



LUMICON

THE PRODUCTION OF LIGHT-TRANSMITTING CONCRETE LUMICON

Light-transmitting concrete is a material produced on the basis of high-strength cement and marble or granite grit of fine fractions into which hundreds of thousands of optical-fibre filaments capable of light transmission are placed. Apart from this feature, the material retains the properties of conventional concrete.

Owing to the ability of optical fibres to transmit light flux at minimum losses, the degree of transparency of the material is not dependable on its thickness.

As regards the appearance, the material resembles polished natural stone, which enables it to be widely used in finishing and decorative works.



TECHNICAL CHARACTERISTICS:

1. Density	_____	2150-2300 kg/m ³
2. Grade with regard to compressive strength	_____	B30 or higher
3. Grade with regard to bending strength	_____	Btb4,4 or higher
4. Mark of concrete on water resistance	_____	W8
5. Water absorption	_____	not higher than 4%
6. Freeze-thaw resistance	_____	not lower than F150
7. Combustibility class	_____	non-combustible (NC)
8. Binder	_____	M700 cement
9. Filler fraction	_____	0-5 mm

PRODUCT DIMENSIONS:

1. Rectangular panels and blocks		
2. Maximum length	_____	1200 mm
3. Maximum height	_____	400 mm
4. Thickness	_____	15 - 50 mm
5. Minimum dimensions available	_____	150×150 mm

DIAMETERS OF FIBRES USED

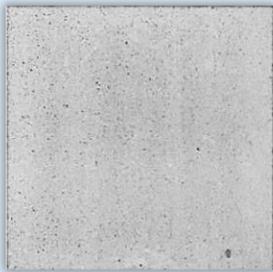
0,25 - 3 mm

FIBRE ORIENTATION PATTERNS:



Irregular

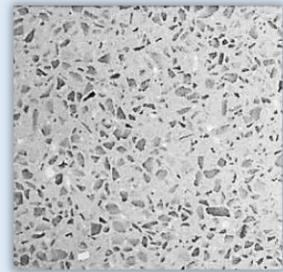
FRACTION OF THE FILLER :



0,2 - 0,5 mm

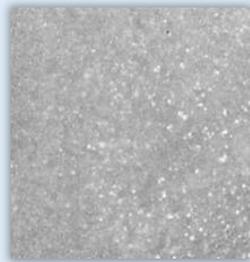


1 - 3 mm



2,5 - 5 mm

BASIC COLORS :



Light grey



Dark grey

THE OPTIONS FOR COLORS ON ORDER :



Yellow



Red



Green



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MACHINING:

1. Grinding
2. Polishing
3. Cutting to the required dimensions
4. Cutting to shape
5. Hole drilling
6. Milling and engraving on the surface

To enhance the wear resistance of the surface, specialised impregnating agents can be used. Lacquers and other chemical compounds are applied to protect the articles from moist exposure and to prevent stain formation.

*All the operations performed with the material are similar to the ones carried out in natural stone machining.



MANUFACTURING TIMES:

The minimum time of order fulfillment is 35 consecutive days. The term depends on the quantity of the products ordered and is ascribable to the peculiarities of the process, as this is the span required for the concrete to gain its due strength under natural conditions. Presently, the estimated production capacity is 300 square metres per month.



DELIVERY:

The material can be delivered to any destination within the territory of the Russian Federation.



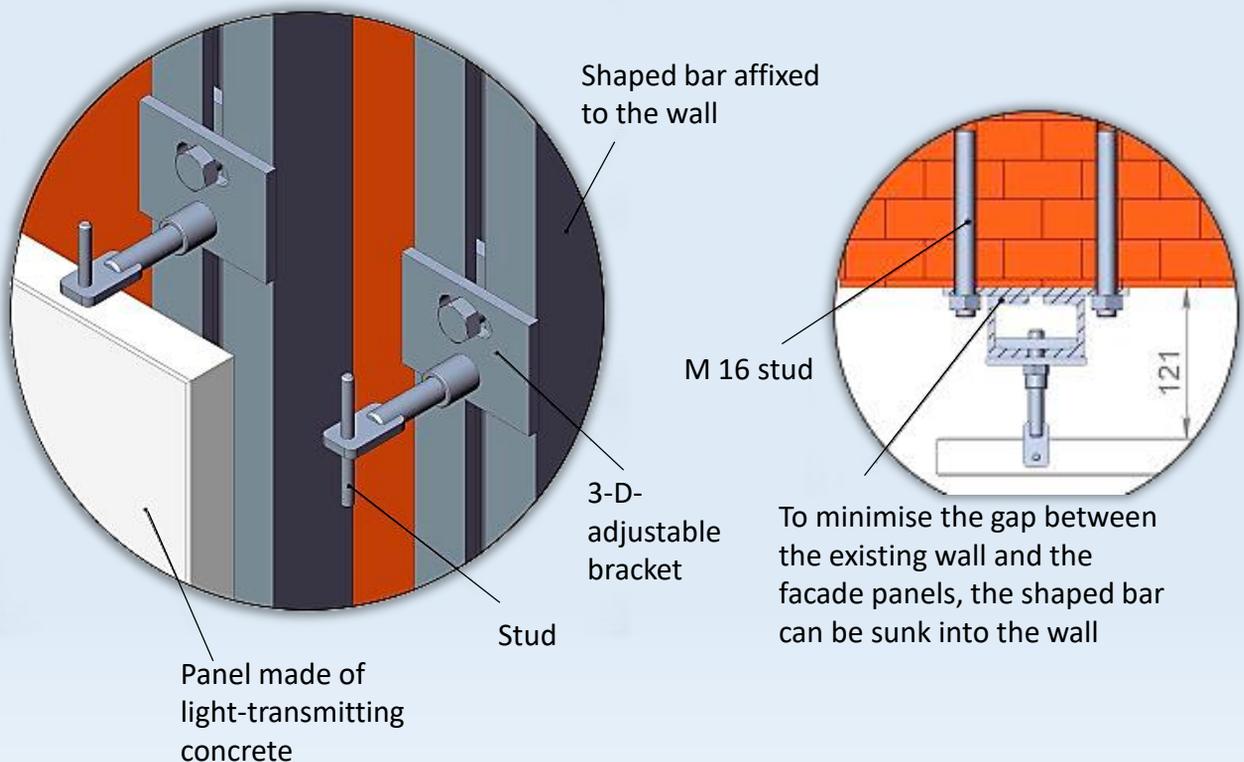
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FASTENING METHODS:

ILLUMICON panels can be fastened using the same methods as the ones applied to natural stone. The possible methods include the use of special adhesive, fixing with studs and attachment to shaped bars. In the latter two cases, a substructure is designed, which is preferable because fixing with adhesives leads to difficulties in the installation of light sources behind the panels.

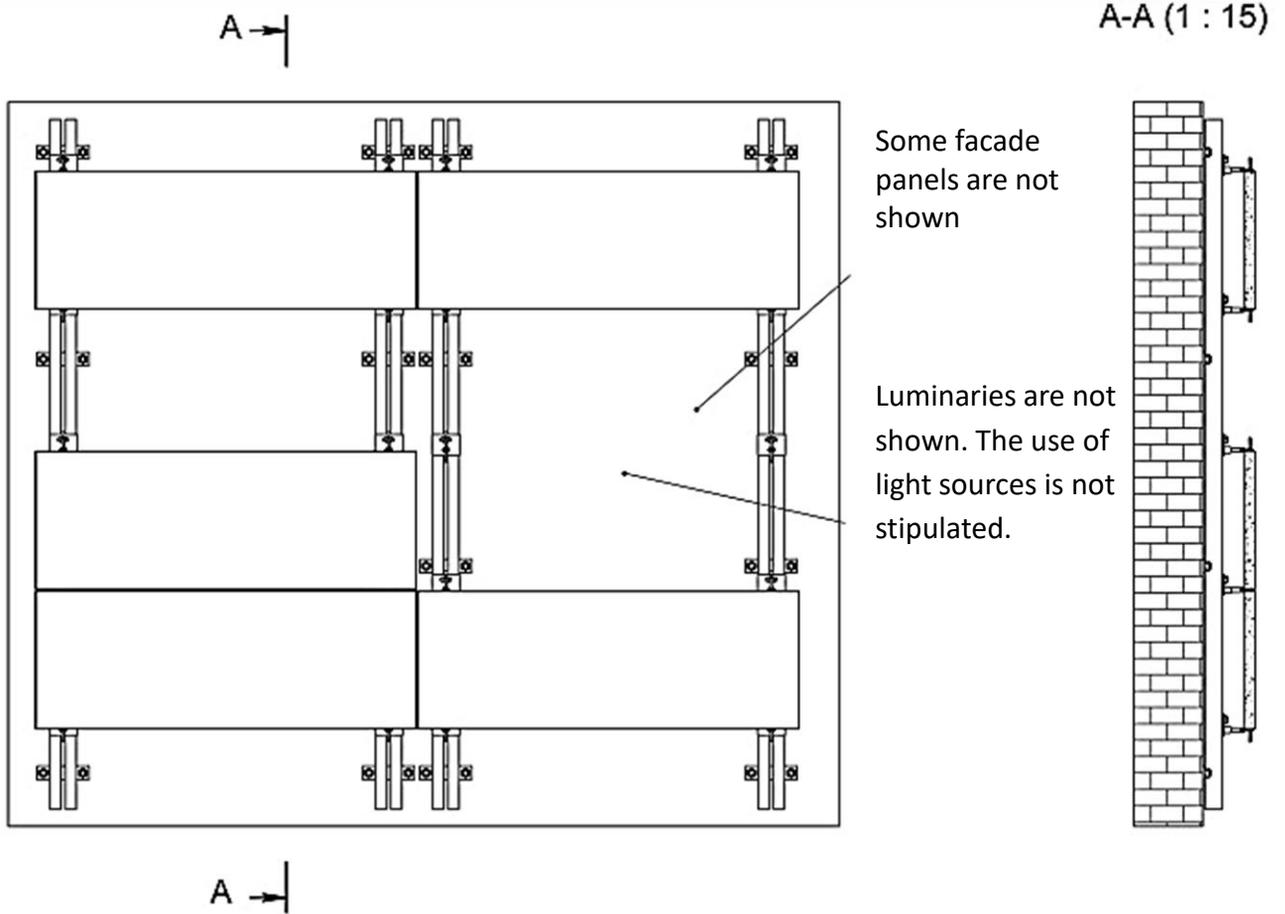
What is more, a technology enabling attachment by means of magnets is currently being developed. Its implementation will involve the use of invisible and easily detachable fasteners. Preliminary representations of fastening methods using studs and shaped bars are given in the figures below.

Fixing with studs (using hidden fasteners)



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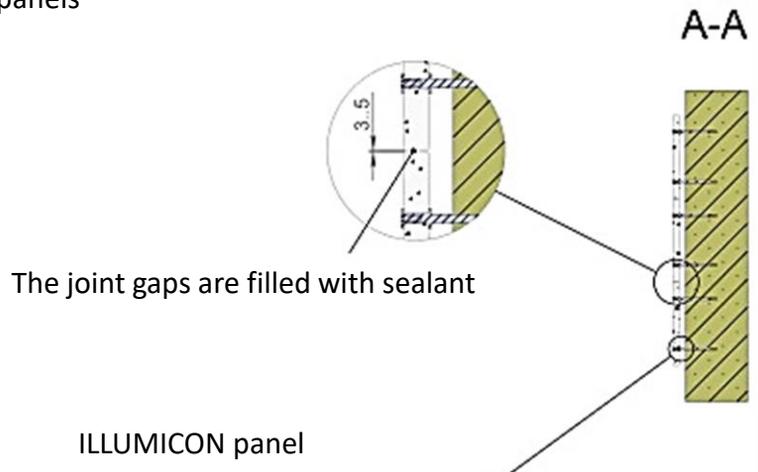
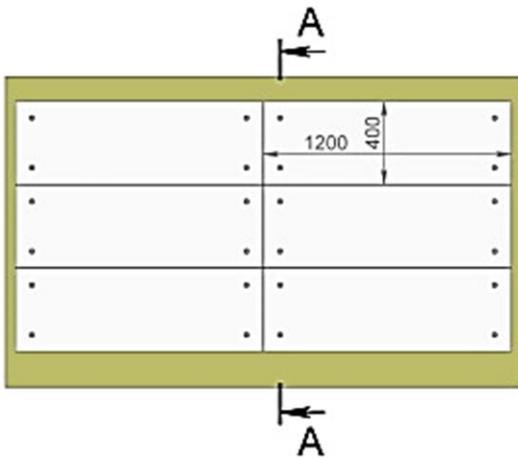
1. The facade-fixing assembly shown requires a minimum panel thickness of 30 mm.
2. Panel replacement and light source maintenance are performed using specialised equipment.
3. This is a preliminary version. Further revision is possible.



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Fixing with studs (using standoff fasteners)

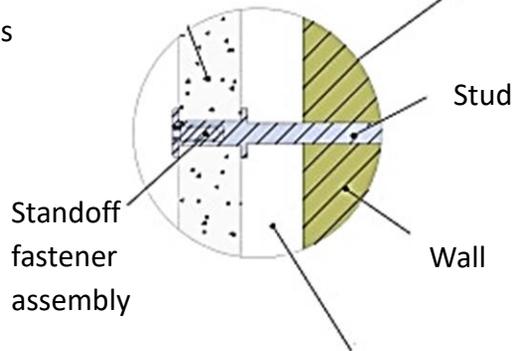
A portion of a wall faced with ILLUMICON panels



The joint gaps are filled with sealant

ILLUMICON panel

A portion of a wall faced with ILLUMICON panels



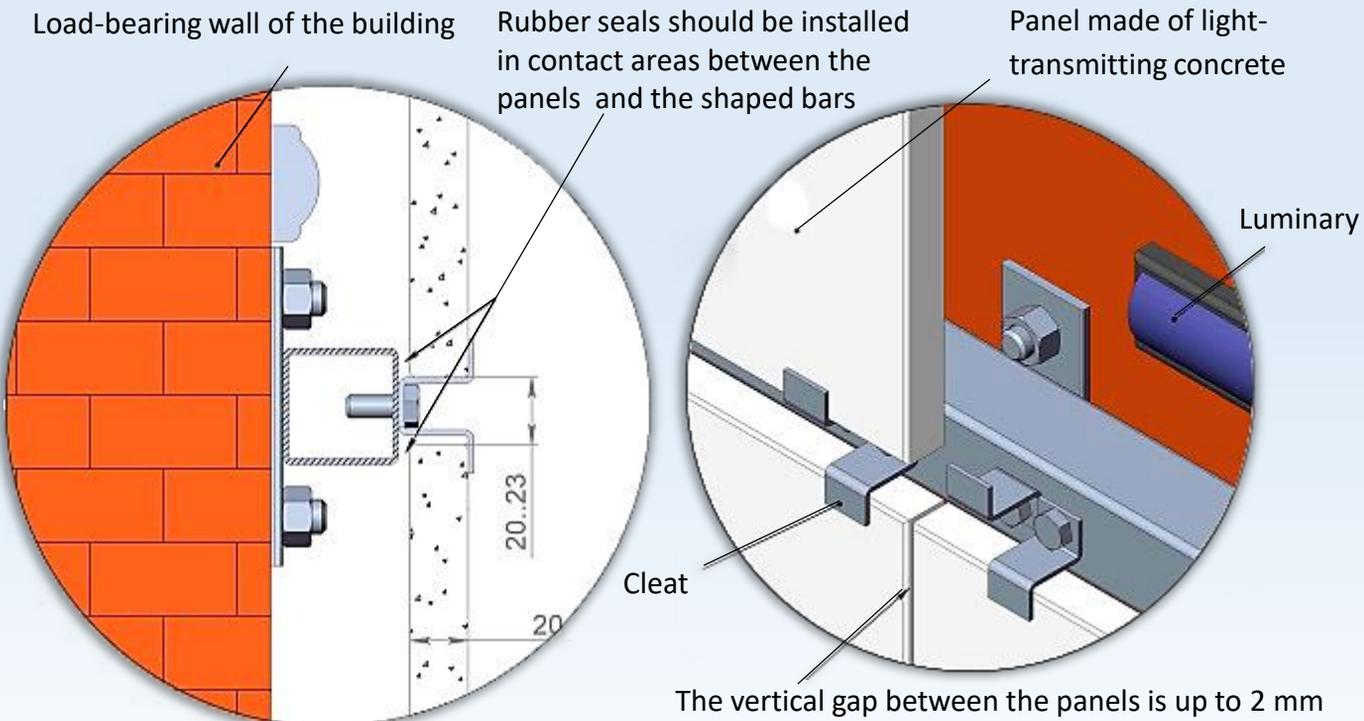
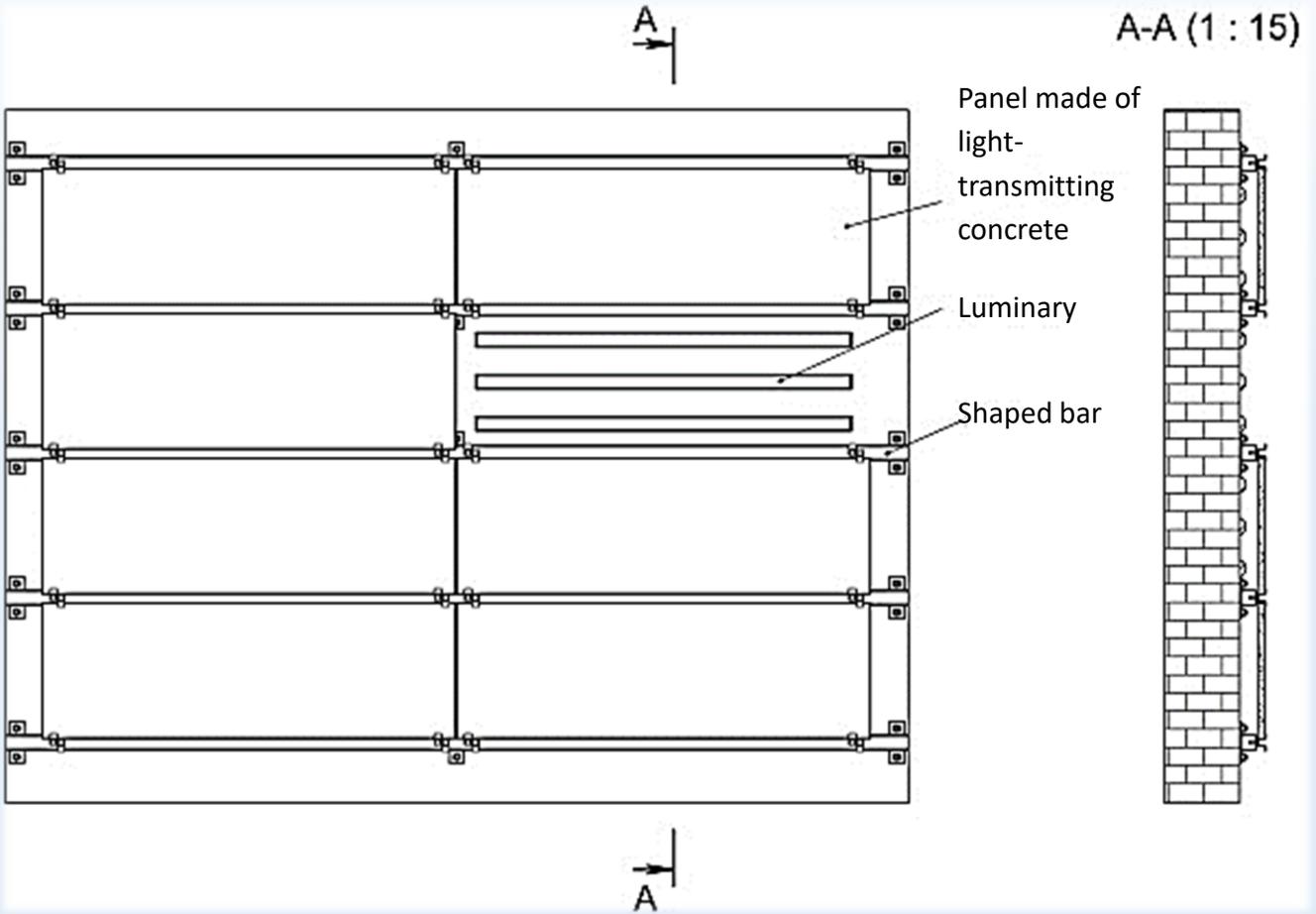
Luminaries are installed into the hollow between the panels and the wall. The size of the hollow can be changed to allow for the installation of luminaries.

1. This method of fixing enables removal of any single panel separately.
2. This is a preliminary version. Further revision is possible.



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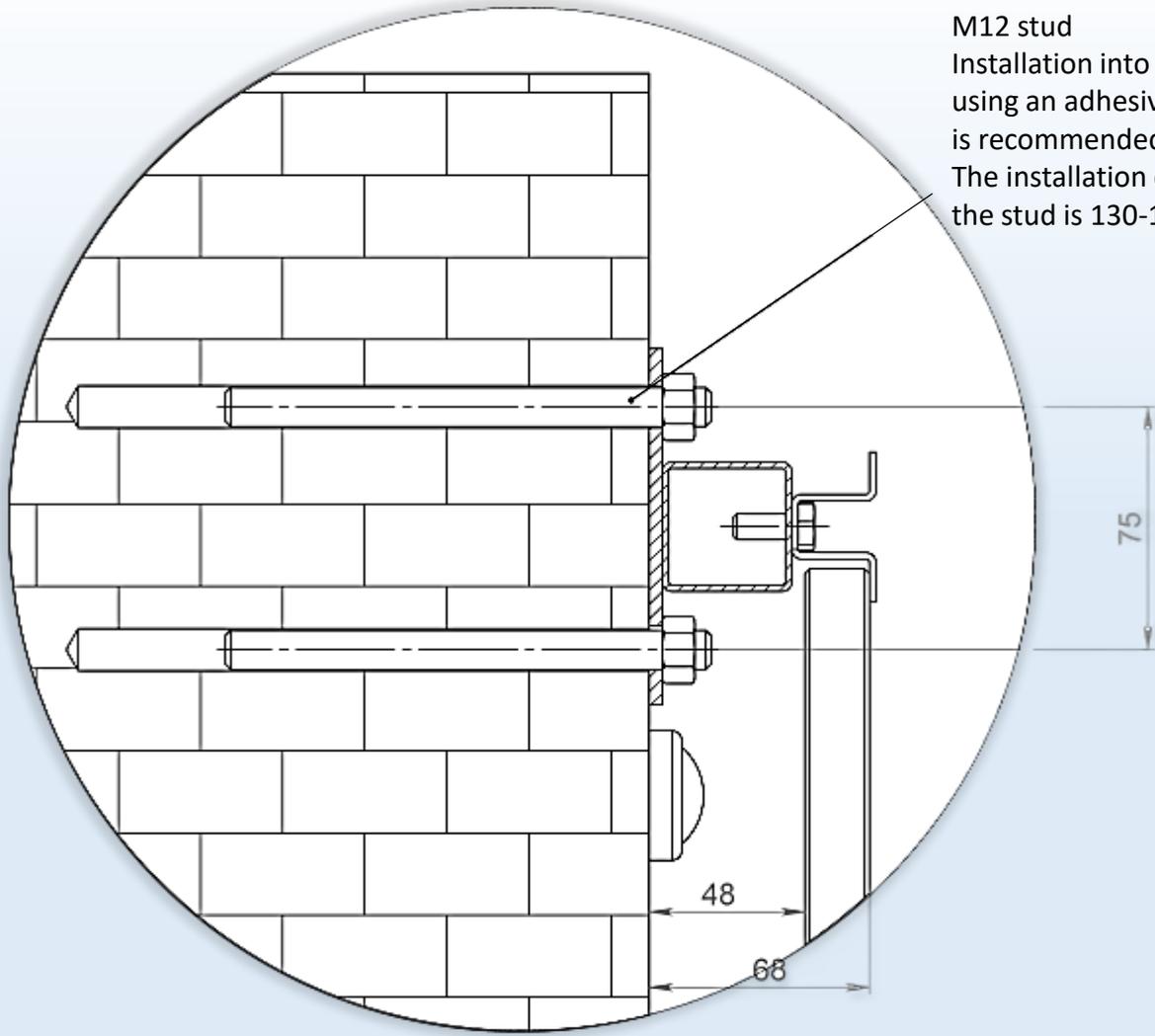
Attaching to shaped bars by means of cleats



The horizontally gap between the plates depends on the type of clips and can not be less than 2 mm.



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M12 stud
Installation into walls
using an adhesive anchor
is recommended.
The installation depth for
the stud is 130-160 mm

1. The assembly shown makes it possible to use panels 15-20 mm thick.
2. The usage of separate cleats enables easy removal of any individual panel for luminary or damaged panel replacement.



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LIGHTING TYPES:

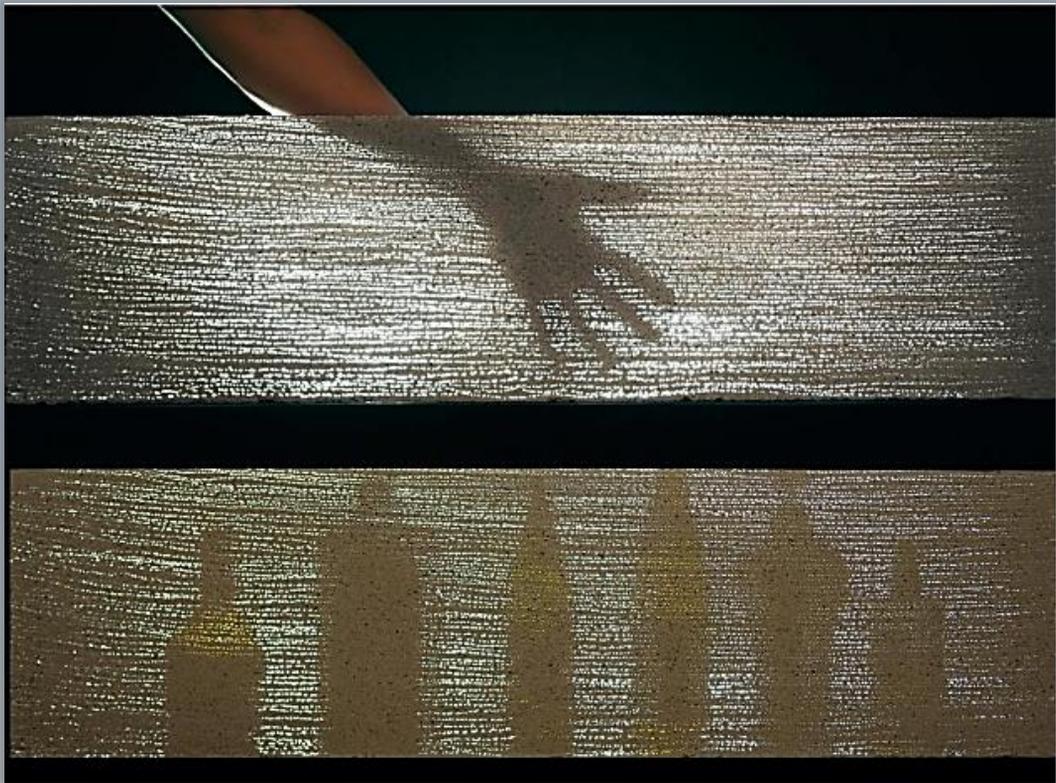
1. LED tape

An inexpensive and convenient solution. It is easy to install and replace, and provides uniform illumination.



2. Conventional fluorescent lamp

A descent solution but for its high-power consumption. It enables illumination of the whole area of the material and gives a nice shade.



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LIGHTING TYPES:

3. Controllable multimedia lighting based on LED lamps

A great solution making it possible to provide individual illumination for every single block and enabling you to create an image or composition of your own. The lighting can be hooked up to a controller to make it dynamic and sensitive to the rhythm of music.



4. No lighting

The concrete panels can be installed as partition walls without the use of lighting. In this case, silhouettes of objects can be visible through the material. Make sure there is a sufficient difference in the level of illuminance between the rooms, so that the material becomes translucent on one side. It is an excellent solution provided one of the rooms has natural illumination.



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APPLICATIONS:

The applications are largely similar to those of marble, onyx and granite. The possible uses also include partition and self-bearing walls.

The application range is as follows:

1. Bar counters and reception desks
2. Window sills
3. Fireplaces
4. Fences
5. Facade finishing and decoration
6. Loft-style luminaries
7. Benches
8. Interior finishing and decoration
9. Construction of partition walls



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PACKAGING AND DELIVERY:

The products can be delivered by means of carriers to any destination within the territory of the Russian Federation. The panels are packaged by our company taking into consideration the cost and brittleness of the material. Owing to this, the risks of chipping and damaging during transportation are minimised. The panels are placed on pallets. Layers of foam material are put between the articles. After that, the entire assembly is fixed with stretch wrap and is put into a rigid box, which makes the package strong. No instances of panel breakage have been registered so far.



THE REQUIREMENTS FOR APPEARANCE (TY 5741-001-42628988-2015)

Deviations of nominal sizes, mm:

Length ± 3 ;

Width ± 2 ;

Thickness ± 2 ;

The deviation of edges from a straight and edges of the flatness of not more than 3 mm;

The deviation of the side and end faces from the perpendicular is not more than 2 mm.

Items must have one face by default. The number and type of face faces are set by agreement between the manufacturer and the consumer.

The face faces must have a smooth surface. The diameter or the largest size of the shells, the height of the local influx (protrusion) or the depth of the depression according to the sample standard approved in the prescribed manner. Category of concrete surface A1 according to GOST 13015-2012.

on non-face on the faces of the products are not allowed defects in appearance, size and number of which exceeds the following value:

- The largest size of shells, not more than 8 mm;
- The height of the local influx or depth of the depression, not more than 2 mm;
- Fracture of concrete on the edge, not more than 2 mm ;

The total length of the concrete around 1 m of the rib length, not more than 20 mm.



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PRODUCT PHOTOS:

