

БЭНПАН®

НОВАЯ ЖИЗНЬ
ПАНЕЛЬНОГО
ДОМОСТРОЕНИЯ

BENPAN®

NEW LIFE OF PANEL
HOUSING

PRODUCT CATALOG



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Wall Panel BENPAN (WP)



Wall panels BENPAN are used for construction of interior and exterior load bearing walls. Manufactured under TS 831-001-54977622-2011.

BENPAN wall panel is two-ply ribbed structure, made of fiber concrete or polystyrene-concrete outer layer and inner insulation layer of π polystyrene foam or mineral wool. Additional insulation is possible. As facade finishing materials the following can be used: stucco, clinker brick, planken, natural or artificial stone.

The panel has openings for plumbing and wiring installation, envisaged during production stage.

Product type: solid panel, panel with window/door opening.

Characteristics:

| | |
|-----------------------------|---------------------------------------|
| Height: | 2720-3050mm |
| Length: | 600-4800mm 260mm |
| Thickness: | 230kg/m ² |
| Weight: | Fiber concrete B20 |
| Concrete grade: | |
| Loading capacity: | up to 200 kN/m |
| Material fire safety class: | MCO (NF) |
| Fire resistance: | REI 90 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | from 1,45 to 4,85 m ² s/Wt |

Wall Panel BENPAN / attic (WP(a))



Wall panels BENPAN - attic are used for construction of interior and exterior attic walls. Manufactured under TS 5831-001-54977622-2011.

BENPAN wall panel is two-ply ribbed structure, made of fiber concrete or polystyrene-concrete outer layer and inner insulation layer of π polystyrene foam or mineral wool. Additional insulation is possible. As facade finishing materials the following can be used: stucco, clinker brick, planken, natural or artificial stone.

The panel has openings for plumbing and wiring installation, envisaged during production stage.

Product type: solid panel, panel with window/door opening.

Characteristics:

| | |
|-----------------------------|---------------------------------------|
| Height: | 2720-3050mm |
| Length: | 600-4800mm 260mm |
| Thickness: | 230kg/m ² |
| Weight: | Fiber concrete B20 |
| Concrete grade: | |
| Loading capacity: | up to 200 kN/m |
| Material fire safety class: | MC0 (NF) |
| Fire resistance: | REI 90 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | from 1,45 to 4,85 m ² s/Wt |

Wall Panel BENPAN+ (WP+)

Wall panel BENPAN+ are used for construction of load bearing external wall and designed for installation of ventilated facade of any finishing materials. Manufactured under TS 5831-007-54977622-2015.

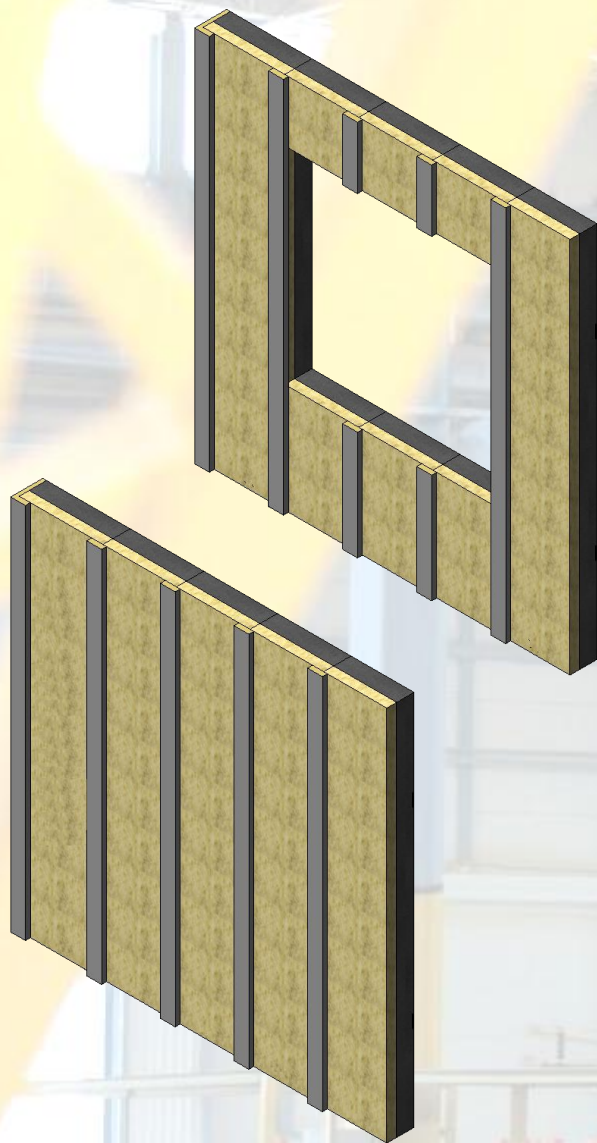
Wall panel BENPAN+ is a ribbed structure of reinforced concrete with stiffeners facing outward, with a factory-installed subsystem of the ventilated facade and two layers of insulation 170 mm thick.

As facade finishing materials the following can be used: siding, metal cassettes, planken, aluminum composite or fiber cement panels.

Product type: solid panel, panel with window/door opening, panel with communications

Characteristics:

| | |
|-----------------------------|-----------------------------|
| Height: | 2740-3050mm |
| Length: | 600-4800mm |
| Thickness: | 260mm |
| Weight: | 200 kg/m ² fiber |
| Concrete grade: | concrete B20 |
| Loading capacity: | up to 200 kN/m |
| Material fire safety class: | MC0 (NF) |
| Fire resistance: | REI 120 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | 3,85 m ² S/Wt |



Wall Panel BENPAN+ /Attic (WP+(a))



Wall panel BENPAN+ /Attic is used for construction of load bearing external wall and designed for installation of ventilated facade of any finishing materials.

Manufactured under TS 5831-007-54977622-2015.

Wall panel BENPAN+ is a ribbed structure of reinforced concrete with stiffeners facing outward, with a factory-installed subsystem of the ventilated facade and two layers of insulation 170 mm thick.

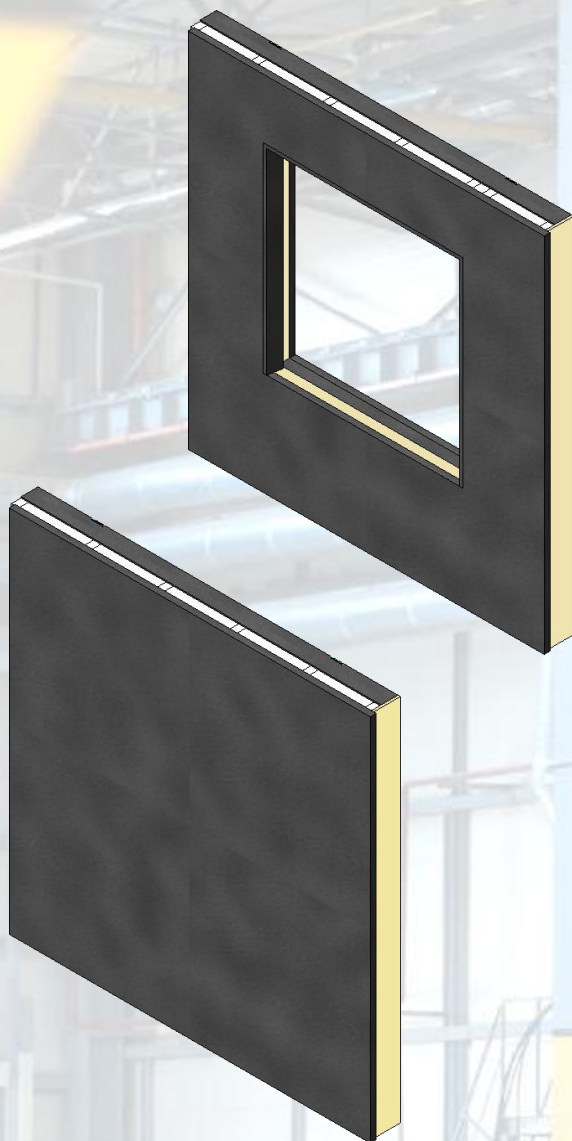
As facade finishing materials the following can be used: siding, metal cassettes, planken, aluminum composite or fiber cement panels.

Product type: solid panel, panel with window/door opening, panel with communications' box

Characteristics:

| | |
|-----------------------------|--------------------------|
| Height: | 2740-3050mm |
| Length: | 600-4800mm |
| Thickness: | 260mm |
| Weight: | 200kg/m ² |
| Concrete grade: | fiber concrete B20 |
| Loading capacity: | up to 200 kN/m |
| Material fire safety class: | MC0 (NF) |
| Fire resistance: | REI 120 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | 3,85 m ² S/Wt |

Wall Panel BENPAN Premium (WPP)



Wall Panels BENPAN Premium are used for construction of exterior load bearing walls. Manufactured under TS23.61.12-008-54977622-2017.

Wall panel BENPAN Premium is three-ply insulated ribbed panel of reinforced concrete. The stiffeners are concealed within. The outer panel surface are made of fiber concrete layers with an insulation layer in between.

Facade options: smooth for painting, "natural stone" imitation facade, "Combi" facade, brick imitation facade.

Product type: solid panel, panel with window/door opening, panel with communications' box

Characteristics:

| | |
|-----------------------------|-------------------------------|
| Height: | 2720-3050mm |
| Length: | 600-4800mm |
| Thickness: | 270mm |
| Weight: | 250kg/m ² |
| Outer concrete grade: | fiber concrete B20 |
| Inner concrete grade: | fiber concrete B30 |
| Loading capacity: | up to 200 kN/m |
| Material fire safety class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | from 3,05 m ² S/Wt |

Wall Panel BENPAN Premium (WPP)



"Natural stone" imitation facade is a textured stone-like surface of fiber concrete.

Brick imitation facade has a surface made of clinker tiles. Clinker tiles are laid out during the facade layer casting process.



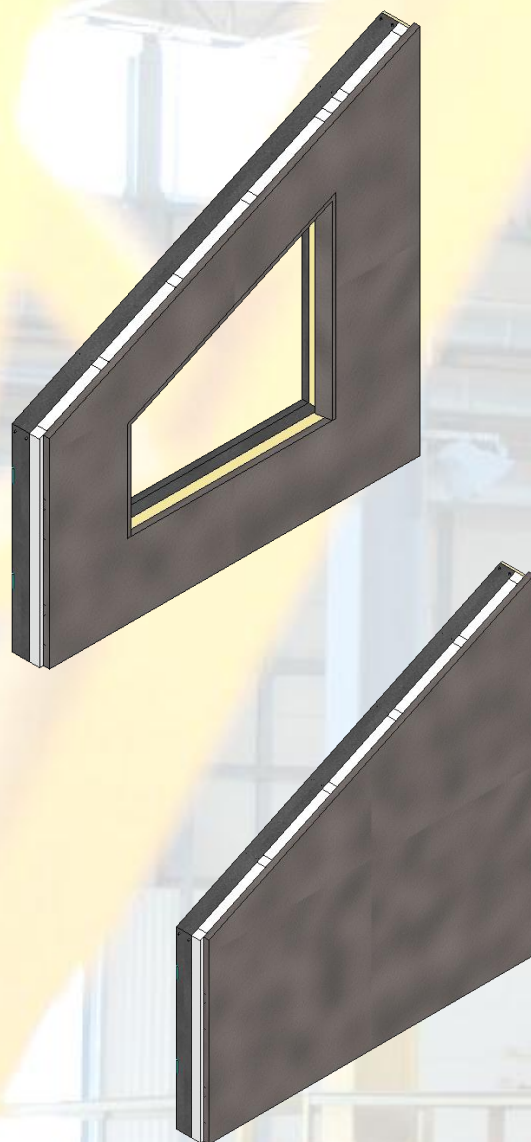
Wall Panel BENPAN Premium "Combi"

There is a possibility of combining the facade options for BENPAN premium panel.

Textured surface can be partial, for example, below and above the window opening, alternating with smooth concrete surface. The combination of partial BENPAN+ panel and BENPAN Premium panel is also possible. (for, example, on the sides of the window opening, or above and below of the window opening).



Wall panel BENPAN Premium /Attic (WPP(a))



Attic wall panels BENPAN are used for construction of exterior load bearing walls of attic rooms. Manufactured under TS 23.61.12-008-54977622-2017.

Wall panel BENPAN Premium / Attic is three-ply insulated ribbed panel of reinforced concrete. The stiffeners are concealed within. The outer panel surface are made of fiber concrete layers with an insulation layer in between.

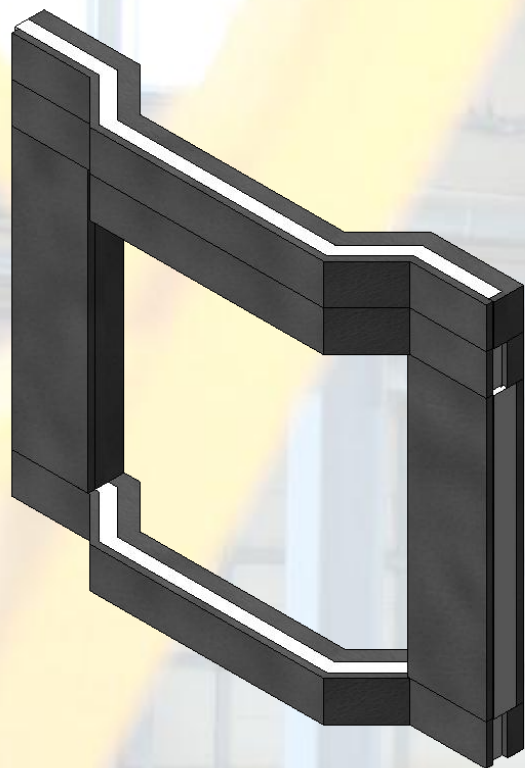
Facade options: smooth for painting, "natural stone" imitation facade, "Combi" facade, brick imitation facade.

Product type: solid panel, panel with window/door opening, panel with communications' box

Characteristics:

| | |
|-----------------------------|-------------------------------|
| Height: | 2720-3050mm |
| Length: | 4800mm |
| Thickness: | 270mm |
| Weight: | 250kg/m ² |
| Outer concrete grade: | fiber concrete B20 |
| Inner concrete grade: | fiber concrete B30 |
| Loading capacity: | up to 200 kN/m |
| Material fire safety class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | from 3,05 m ² S/Wt |

Wall Panel BENPAN Premium /Bay Window (WPBW)



Wall panel BENPAN Premium /Bay window is used for construction of bay windows in exterior load bearing walls. Manufactured under TS 23.61.12-008-54977622-2017.

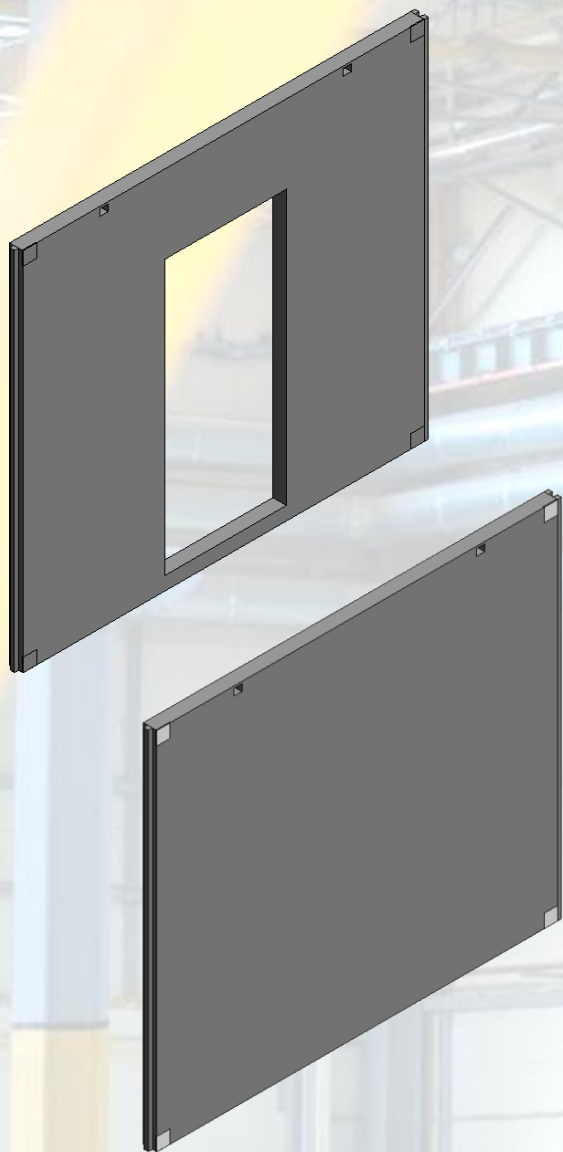
Wall panel BENPAN Premium /Bay window is three-ply insulated reinforced concrete panel, assembled of horizontal bent element in lower parts and vertical ribbed panels on the edges. The outer panel surface is made of two layers of fiber concrete with a insulation layer in between.

Facade: smooth for painting

Characteristics:

| | |
|-----------------------------|-------------------------------|
| Height: | 2720, 3050mm |
| Length: | 3600mm |
| Thickness: | 270mm |
| Outer concrete grade: | fiber concrete B20 |
| Inner concrete grade: | fiber concrete B30 |
| Loading capacity: | up to 200 kN/m |
| Material fire safety class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | from 3,05 m ² S/Wt |

Light Non-bearing Partition BENPAN (LPB)



Light non-bearing partitions BENPAN, 100mm thick, are used as interior partition walls in construction of low-rise residential, commercial and other buildings of various purpose. Manufactured under TS 23.61.12-011-54977622-2018.

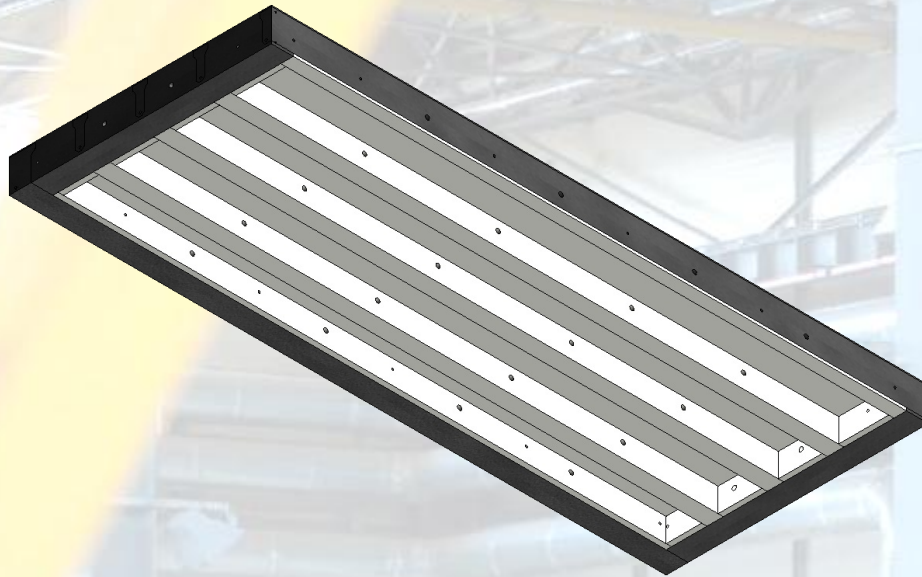
A partition panel is a combined structure of two concretes: 80mm of polystyrene concrete and 20mm of heavy concrete. Longitudinal joint of two partition panels is made as spike groove. Technological channels for wiring and installation boxes for sockets and switches, as well as openings for laying other utilities are provided at the production stage.

Product type: solid panel, panel with door opening, panel with communications' box

Characteristics:

| | |
|-----------------------------|--|
| Height: | 2710-3030mm |
| Length: | 1200-3000mm |
| Thickness: | 100mm |
| Weight: | 90kg/m ² |
| Concrete grade: | polystyrene concrete D600 B5, finely grained concrete B20 |
| Material fire safety class: | MC0 (NF) |
| Fire resistance: | REI 150 |

Floor Panel BENPAN (FP)



Floor panels BENPAN are used for the construction of horizontal load bearing/supporting structures between floors. Manufactured under TS 5842-002-54977622-2013.

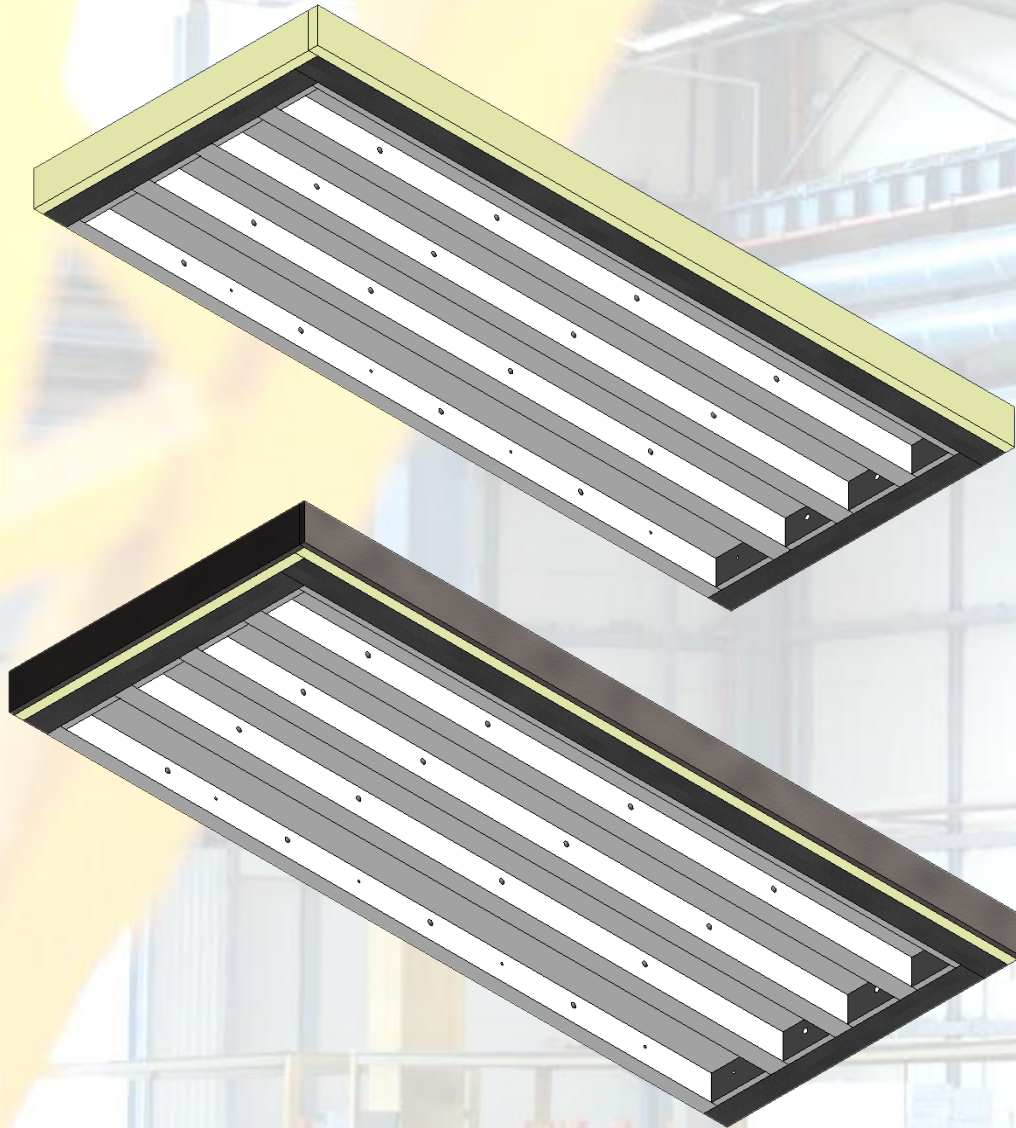
The floor panels are two-ply ribbed structure of fiber concrete outer layer, 50-280 mm (in rib) thick and insulating inner layer 40mm thick. Floor panels BENPAN have lateral (every 400 – 600mm) and end support stiffeners (with width of 150 - 200mm). Wiring and plumbing openings are provided at the production stage.

Characteristics:

| | |
|------------------------|-----------------------------------|
| Width: | 1200-2400mm |
| Length: | 3000-6600mm |
| Thickness: | 305mm |
| Weight: | 320kg/m ² |
| Load bearing capacity: | from 400 to 800 kg/m ² |
| Concrete grade: | fiber concreteB30 |

| | |
|-----------------------------|----------|
| Material fire safety class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |

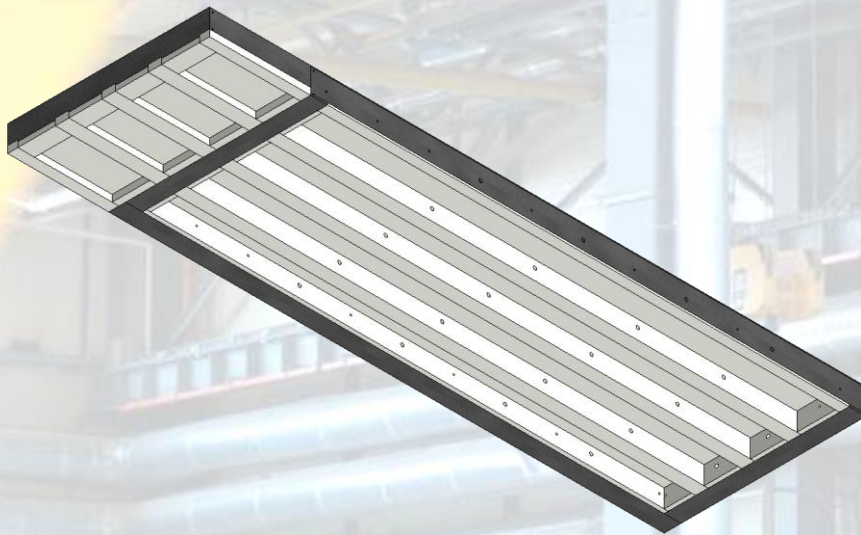
Floor Panel BENPAN (FP)



Floor panels BENPAN can have end insulation of support ribs, made of mineral wool elements of 305x80mm.

A sheath made of fiber-reinforced concrete is possible along with the insulation, similar to the BENPAN Premium panels.

Floor Panel BENPAN With Cantilever (FP(c))



Floor Panel BENPAN with cantilever (FP(c)) are designed for construction of load bearing structures between the floors with cantilever. Manufactured under TS 5842-002-54977622-2013.

The floor panels are two-ply ribbed structure of fiber concrete outer layer, 50-280 mm (in rib) thick and insulating inner layer 40mm thick and with insulated cantilever designed for balcony construction. The connection between the cantilever and the main part of the floor panel is done with using thermal liners to increase the heat transfer resistance of this section.

Floor panels BENPAN have lateral (every 400 – 600mm) and end support stiffeners (with width of 150 - 200mm). Wiring and plumbing openings are provided at the production stage.

Characteristics:

| | |
|-------------------|--------------------|
| Width: | 1200-2400mm |
| Length: | 3000-6600mm |
| Thickness: | 600-1800mm |
| Cantilever length | 305mm |
| Concrete grade: | fiber concrete B30 |

| | |
|-----------------------------|----------------------|
| Material fire safety class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |
| Weight: | 320kg/m ² |

Floor Panel BENPAN with insulation (FP(i))



Insulated BENPAN floor panels are designed for construction of horizontal load bearing supporting structures of basement ceilings. Manufactured under TS 5831-002-54977622-2013

The floor panels are two-ply ribbed structure of fiber concrete outer layer, 50-280 mm (in rib) thick and insulating inner layer of up to 280mm thick and insulating inserts at supporting ribs. Floor panels BENPAN have lateral (every 400 – 600mm) and end support stiffeners (with width of 150 - 235mm).

Characteristics:

| | |
|------------------------|-----------------------------------|
| Width: | 1200-2400mm |
| Length: | 3000-6600mm |
| Thickness: | 305mm |
| Weight: | 320kg/m ² |
| Concrete grade: | fiber concrete B30 |
| Load bearing capacity: | from 400 to 800 kg/m ² |

| | |
|-----------------------------|--------------------------|
| Material fire safety class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | 3,05 m ² S/Wt |

Floor Panel BENPAN three-ply (FP(tp))



Three-ply insulated BENPAN floor panels are designed for construction of horizontal load bearing basement ceilings. Manufactured under TS 5831-002-54977622-2013

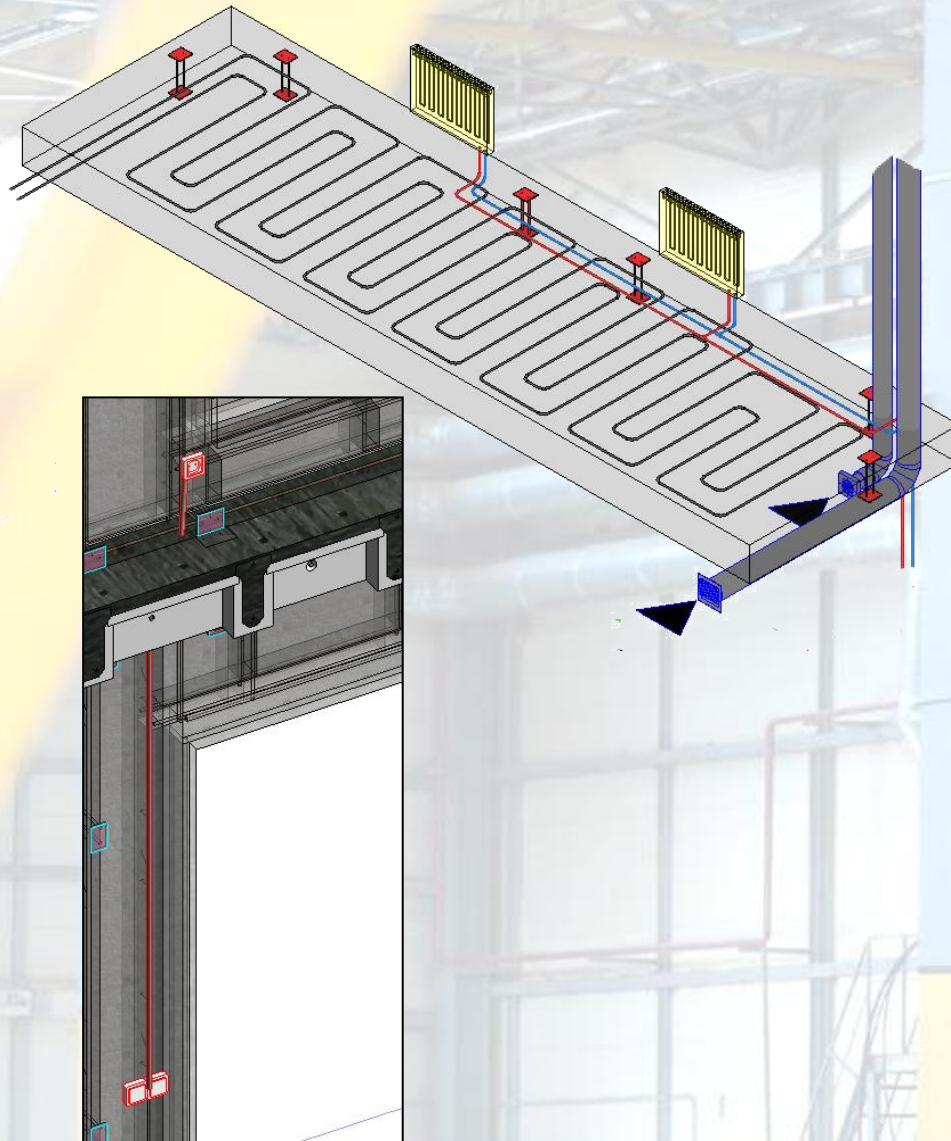
The floor panels are three-ply ribbed structure of fiber concrete outer layer, 50-280 mm (in rib) thick and insulating inner layer of up to 180 mm thick and insulating inserts at supporting ribs, and protective concrete shell 50mm thick at the bottom part. Floor panels BENPAN have lateral (every 400 – 600mm) and end support stiffeners (with width of 150 - 235mm).

Characteristics:

| | |
|------------------------|-----------------------------------|
| Width: | 1200-2400mm |
| Length: | 3000-6600mm |
| Thickness: | 355mm |
| Weight: | 450kg/m ² |
| Concrete grade: | fiber concrete B30 |
| Load bearing capacity: | from 400 to 800 kg/m ² |

| | |
|-----------------------------|-------------------------|
| Material fire safety class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |
| Heat transfer coefficient: | 3,05m ² S/Wt |

Plumbing and Wiring Channels in BENPAN Products



All plumbing and wiring can be set up at the design phase and BENPAN products of reinforced concrete would be manufactured with the corresponding openings. The piping is done in the space between the ribs of the floor panels.

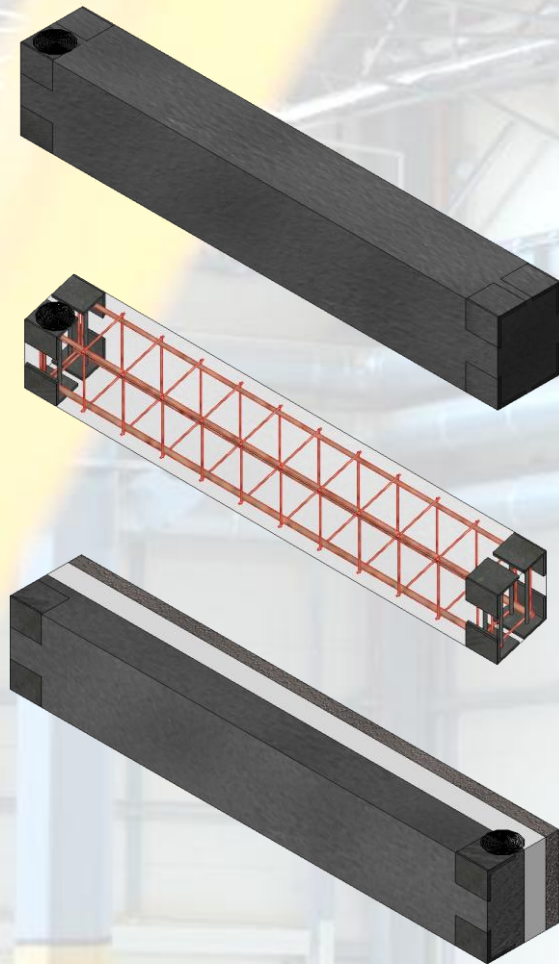
The piping for the heated floors can be done in outer concrete layer of the floor panel.

In wall panels and partitions the electric boxes for switches and sockets are preinstalled from which the cables are going through the precasted openings of the floor panels

Availability:

- Openings for radiator heating pipes;
- Pipes for underfloor heating;
- Openings for ventilation shafts and channels;
- Openings for water supply and sewage pipes;
- Installation boxes and channels for electrical wiring

Reinforced Concrete Beam (B)



Beams of reinforced concrete are used as supports for the installation of floor slabs, as well as an element of spatial rigidity of open contours of wall panels.

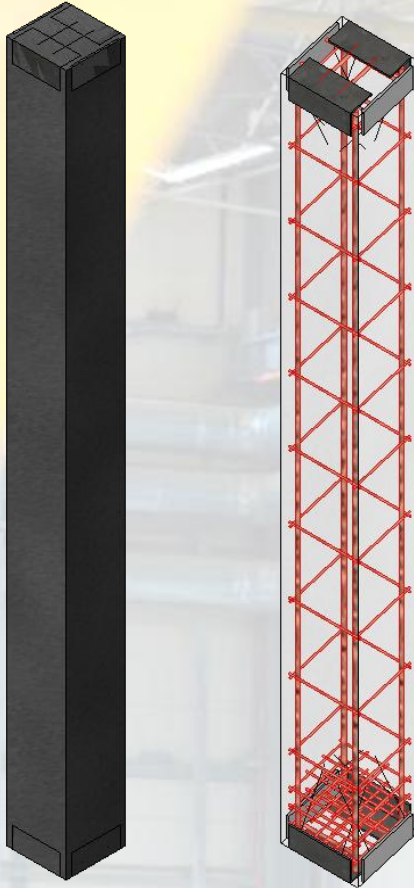
Beams are reinforced concrete structures having embedded parts for connecting with other building structures and special devices for lifting and moving using lifting equipment. Reinforcement is selected according to calculation.

If necessary, they can have an insulation layer of 80 mm on the side and end surfaces, as well as a sheath made of fiber-reinforced concrete similar to BENPAN Premium panels.

Characteristics:

| | |
|-----------------------------|-----------------------|
| Cross-section height: | 200-600mm |
| Cross-section width: | 140-300mm |
| Length: | 600-6600mm |
| Weight: | 2500kg/m ³ |
| Concrete Grade: | B20 |
| Material fire safety class: | MCO (NF) |
| Fire Resistance: | REI 150 |
| Frost Resistance: | F200 |

Reinforced Concrete Column (C)



Reinforced concrete columns perceive and evenly distribute the load from the structures located above. They are vertical structures reinforced with steel bars.

Columns become a support for beams. Connection with other structures and the foundation is carried out by welding on embedded parts.

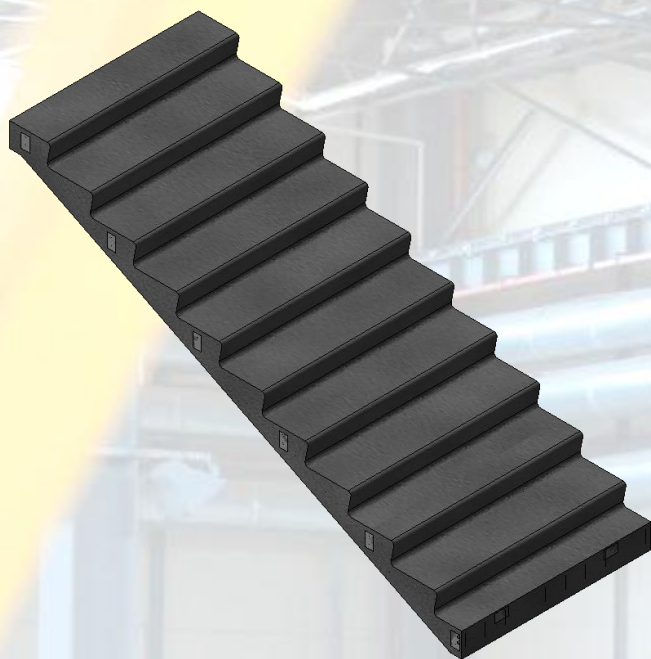
Characteristics:

| | |
|-----------------------------|------------------------|
| Cross-section height: | 200-400mm |
| Cross-section width: | 200-400mm |
| Length: | various |
| Weight: | 2500 kg/m ³ |
| Concrete Grade: | B20 |
| Material fire safety class: | MC0(NF) |
| Fire Resistance: | REI150 |
| Frost Resistance: | F200 |

Stairway (S)

Reinforced concrete stairways are designed for forming a staircase. Manufactured under the GOST standard 9818-2015.

Reinforced concrete stairways are reinforced with steel grids, have embedded parts for connecting to reinforced concrete staircases and fasten railings by welding and special devices for lifting and moving using lifting equipment.



Characteristics:

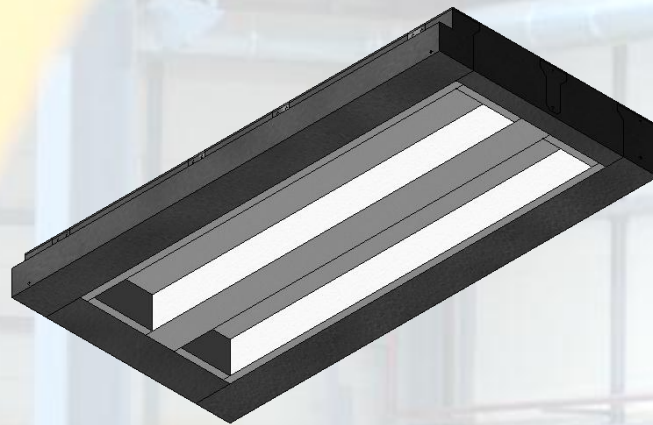
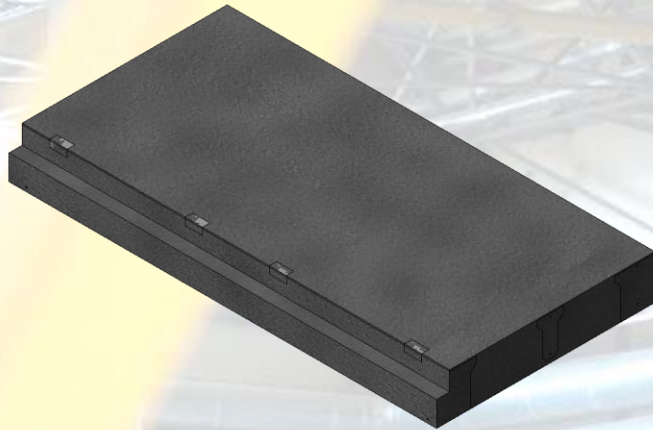
| | |
|-------------------------------|-------------|
| Width: | 1200-1350mm |
| Step size: | 300x150mm |
| Number of steps per stairway: | 3-11 |
| Concrete grade: | B30 |
| Fire safety material: | MCO (NF) |
| Fire Resistance: | REI 120 |
| Frost Resistance: | F200 |

Stairs landing (SL)

Reinforced concrete stairs landings are designed for support of stairways when forming a staircase.

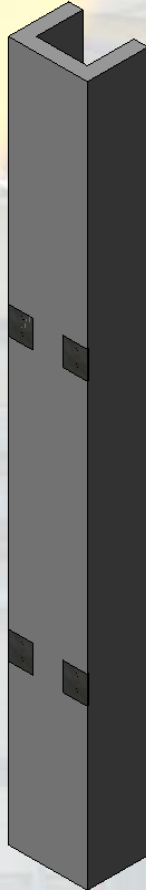
Reinforced concrete staircases are a two-lply ribbed structure consisting of an outer layer of fiber concrete 50-280 mm thick (in the rib) and an inner heat-insulating layer 40 mm thick, having a console for supporting stairways, embedded parts for connecting to stairways by welding. They have longitudinal (every 400 - 600 mm) and end support stiffeners (width in the range of 150 - 200 mm).

Characteristics:



| | |
|-----------------------------|----------------------|
| Width: | 1200-2400mm |
| Length: | 3000-6600mm |
| Thickness: | 305mm |
| Weight: | 200kg/m ² |
| Concrete grade: | Fiber concrete B30 |
| Fire safety material class: | MC0 (45) |
| Fire resistance: | REI 150 |
| Frost resistance: | F200 |

Communications box



The communication unit is intended for the installation of water supply, sanitation and ventilation systems in it. Installed vertically between wall panels.

They are a reinforced-concrete U-shaped structure, vertical communications are laid in the cavity between the ribs. It has embedded parts for connection to wall panels by welding.

Characteristics:

| | |
|-----------------------------|---------|
| Width: | 260mm |
| Length: | 340mm |
| Concrete thickness: | 60mm |
| Height: | 3035mm |
| Weight: | 410kg |
| Concrete grade: | B20 |
| Material fire safety class: | MC0(NF) |
| Fire Resistance: | REI150 |
| Frost Resistance: | F200 |

Driven Piles Heads



Driven pile heads are designed to distribute the load from the overlying structure to the pile. They are reinforced concrete products with a conical recess for fixation on a pile.

The process of building the foundation consists in marking the pile field in accordance with the project, followed by driving in the piles at these points. Then reinforced concrete pile heads are installed. Reinforced beams are installed on the pile heads, which serve as a binding of piles and absorb all the loads from the building.

The advantages of this type of foundation are:

- high pace of construction regardless of weather conditions;
- the possibility of work in the winter season;
- no excavation and soil removal.

CERTIFICATE

of Conformity of the Factory Production Control

1922 - CPR - 1332

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

Precast concrete products - Wall elements

Types: BENPAN, BENPAN+ and BENPAN PREMIUM

placed on the market under the name or trade mark of

BENSTROY LLC

settl. Marushkino, v. Krekshino, RMM Building, Office 122, Moscow, Russia 108810

and produced in the manufacturing plant

BENSTROY LLC

settl. Marushkino, v. Krekshino, RMM Building, Office 122, Moscow, Russia 108810

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN 14992:2007+A1:2012

under system 2+ are applied and that the factory production control is assessed to be in conformity with the applicable requirements.

This certificate was first issued on 26.03.2020 and will remain valid until 26.03.2021 as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified factory production control certification body. The certificate is supported through annual surveillance audit and is reissued after each surveillance audit. The validity of the certificate may be confirmed in the CE register at the web address www.dedal-bg.net.



Manager:

Issued:
Burgas, 26 March 2020

dipl. eng. Anna Vasileva

CERTIFICATE

of Conformity of the Factory Production Control

1922 - CPR - 1348

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

Precast concrete products - Ribbed floor elements

Type: BENPAN Floor Panel Analysis

placed on the market under the name or trade mark of

BENSTROY LLC

settl. Marushkino, v. Krekshino, RMM Building, Office 122, Moscow, Russia 108810

and produced in the manufacturing plant

BENSTROY LLC

settl. Marushkino, v. Krekshino, RMM Building, Office 122, Moscow, Russia 108810

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN 13224:2011

under system 2+ are applied and that the factory production control is assessed to be in conformity with the applicable requirements.

This certificate was first issued on 09.06.2020 and will remain valid until 09.06.2021 as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified factory production control certification body. The certificate is supported through annual surveillance audit and is reissued after each surveillance audit. The validity of the certificate may be confirmed in the CE register at the web address www.dedal-bg.net.



Manager:

Anna Vasileva

Issued:
Burgas, 09 June 2020

dipl. eng. Anna Vasileva