OBECO GLASS BLOCKS

PAVING SPECIFICATION

obeco glass blocks

TRAFFICABLE GLASS BLOCK PAVING GRID SPECIFICATION

1 SCOPE

This specification covers the installation of trafficable glass block pavers and all related materials and the properties of those materials.

2 RELATED STANDARDS

AS
1789–2003, Electroplated zinc (electrogalvanized) coatings on ferrous articles (batch process) – zinc on iron or steel
4100–1998, Steel Structures
3740–1994, Waterproofing of wet areas within residential buildings

AS/NZS
1170.1–2002, Structural design actions – Permanent, imposed and other actions\
4586–2004, Slip resistance classification of new pedestrian surface materials
1866:1977, Aluminium and aluminium alloys – Extruded rod, bar solid and hollow shapes.

AS/NZS ISO
9001–2002, Quality management systems – Requirements

INTERNATIONAL STANDARD
EN1051-1 Glass in building – Glass blocks and glass pavers

OBECO
Obeco Trafficable Glass Block Paving Grid Coursing Chart
Obeco Drawing 10

3 CONTRACT DRAWINGS AND SPECIFICATIONS

The Builder shall supply drawings, details and specifications of sufficient detail to define the extent and location of the work.

4 DETAILED DRAWINGS

When detailed drawings or schedules are required to execute the work, copies of these detailed drawings or schedules shall be submitted to the Builder for approval before the work commences.

5 DIMENSIONS AND SET-OUT

All work shall be installed in accordance with the contract drawings, which show the general layout. The main building dimensions shown on the architectural drawings take precedence over those shown on the engineering drawings, which have been included to assist the detailing.

Dimensions for all trafficable glass block paving grids are as specified in the Obeco Trafficable Glass Block Paving Grid Coursing Chart.

6 SUPERVISION

The contractor should ensure that the work is performed and directly supervised by appropriately experienced personnel.

NOTE: Glass Block Experts Pty Ltd, a wholly owned subsidiary of Obeco Glass Blocks Pty Ltd, is an installation contractor that is deemed to comply with these requirements.

7 QUALITY ASSURANCE

Suppliers and contractors shall provide assurance of the quality of all goods, materials and services to be provided. The following are deemed to meet this requirement:

- a quality assurance system complying with AS/NZS ISO 9001, or
- a quality control system approved by the Builder.

8 COMMENCEMENT

8.1 Builder

Work shall commence as soon as practical after, but not before, the Builder has issued:

- a written order;
- the relevant contract drawings, specifications and schedule of work; and
- written approval of any details provided by the Contractor.

8.2 Openings

Openings need to be prepared to the correct sizes to suit glass block installation. This work is not the responsibility of the glass block installer. Sizing of openings shall allow enough clearance to accommodate the frame sizes as set out in the Obeco Trafficable Glass Block Paving Grid Coursing Chart.

8.3 Access

The Builder shall provide adequate and safe access to both sides of the panels.

9 INSPECTION AND COMPLETION

Glass block installation shall be inspected after the frame is installed and before any blocks are laid in the first panel. The inspection shall verify that the following are correct and to the specification:

- fixing of the frame;
- height and level of frame as set out by the Builder

When work has reached inspection stage, the Contractor shall advise the Builder before covering, closing or completing the work.

On completion of all works, the Contractor shall formally advise the Builder of practical completion.

Where the contract is staged, this advice shall be given on completion of each major stage.

10 MATERIALS

10.1 Glass blocks

- Obeco Trafficable Glass Block Pavers shall be used for compliance with this specification,
- Obeco Trafficable Glass Block Pavers are 190 x 190 x 100mm P19.100 glass blocks manufactured by LA ROCHERE® Glass Blocks.
- LA ROCHERE® glass blocks comply with International Standard EN-1051-1:2003
- If the surface of the glass block pavers can be wet then the blocks must be sandblasted on the top surface to comply with AS/NZS 4586–2004, Slip resistance classification of new pedestrian surface materials.
- Damaged or imperfect blocks shall not be used.
- Glass blocks shall be stored in a dry place in their protective packing until required for installation. Care should be taken in handling to avoid damage to edges or chipping.

10.2 Steel frames

Trafficable glass block pavers shall be supported by fabricated steel grids comprising of 40x40x5mm T-section steel at 200mm centres in both directions. The primary beams are continuous for the lengths of the frame and the secondary beams are welded between each primary beam to form the grillage.

The T-section is fabricated from steel with a minimum yield strength of 250 MPa.

The grids have been designed to support live loads in accordance with AS/NZS 1170.1-2002, Structural design actions – Permanent, imposed and other actions. The maximum design live loads that the grid is required to support are 5 kPa uniformly distributed or 4.5 kN point load (as assessed for the structural adequacy for installation in a railway station platform).

The design live load varies depending on the floor usage and this determines the maximum span for each usage, and they are as follows,

Domestic dwellings
Design Live Load: 1.5 kPa or 1.8 kN
Maximum span: 1600mm

Residential Flat Buildings (excluding stairs and corridors)
Design Live Load: 2.0 kPa or 1.8 kN
Maximum span 1600mm

Office Buildings (excluding stairs and corridors)
Design Live Load: 3.0 kPa or 2.7 kN
Maximum span 1200mm

Retail (excluding stairs and corridors)
Design Live Load: 4.0 kPa or 3.6 kN
Maximum span 1000mm

Stairs and Corridors
Design Live Load: 4.0 kPa or 4.5 kN
Maximum span 1000mm

The grids shall be zinc plated in accordance with AS 1789–2003, Electroplated zinc (electrogalvanized) coatings on ferrous articles (batch process) – zinc on iron or steel.

10.3 Aluminium perimeter

The perimeter of the steel grid shall be fi tted with an 100 x 3mm aluminium flat to form a dam for the flowable construction grout. Acrylic sealant shall be applied to both the flat bar and the grid to seal any gaps and create a membrane between the surfaces.

10.4 Silicone

The silicone used to seal the blocks to the grid must be a neutral cure silicone equivalent to GE Silglaze N10.

10.5 Grout

The grout used between the blocks is to be a non-shrink, non-ferrous, Class 'A' grout consisting of a blend of Portland cement and graded siliceous aggregate with set regulating and reactive chemical agents suitable to be used at a flowable consistency.

10.6 Waterproofing membrane

The waterproofing membrane shall be elastomeric acrylic type to meet AS3740–1994, Waterproofing of wet areas within residential buildings.

11 INSTALLATION

11.1 Load transfer

Trafficable glass block paving grids must be supported at the perimeter. Drawing 10 sets out the typical fixing detail for Trafficable glass block paving grids into a concrete slab using a steel angle as support at the perimeter, fixed to the slab with M12 chemset fixings. The size of the perimeter support angle depends on the size of the opening. Any alternate fixing details or structural support should be discussed with an Obeco Glass Blocks representative and an engineer.

If the grid exceeds the maximum span for its usage then it must have structural support beams fitted underneath at intervals no greater than the maximum span for its usage. The size and gauge of these support beams depends on the length of the span and the floor usage and should be determined by an engineer.

11.2 Steel grid

The steel grid should be fixed to the surrounding support structure of the at maximum 400mm centres. Fixing materials and methods should be compatible with the surrounding material.

The grid should be installed so the floor surface can be finished flush with the glass blocks. To do this the depth of the finished surface and required fall of this surface need to be known before the grid is installed.

11.3 Trafficable glass block pavers

The glass blocks are to be set into the T-section steel grid on a 10mm x 10mm bead of neutral cure silicone. Blocks should be centred within their housing with a 10mm joint between each block at the surface. The silicone should be allowed to cure before grouting. While the silicone is curing the panel should be covered to prevent the open joints from collecting dust and debris.

11.4 Grout

Once the silicone is cured the joints should be filled to 15–20mm from the surface with grout. The grout can be mixed at a ratio of up to 4 litres of water per 20kg bag of grout so that the consistency is flowable. This ensures that all voids in the joint are completely filled. The blocks can be tapped with a rubber mallet to bring any bubbles to the surface.

The grout should then be left to cure and the panel should be covered to keep out dust and debris.

11.5 Waterproofing

Once the filling grout has cured the joints should be painted with a Waterproofing membrane. Refer to the Waterproofing manufacturers recommendations for number of coats and drying times. The waterproofing must bond to all surfaces, being the top of the filling grout, the sides of the blocks, and the aluminium perimeter.

11.6 Finishing grout

The grout joint to the finished surface is to be the same material as the grout flowed into the lower section of the joint mixed to a stiffer consistency (approx. 2 litres of water per 20kg bag), allowing it to be tooled to a smooth finish. Blocks must be cleaned well before the grout dries.

11.7 Maintenance and Cleaning

Glass block panels need little maintenance. They should be washed occasionally with soapy water and rinsed off. Solvents or abrasive solutions should not be used.