels are worked out based upon the type of block, width of joint, border, gauge, quantity of reinforcement, depth and length of the panel and the number of sides supported. If the bearing supports the panel on only two or three sides the loading strength of the panel(s) will be reduced calculable on the unsupported span.

The quantity and gauge of steel reinforcement is based upon the panel size and loading requirements or fire rating specification. A minimum of two reinforcement bars are used within the joints and generally more within the perimeter border. The diameter will be determined by the performance and is between Ø6, Ø8, Ø10 or Ø12mm.

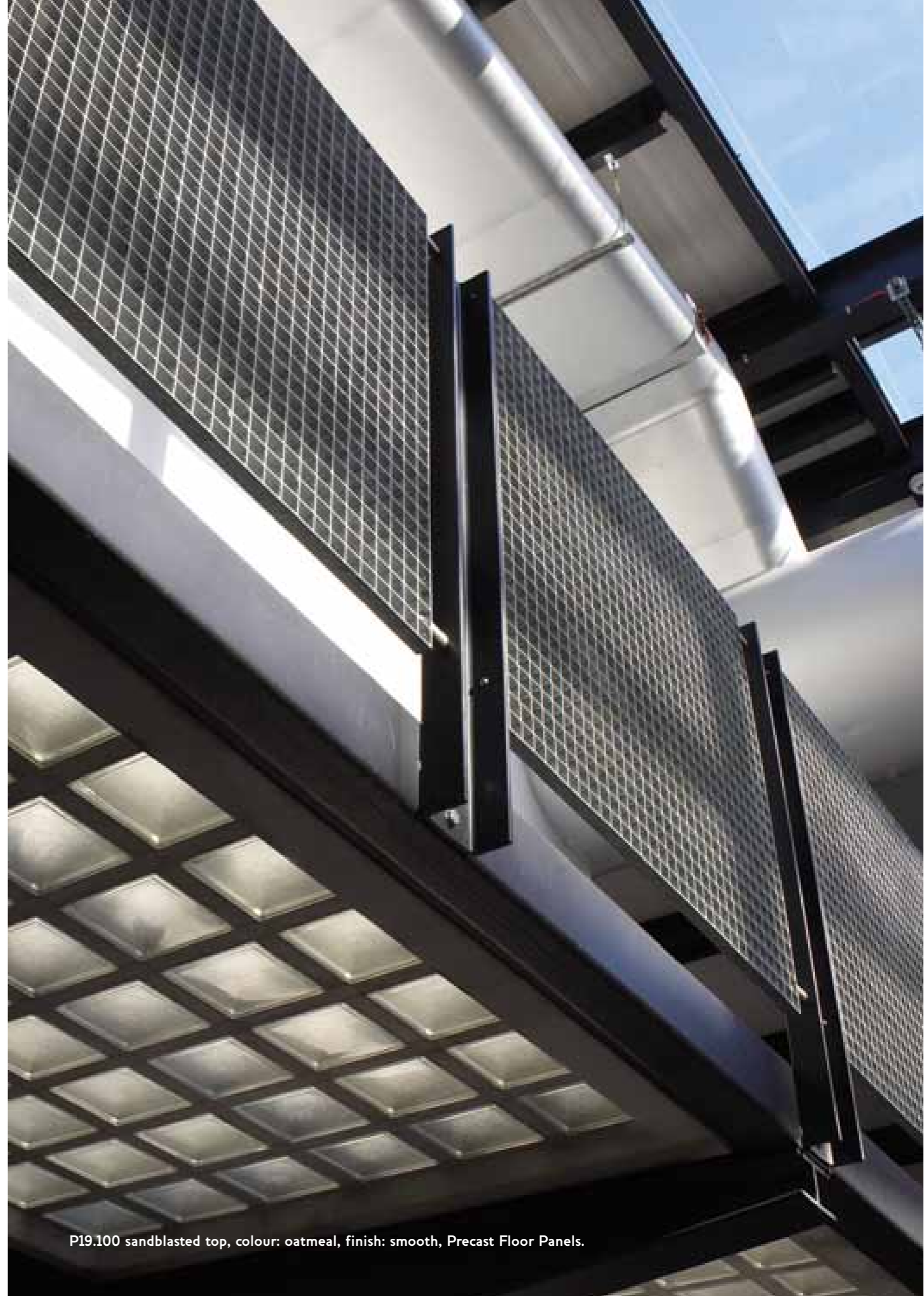
The mortar used to make prefabricated glass block slabs is based upon a Portland cement mix.

Two styles of panel finish are available:

1. An oatmeal colour, smooth trowelled finish.
2. A grey colour, textured finish.



Paver Shells and Hollow Block				
Ref	P12.60	P15.80	PR12.60	P19.100
Dim in mm	120x120x60	150x150x80	Ø120x60	190x190x100
Weight/paver	1.2kg	2kg	1.1kg	3.5kg
Quantity/m ²	33-40	23-28	33-40	15-18
Surface	Clear	Clear	Clear	Clear
Appearance	Ribbed	Ribbed	Clear	Frosted



P19.100 sandblasted top, colour: oatmeal, finish: smooth, Precast Floor Panels.

Precast Floors

Fire-rated glass block flooring

Fire-resistance classification for floor panels works identically to glass block walling; two ratings have to be considered. G category is fire integrity and F category relates to the fire thermal isolation value.

Integrity is the length of time a structure will remain stable in the event of a fire. Thermal isolation relates to the period of time it takes for heat to transfer from the side of the fire through the glass blocks, for the purpose of an escape corridor. This plays a major role in heat coming into contact with people evacuating a building.

Fire-rated glass block flooring panels can only be precast under licence by the glass block manufacturer and are therefore produced in exact accordance with test certification. Glass Block Technology exclusively represents factories for UK and Eire.

G60, fire integrity is achieved by the majority of glass floor blocks. For thermal isolation certified blocks are available which achieve F-categorisation (15 minutes, 30 minutes and 60 minutes).

When carrying out fire tests the results for both integrity and thermal isolation are measured in 15-minute increments. Certification is available for 15, 30, and 60 minutes. If a test fails at 28 minutes, this is classified as passing at 15 minutes, not upgraded to 30 minutes.

Installing precast glass block flooring

The opening sizes and bearing should be checked against panel drawings, allowing for inclusion of expansion joints.

The panel weight, site access and method of installation should be taken into consideration and onsite tolerances planned prior to panels being delivered to site.

Precast panels have four factory-fitted lifting sockets, either surface or side-mounted. Their location is detailed on production drawings. Lifting loops can be supplied for chains or straps to be threaded through for lifting. Once the lifting loops are unscrewed they can be mortared over. Alternatively, a stainless steel disc (with a bolt thread) can be inserted.

The aperture should allow for the dimensions of the panel, expansion joint (minimum of 10mm) and support bearing.

The expansion joint required to the perimeter edge or between floor panels is foam (soft joint). It always requires sealing with exterior grade sealant to make panels watertight and allow for expansion and contraction. Underneath between the underside of the panel border and bearing a bitumen or high-density neoprene strip should be used as a soft joint to cushion the weight of the panel.

Expansion and contraction will occur with temperature variance so it is essential that the expansion joints are caulked in a flexible product that will not bridge. If restricted cracks may appear and lead to water ingress.

Drainage

In external applications, open to the elements, it is recommended that the opening be formed to allow the panels to be fitted to a fall of 2-3° gradient for rain fall.

Working with Glass Block Technology and procurement of precast floor panels

When designs or feasibility outlines are submitted, recommendations and suggestions can be discussed. The next step is to then produce a costing estimate and general arrangement or production drawings. This should outline block, paver or lens reference, panel length, width and thickness dimensions, joint and border widths, panel weight and lifting socket position.

Fire rating and loading requirements should have also been confirmed at discussion stage, prior to estimate or production drawings or orders being placed.

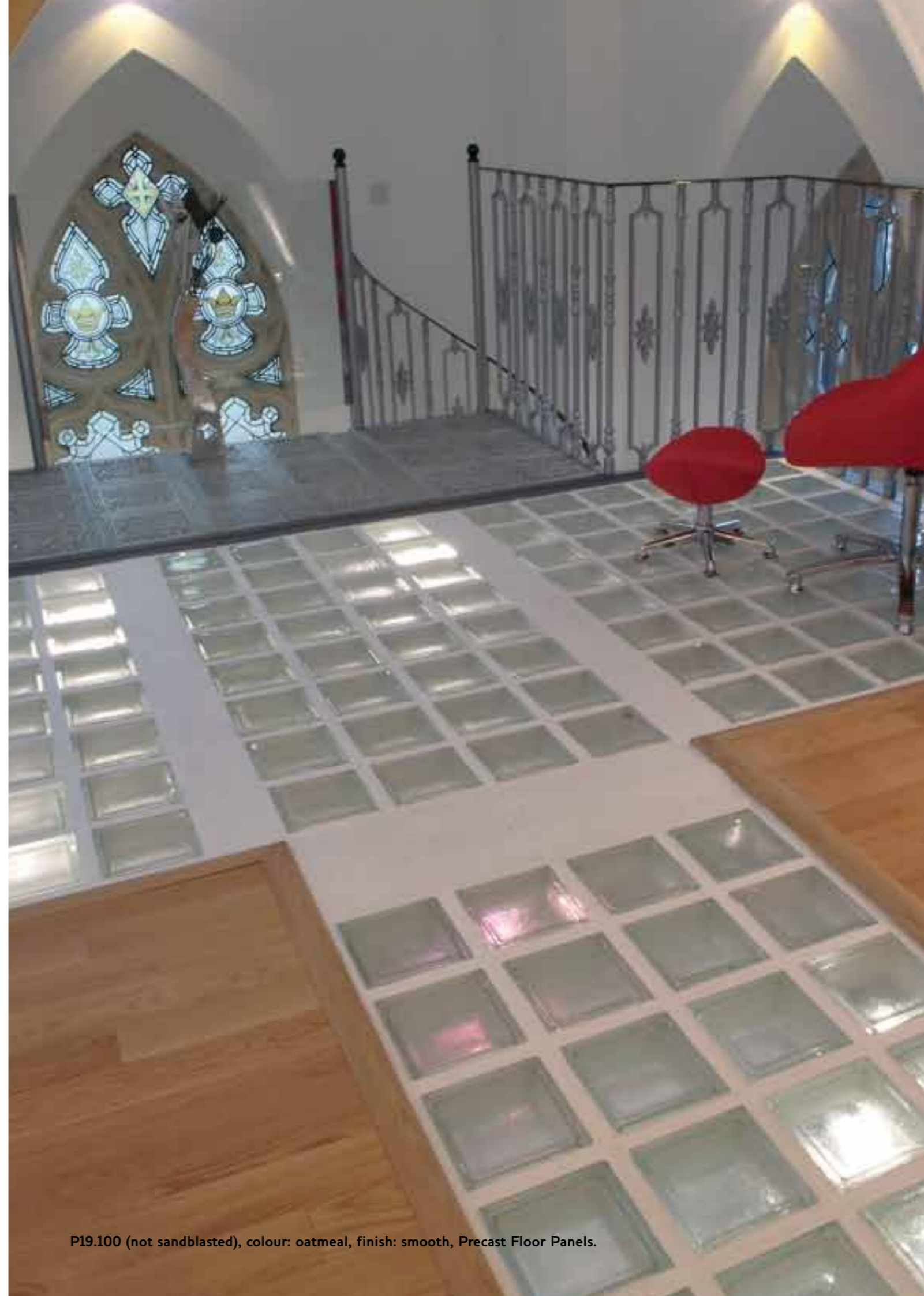
In situ glass block flooring installation

Some projects may be more suited to in situ on site solutions, not precast. Floor blocks, pavers or lenses can be used. Glass Block Technology does not carry out installation.

Specialist companies can provide surveys and installation service. This is advisable as experience, loading requirements and watertight sealing are very important aspects to in situ pavement light construction.

The concrete used for in situ construction is a specialist mix prepared by the contractor onsite. The pier preparation is similar to precast glass block flooring but the weatherproofing system is site specific.

Contact details of specialist companies are available on request. Glass Block Technology cannot be held responsible for product, installation, design assistance and/or warranties.



P19.100 (not sandblasted), colour: oatmeal, finish: smooth, Precast Floor Panels.

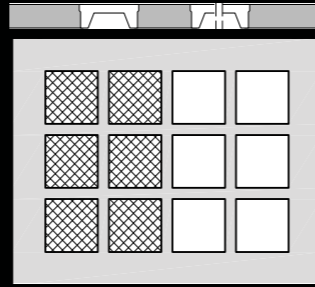
Glass Floor Block Fire Ratings

Ref	P19.100	BGF1930	BGF1960
Dim in mm	190x190x100	190x190x80	190x190x160
Weight/paver	4.3kg	4.15kg	8kg
Quantity/m ²	15-18	15-18	15-18
Surface	Clear	Clear	Clear
Appearance	Frosted	Clear	Clear
Fire Integrity	90	60	60
Thermal Isolation	15	30	60

Precast Floors



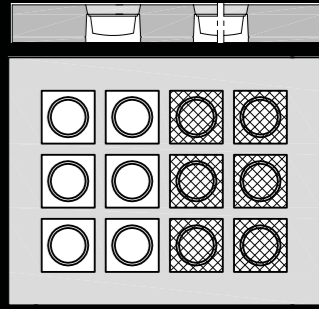
Paver: P12.60/P12.60 Sandblasted
 Dim in mm: 120x120x60
 Panel Colour: Oatmeal
 Panel Surface Finish: Smooth
 Not Fire Rated



P12.60



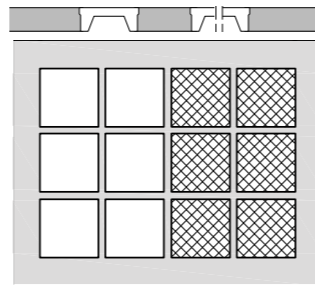
Paver: PR12.60/PR12.60 Sandblasted
 Dim in mm: Ø120x60
 Panel Colour: Oatmeal
 Panel Surface Finish: Smooth
 Not Fire Rated



PR12.60



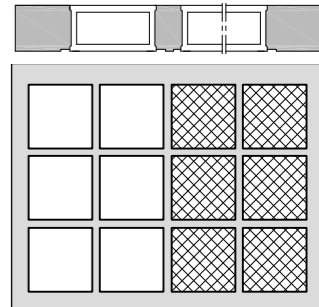
Paver: P15.80/P15.80 Sandblasted
 Dim in mm: 150x150x80
 Panel Colour: Oatmeal
 Panel Surface Finish: Smooth
 Not Fire Rated



P15.80



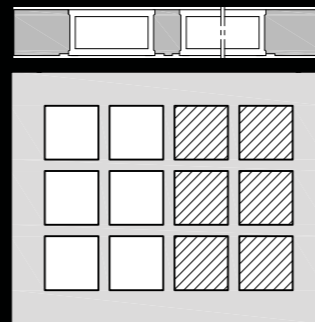
Glass Floor Block: P19.100/P19.100 Sandblasted
 Dim in mm: 190x190x100
 Panel Colour: Oatmeal
 Panel Surface Finish: Smooth
 Fire Integrity: 90mins
 Thermal Isolation: 15mins



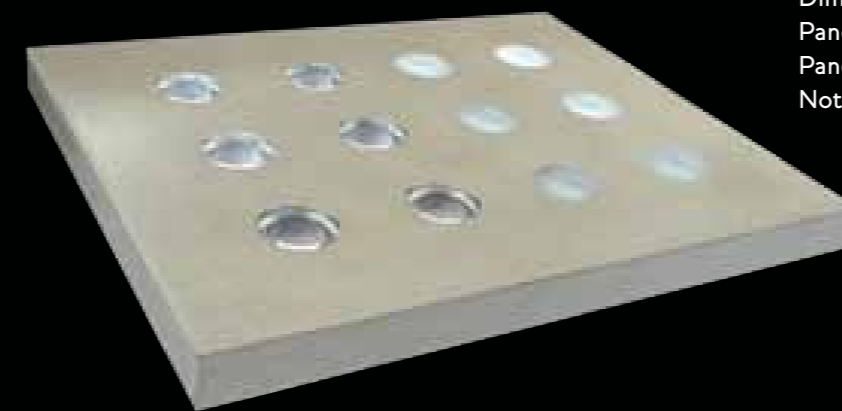
P19.100



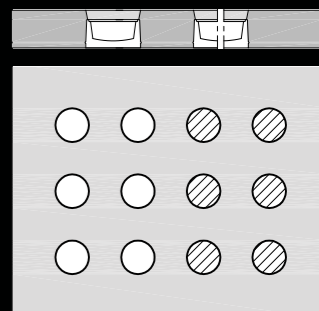
Glass Floor Block: B191/B191 Sandblasted
 Dim in mm: 190x190x100
 Panel Colour: Grey
 Panel Surface Finish: Textured
 Not Fire Rated



B191



Paver: PR12.60/PR12.60 Sandblasted
 Dim in mm: Ø120x60
 Panel Colour: Grey
 Panel Surface Finish: Textured
 Not Fire Rated



PR12.60



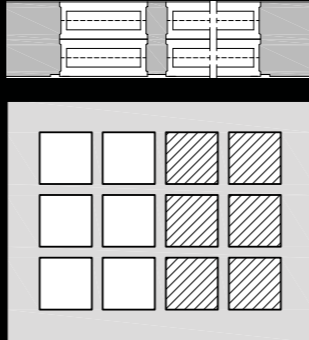
Precast Floors

floors
precast

Glass Floor Block: BGF1960/BGF1960 Sandblasted
 Dim in mm: 190x190x160
 Panel Colour: Grey
 Panel Surface Finish: Textured
 Fire Integrity: 60mins
 Thermal Isolation: 60mins



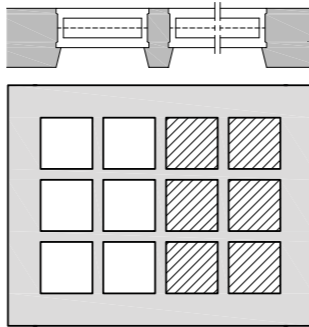
BGF1960



Glass Floor Block: BGF1930/BGF1930 Sandblasted
 Dim in mm: 190x190x80
 Panel Colour: Grey
 Panel Surface Finish: Textured
 Fire Integrity: 60mins
 Thermal Isolation: 30mins



BGF1930



Lense: P200/P200 Sandblasted
 Dim in mm: 200x200x22
 Panel Thickness: Approx. 90mm
 Panel Colour: Grey
 Panel Surface Finish: Textured
 Not Fire Rated



P200

