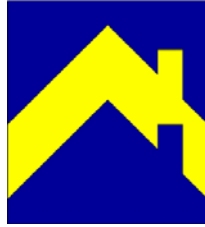


simpro



СИМПРО

**ENGINEERING, CONSULTING
AND TRADE CO.LTD.**

251 Vojvode Stepe, Belgrade
TEL / FAX: ++381-11- 397-67-70
MOB.TEL.: ++381-63- 22- 33- 00
E-MAIL: simpro@drenik.net

MOSCOW REPRESENTATION OFFICE

STR. DMITRY ULYANOVA , DOM 16/ 2, OFFICE 316
TEL / FAX ++ 7 - 095 - 125-32-81, 102-51-49,
E-mail: simpro@yandex.ru
www.simprolit.com



SIMPROLIT

is an extremely light building material, and it has by far the best thermo characteristics in concrete class.



SIMPROLIT

is a patent -protected compound of expanded granules of polystyrene, Portland-cement and additives.

SIMPROLIT

Physical and mechanical properties are in conformity with standard GOST R 51263-99 (polystyrene-concrete).

Volume weight:
150 – 350 kg/m³ (D150 – D350)

Heat conductivity coefficient:
0,055 – 0,085 Wt/(m°C)

Steam permeability:
0,135 – 0,110 mg/(m h Pa)

Compressive strength (prism strength):
0,35-1,45 MPa



SIMPROLIT - heat conductivity practically does not depend on the moisture content in it, given an almost constant moisture percentage in material: 4% - 8%.

SIMPROLIT – walls normally »breathe«. **SIMPROLIT** is characterized by high frost resistance. At 50-times repeated cycle of heating-freezing, from +75°C to –30°C, loss of strength was only 1,5% - 1,8%.

SIMPROLIT – does not burn! In fire, polystyrene granules vaporize, and in prolonged high temperatures SIMPROLIT turns into cement stone, with no smoke or flame appearing.

SIMPROLIT

is characterized by high bio-resistance, it is resistant to all insects and all kinds of vegetable and animal bacteria.

SIMPROLIT

is ecologically harmless, its composite toxicity indicator is about 1,5 – 2,0 times lower than established standards.



CONCLUSION:

**SIMPROLIT -
light**

**SIMPROLIT -
environment friendly**

**SIMPROLIT -
an exceptionally good thermo-insulator**

**SIMPROLIT -
fireproof**

**SIMPROLIT -
excellent soundproofing**

**SIMPROLIT -
does not absorb moisture**

**SIMPROLIT -
highly bio-resistant**

**SIMPROLIT –
structure elements
considerably reduce building costs
of
industrial,
residential,
sports,
country**

**and other structures,
and at the same time considerably improve their thermo characteristics.**

**PRODUCTIONAL
PROGRAM**

- SIMPROLIT - MONOLITH STRUCTURES**
- SIMPROLIT - BUILDING BLOCKS**
- SIMPROLIT - INSULATION PANELS**
- SIMPROLIT - ROOF PANELS**
- SIMPROLIT - FACADE PANELS**
- SIMPROLIT - PARTITION WALLS**

SIMPROLIT PRODUCTS

The »SIMPRO« company range of **SIMPROLIT** products includes:

- **SIMPROLIT** thermo-insulation facade panels,
- **SIMPROLIT** blocks for outer walls,
- **SIMPROLIT** blocks for partition walls and facade casing
- **SIMPROLIT** pre-fabricated partition walls panels
- **SIMPROLIT** insulation panels

Production of all elements is in conformity with TY 5741-001-52775561-00-00 and GOST R 51263-99; the basic raw material is »**SIMPROLIT**« polystyrene-concrete, of an original composition with company's additions, and elements are patent-protected.

SIMPROLIT FACADE THERMO-INSULATION PANELS



SIMPROLIT - facade thermo-insulation panels (SUP) are manufactured in different thickness.

SIMPROLIT - SUP3, SUP5, SUP8, SUP10, SUP12 (the numbers indicate panel thickness in centimeters).

SIMPROLIT - facade thermo-insulation panels have a layered structure and come in the following sizes: length 1000mm, width 750mm, and thickness of 30mm, 50mm, 80mm, 100mm and 120mm.

The difference in panel thickness is achieved with different thickness of the middle styrofoam layer, while the thickness of the »**SIMPROLIT**« layer is always constant and is 10mm on both sides.

Thermo-physical characteristics are given in table form, for all SIMPROLIT elements.

The application of **SIMPROLIT** facade thermo-insulation panels manufactured by »SIMPRO« results in a considerable reduction of insulation work on facades of reconstructed or new buildings.

Unlike the existing facade insulation systems, where mineral wool or styrofoam panels are used (with subsequent application of special plaster over a special net, and finishing work at the end), the panels of »SIMPRO« production are ready for finishing as soon as they are fixed on the facade, and some of the finishing operations (grunt, skimming) can be partially carried out even before the panels are fixed.

Owing to their light weight, **SIMPROLIT** panels are fixed on facade in traditional ways – using glue and plastic plugs at fixing stage.

One of definite advantages of the »SIMPRO« facade thermo-insulation panels that should be underlined, is that the finishing work on them could be carried out with any facade materials, from those for painting all through to those for gluing granite facade panels.



Besides, **SIMPROLIT** panels can be fixed in any weather, as their production raw material contains a special additive which makes them waterproof, and which also considerably increases the life and exploitation characteristics not only of the facade, but also of the structure as a whole.

SIMPROLIT INSULATION PANELS



SIMPROLIT INSULATION PANELS

Applied as thermo-insulation and sound insulation of flooring, ceilings, flat and steep roofs and all kind of walls. They can be immediately fixed in formwork before concrete work or later, on the structure already completed

SIMPROLIT INSULATION PANELS

Owing to good sound absorption, they proved their quality in rooms, which require reduced sound levels. When increased sound absorption is required, relief panels with perforation can be manufactured at request.

SIMPROLIT INSULATION PANELS

are a good base for all kinds are of plastering. Granite and ceramic tiles can be glued on them directly.

SIMPROLIT INSULATION PANELS

are manufactured as homogenous insulation panels or as three-layer sandwich panels with styrofoam in the middle – as an additional thermo-insulation.

SIMPROLIT BUILDING BLOCKS

1. SIMPROLIT BLOCKS FOR OUTER WALLS



BLOCK SB30

SIMPROLIT building self-supporting blocks »SIMPROLIT Block SB30« and »SIMPROLIT Block SB25« can be applied both independently, in few-story structures, and as permanent formwork for structural and aseismic concrete elements.

Among the constructional properties of these blocks, hollow spaces within blocks should be mentioned, which allow fitment of armatures filled up with monolith concrete (in preform of block walls) providing for a supporting ability of so designed a structure.

In addition to that, these blocks have a specific configuration preventing the possibility of blowing through and seam frosting.

Thermo-physical characteristics of SIMPROLIT building blocks allow for execution of buildings without additional facade insulation measures (see Table).



BLOCK SB30 – CROSS SECTION

SIMPROLIT blocks can be manufactured in different brands (D200-D300), and they keep good characteristics even at high outside humidity and frost, due to introduction of special additives into the material used in production.

SIMPROLIT blocks are easily worked with (they are cut with a simple manual wood saw!), and so they have a very flexible application in any construction.

SIMPROLIT blocks are fitted with a simple cement plaster, plaster with different additives, all through to the cement-based glues.

Finishing of facades and inside walls is simple, thanks to the adhesive properties of cement as basic binder in SIMPROLIT blocks. Also all standard materials may be used for the finishing work.



BLOCK SBS 25

It should be underline that the watertight quality of structure made of SIMPROLIT elements, manufactured by the »SIMPRO« company, is above the required level (more than 90 minutes), and so SIMPROLIT elements can be used for firewalls.

Owing to the indicated characteristics of SIMPROLIT blocks, and particularly to their light weight, building with SIMPROLIT blocks is unequalled for superstructures and mansards on flat-roof structures.

Namely, when superstructures are built with SIMPROLIT blocks, the weight of such a superstructure as a rule is smaller than the weight of typical layers of the existing flat roofs, so that no foundation reinforcement is needed on the building in question, which is cost effective and considerably speeds up the construction.

Also, due to light weight of SIMPROLIT material and speed and simplicity of construction work, tenants in such a building do not have to be moved out, and their moving out is sometimes an unsolvable difficulty in this type of construction.

CONSTRUCTION WITH SIMPROLIT BLOCKS

In making of bearing walls, the SIMPROLIT blocks make a formwork for the armature and the concrete poured into the block hollows, when the armature was already placed.

In that way SIMPROLIT blocks remain a permanent formwork and act as a thermo-sound-insulation.

In order to increase thermo-and-sound insulation properties, an additional insulator can be placed into block hollows.



At designing stage of the structures to be built with SIMPROLIT blocks, for economy of material, it is good to plan a grid of horizontal and vertical structure surfaces to enable economical fitment of whole blocks.

Fitment is done by »bonding« on $\frac{1}{2}$ block.

If that is not possible, SIMPROLIT blocks are easily brought to the required size using a standard or circular wood saw.

SIMPROLIT blocks are used as formwork also for other construction elements such as AB walls, columns or beams as they can be easily treated (cut and brought to the required size).

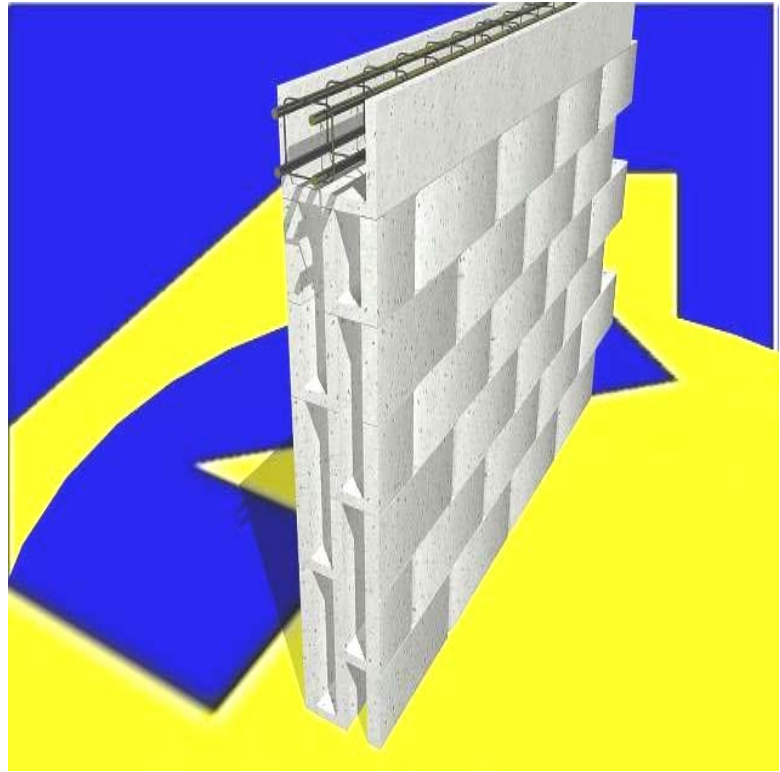


FITMENT OF SIMPROLIT “SBD BLOCKS” – BEARING WALLS

SIMPROLIT building blocks are »dry« fixed, always on leveled base, with bonding on ½ block.

Filling of blocks with concrete is carried out separately row-by-row, or after no more than four block rows are built, after which concrete work is resumed when the concrete has begun to bond. Otherwise the blocks should be temporarily fixed with crossed planks, to prevent them to deviate from vertical position, under the pressure of fresh concrete mass, as later on it would result in unnecessary thickness and plaster consumption.

Breaks and resuming of concrete work- filling of blocks with concrete - are always done at one half of block height.



If necessary, the blocks are easily cut with a handsaw and brought to the required size.

Ring beam reinforcement is carried out in conformity with reinforcement procedure.

For other construction elements, such as reinforced walls, columns or beams, SIMPROLIT blocks can also be used as permanent formwork.

PLASTERWORK ON SIMPROLIT BLOCKS

THE FIRST LAYER:

- »Spraying of hardened SIMPROLIT blocks (pre-cleaned) with cement paint.
- Backfilling of vertical joints (joints must be completely filled up).

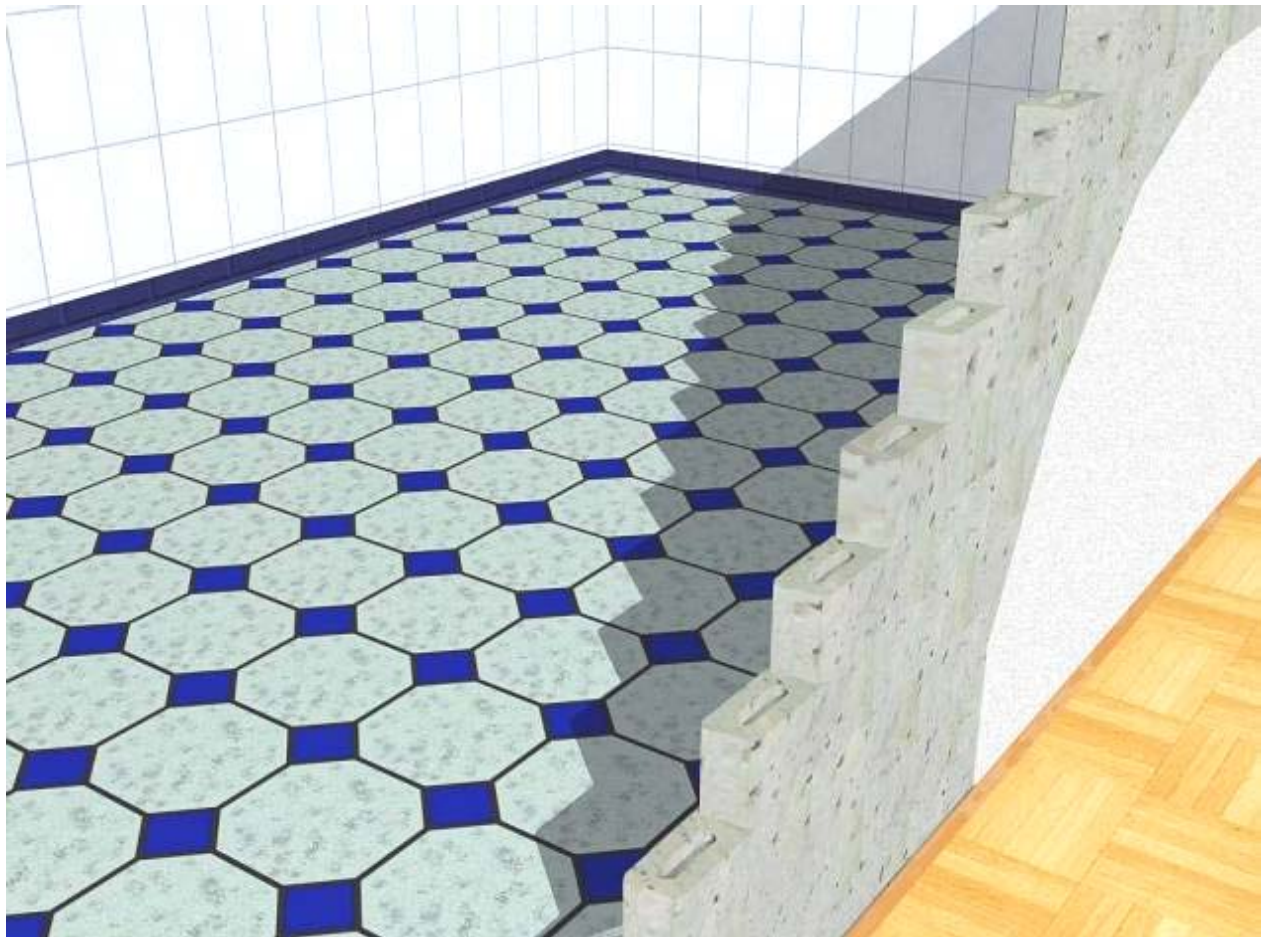
THE SECOND LAYER :

- A layer of 10 -15 mm of flexible mortar is recommended.
- If unwashed river sand and ungrained gravel are to be used, a plaster lath is recommended to be used for the second layer of plastering.

THE FINAL LAYER:

- Depending on designed type of paint and quality, any form of finishing plastering can be chosen.

LAYING OF CERAMIC TILES

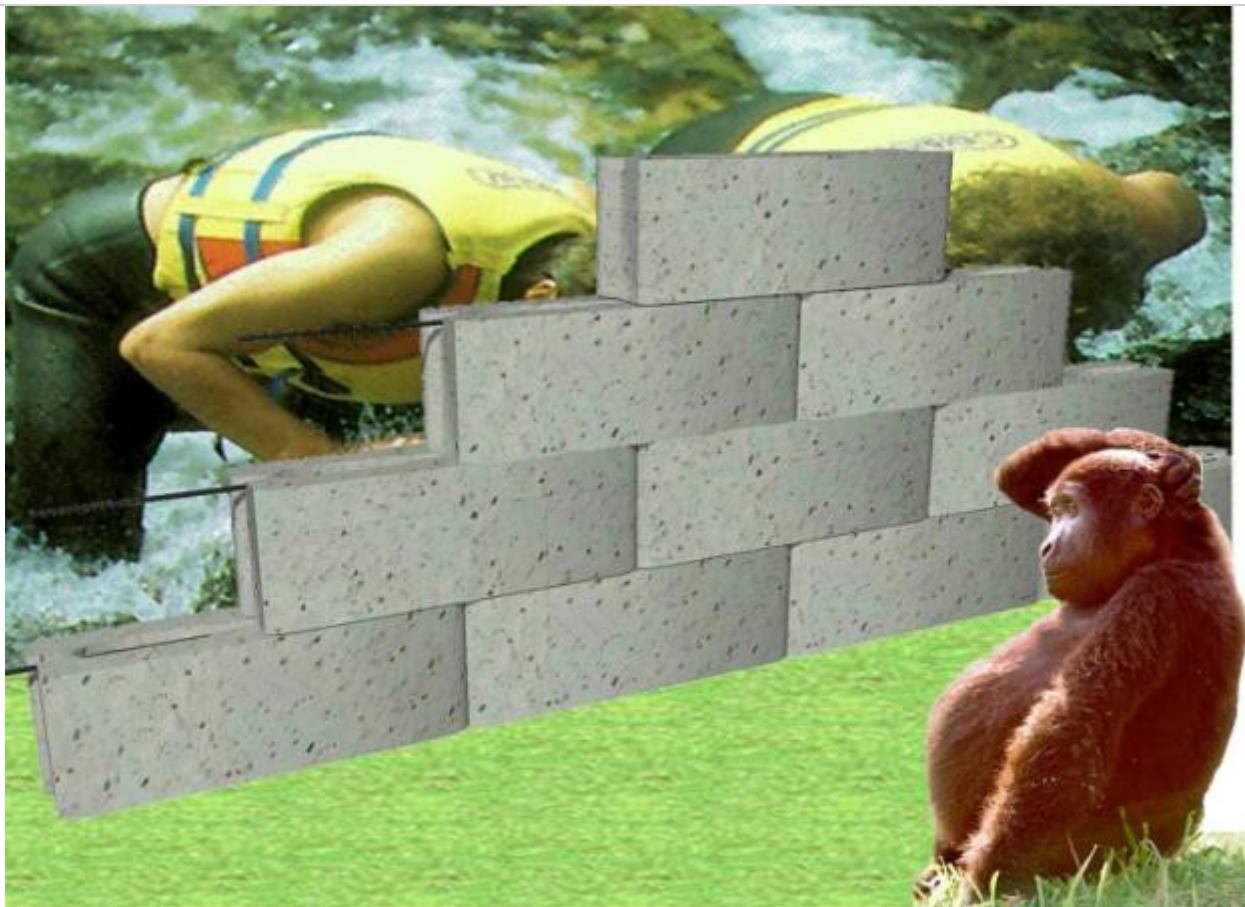


CERAMIC TILES
CAN BE LAID DIRECTLY
OVER THE WALLS OR FLOORS
MADE OF SIMPROLIT BLOCKS,
USING EITHER GLUE OR CEMENT PLASTER.



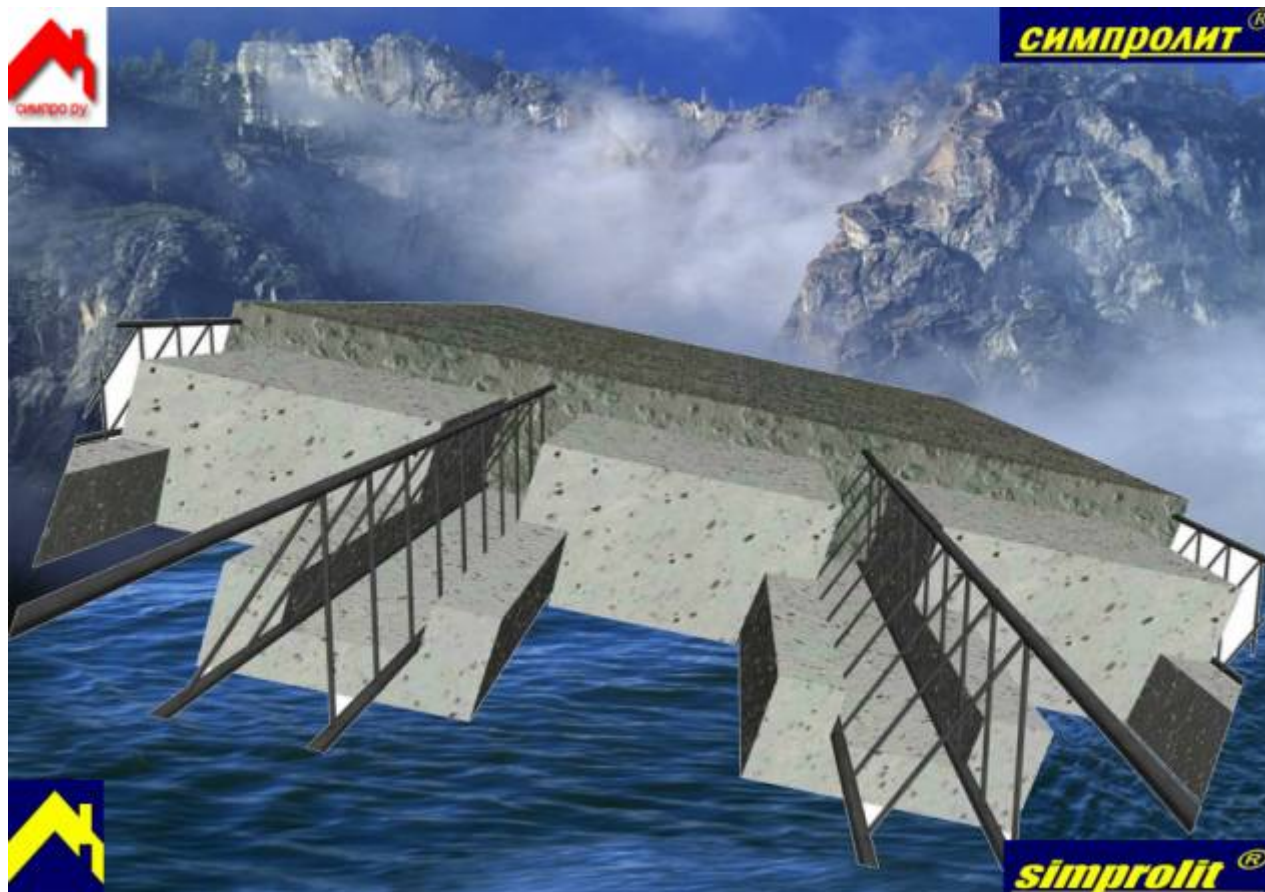


SIMPROLIT BLOCKS FOR PARTITION WALLS

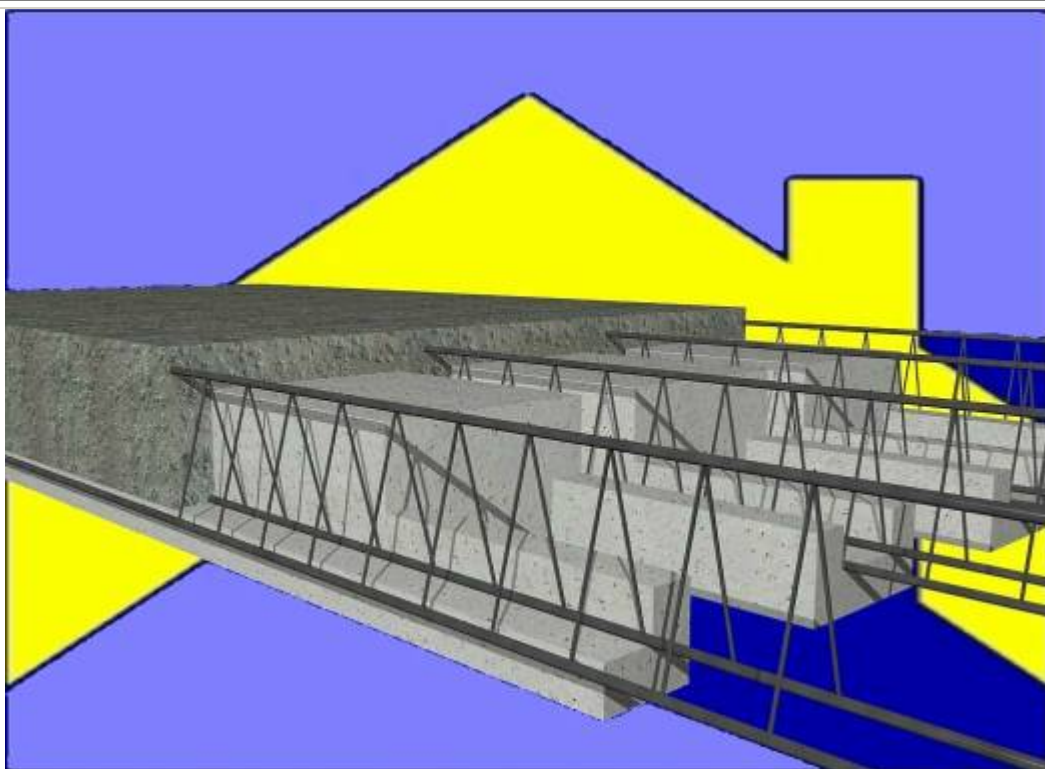


PARTITION WALLS OF SIMPROLIT BLOCKS

INTER-FLOOR AND ROOF PLANES ON WALLS OF SIMPROLIT BLOCKS



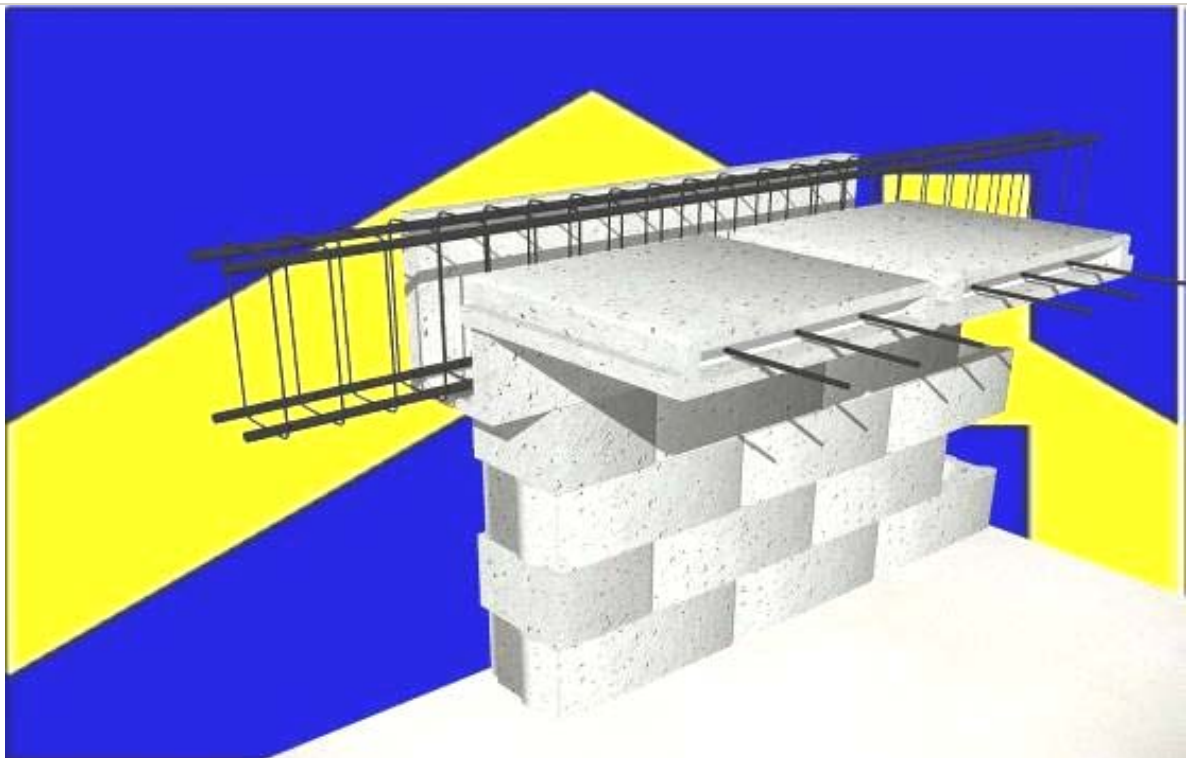
SIMPROLIT INTER-FLOOR CEILING



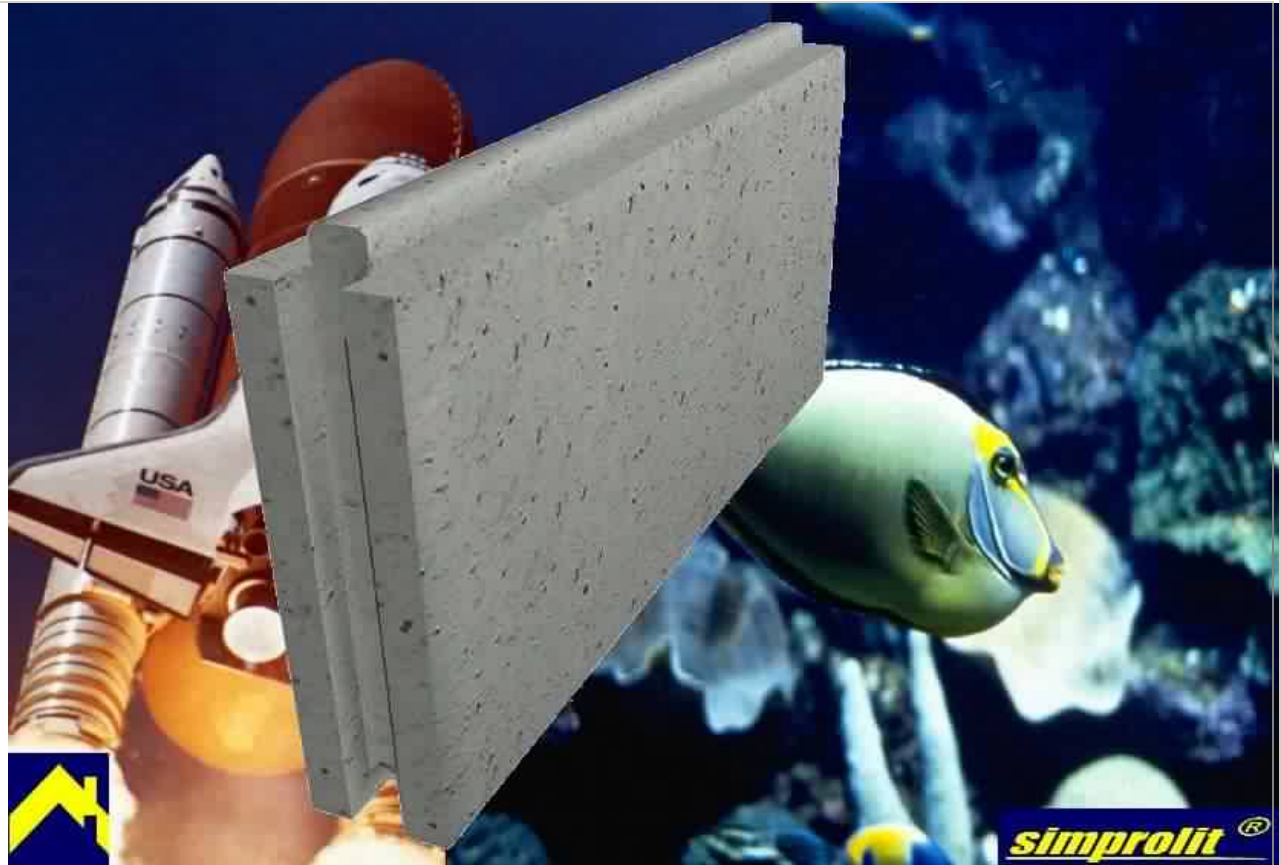
SIMPROLIT INTER-FLOOR CEILING



ON STRUCTURES MADE OF SIMPROLIT BLOCKS
ALL STANDARD FORMS OF FLOOR AND ROOF CONSTRUCTIONS CAN BE APPLIED:
PRE-FABRICATED SIMPROLIT ROOF PANELS,
SEMI FABRICATED FLOOR PANELS («MONTA», «FERT» TYPES, ETC.)
OR MONOLITH PANELS CAST ON SITE.



SIMPROLIT PRE-FABRICATED PARTITION WALLS



SIMPROLIT PANELS FOR PRE-FABRICATED PARTITION WALLS

SIMPROLIT panels for pre-fabricated partition walls, non-portable, with profiled grooves, type »SIMPROLIT PP12«, differ from plaster partitions in mass, which is considerably lower, an important factor for manual panel fixing, but they practically have the same strength and soundproofing characteristics. So panels with strength D350-D400 have strength at joints of at least 1,45-2.16MPa, and provide for soundproofing of at least 40Db.

Unlike other polystyrene-concretes, SIMPROLIT in its patent-protected form contains additives for increasing total strength and for water-tightness, so that »SIMPROLIT PP12« panels may be used for any type of rooms with a dry, normal or humid regime of exploitation.

Partition walls panels are characterized by simple and quick fixing, as they are fitted by means of a vertical guide rail, fixed on floor plate above and below. Such construction, easy for fixing, serves also to increase the total strength and stability of partition walls, and at the same time it prevents subsidence after finishing work on partition panels.

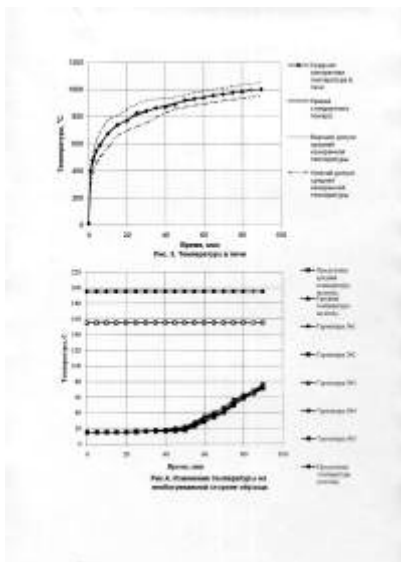
As all other products made of the same material, SIMPROLIT panels for partition walls are characterized by high adhesion, and any finishing material could be used, including the mechanical plastering (unlike the plaster panels which require only special finishing materials). SIMPROLIT panels for partition walls, manufactured by »SIMPRO« company are easy to work on (cut, etc.) with hand tools.

Among the significant advantages that »SIMPROLIT PP12« partitions have, their high thermo-insulation ability and fire resistance must be underlined. Fire tests at the Russian Federation Ministry of Defense, 90mm wide panel showed fireproof ability much greater than 45 minutes (E45), so that they can be used even for fire stop partitions. Full correlation of »SIMPRO« products with the »price-quality« criterion makes their application in construction industry very promising.

THERMO-PHYSICAL CHARACTERISTICS OF SIMPROLIT PRODUCTS

No.	PRODUCT TYPE	RESISTANCE TO HEAT EXCHANGE EXECUTED R^{tp}_o (m^2C^o/W)	*INTERCHANG-GEABLE THICKNESS OF FULL BRICK, IN METERS	*INTERCHAN-GEABLE THICKNESS HOLLOW BRICK WALL, IN METERS
1	THERMO-INSULATION FACADE PANEL »SIMPROLIT-SUP 5«	1,135	0,62	0,51
2	THERMO-INSULATION FACADE PANEL »SIMPROLIT-SUP 10«	1,76	1,40	1,14
3	OUTER WALLS BLOCK, SELF-SUPPORTING, »SIMPROLIT SB 30«	not less than 2,82	1,68	1,37
4	OUTER WALLS BLOCK, SELF-SUPPORTING, »SIMPROLIT SB 25«	not less than 2,36	1,41	1,15
5	BLOCK FOR PARTITION WALLS AND FACADE CASING, SELF-SUPPPORTING, »SIMPROLIT SPB 50« AND »SIMPROLIT SPB 60«	not less than 1,50	0,92	0,75





*Graph 3 shows the change (increase) of temperature in furnace in which panel only 110mm thick was tested.

*Graph 4 shows the change of temperature on the outer (unheated) side of the panel, where it can be seen that after half an hour of heating, at furnace temperature of 800°C, the temperature of outer surface of SIMPROLIT panel remained 18°C (room temperature).

*It is also seen that temperature starts to raise only after the 55th minute, at furnace temperature of 950° – 970°C.

*At the end of fire action tests (90th minute, 1000°C) loss in SIMPROLIT panel mass amounted to 60-65%, which confirms high thermo-insulation properties of SIMPROLIT.

TESTING
OF THE »SIMPROLIT INSULATION
PANELS« SAMPLES AT THE »OPITNOE« 26
CNII
TESTING CENTER
OF THE RUSSIAN FEDERATION
MINISTRY OF DEFENSE



PATENT FOR MODELS №16003 AND №16005 IN THE RUSSION FEDERATION



PATENT FOR MODEL №17329 AND INVENTION №2165501 IN THE RUSSION FEDERATION



SANITARY CERTIFICATE FOR SIMPROLIT / PAGE 1.



SANITARY CERTIFICATE FOR SIMPROLIT / PAGE 2.



EXCERPT FROM CATALOGUE PAGE SIMPROLIT ELEMENTS PRODUCTION



CONCLUSION OF EXPERTS ON GRANTING THE LICENCE FOR THE PRODUCTION OF SIMPROLIT ELEMENTS



* SIMPROLIT attics,
cornices, overhangs,
balusters...

* SIMPROLIT layer
for floor, thermo-
insulation
of flat roofs....



* SIMPROLIT thermo
and sound
insulation of inter-floor
structures,
pipelines, pools...

* SIMPROLIT firewalls





- MONOLITH STRUCTURES
- BUILDING BLOCKS
- INSULATION PANELS
- ROOF PANELS
- FACADE PANELS
- PARTITION WALLS



simpro

ENGINEERING, CONSULTING
AND TRADE COMPANY LTD.
67/II/8 KOSTOLAČKA,
BELGRADE

Tel. : ++381 11 397-67-70
Tel/Fax: ++381 11-397-67-71
MOB.TEL.: ++381 63-22-33-00
E-mail: simpro@verat.net

Moscow Representation Office
str. Dm. Ulyanova, 16/2/316
MOSCOW

Tel / fax: ++7095 125-32-81,
Mob/tel.: ++ 7 095 102-51-49,
E-mail: simpro@yandex.ru
www.simprolit.com

