termPIR®
insulation boards

Insulation boards from Gór-Stal

termPIR® INSULATION BOARDS

MODERN THERMAL INSULATION MATERIAL FOR THERMAL INSULATION OF RESIDENTIAL AND INDUSTRIAL BUILDINGS

Factory of termPIR® Insulation Boards in Bochnia

termPIR® Insulation boards

MODERN THERMAL INSULATION MATERIAL WITH COEFFICIENT Λ = 0,022 (W/m•K)

termPIR® is an insulation board with a polyisocyanurate foam core. PIR is a chemically modified polyurethane that is characterized by durability and increased resistance to high temperatures. Isocyanurate structures in foams decompose at temperatures above 300°C and partially carbonize. The carbonized layer protects against high temperature penetration through the board, which in turn provides effective fire protection. This product, popular in Europe and around the world, successfully replaces thermal insulation systems based on mineral wool and polystyrene.

This is due to the best thermal insulation properties in this group of building materials, hardness, ease and speed of installation, meeting fire protection requirements, and all this with a material weight of about 30 kg per cubic meter.

The termPIR® thermal insulation board complements the light sandwich panel cladding system and allows for complete insulation of industrial and residential buildings, from the floor to the roof, using a modern, durable, rodent and chemical resistant material such as polyurethane.

Energy-efficient construction uses intelligent technologies that enable obtaining high thermal comfort and creating a building characterized by low energy consumption and low operating costs.

termPIR® boards provide more effective thermal insulation compared to other building materials such as mineral wool or polystyrene. They allow for economical, long-term and safe use of the house or apartment.

termPIR® insulation boards are unique products that combine modernity with unique thermal insulation properties, are nature-friendly and fully compatible with the natural environment.

PARAMETERS FOR termPIR® BOARDS WITH GAS-TIGHT AND GAS-PERMEABLE CLADDING

	Product details
Kind of core	Rigid polyisocyanurate foam (PIR)
Apparent core density	ρ = 30 kg/m³
Standard boards dimensions [mm]**	600 x 1200 / 1200 x 2400
Available boards dimensions [mm]	1000 x1200 / 1200 x 1200 / 1200 x 1800 / 1200 x 3000
Dimensions with gypsum board [mm]	1200 x 2600
Dimensions with OSB / gypsum board [mm]	1200 x 2500
Joint types	**FIT** - flat milling, **LAP** - stepwise milling*, **TAG** - tongue and groove*
Boards with gas-tight cladding	
Declared heat transfer coefficient for lining	λ_D = 0,022 (W/m·K)
Boards with gas-tight cladding	termPIR® AL, termPIR® AGRO AL, termPIR® AGRO P REV, termPIR® AL R-eco, termPIR® AL GK, termPIR® GK AL GK, termPIR® AL GK-OSB, termPIR® OSB AL OSB
Absorptivity [kg/kg]	≤ 2,0 % (for termPIR® AL, termPIR® AGRO AL)
Classification considering reaction to fire (the board itself)	D termPIR® AGRO AL (20-39: E class, 40-250: D class),
	E termPIR® AL / Al R-eco (20-49: F class, 50-250: E class), termPIR® OSB AL OSB, termPIR® AL GK-OSB
	F termPIR® AGRO P REV, termPIR® AL GK, termPIR® GK AL GK, termPIR® AL OSB, (class F: from the PIR side, E class: from the side OSB)
Boards with gas-permeable linings	
Declared heat transfer coefficient for lining	λ_D = **0,027** (W/m·K) for thickness 20 ≤ d_N < 80 mm
	λ_D = **0,026** (W/m·K) for thickness 80 ≤ d_N < 120 mm
	λ_D = **0,025** (W/m·K) for thickness 120 ≤ d_N ≤ 250 mm
Boards with gas-permeable cladding	termPIR® WS, termPIR® BWS, termPIR® ETX, termPIR® BT R-eco, termPIR® ETX R-eco
Absorptivity [kg/kg]	-
Classification considering reaction to fire (the board itself)	E termPIR® WS / ETX / ETX R-eco (20-49: klasa F, 50-250: E class), termPIR® BWS 20-49: F class, 50-250: E class (from the WS) / F class (from the BT),
	F termPIR® BT R-eco

* dimensions of boards with joint types are 2 to 4 % smaller. Milling: LAP available for the boards from 30 mm, TAG for the boards from 40 mm
** termPIR® ETX board available only in the dimension 600 x 1200 mm

termPIR® Insulation boards

PARAMETERS FOR termPIR® BOARDS WITH GAS-TIGHT AND GAS-PERMEABLE CLADDING

	Coefficient: U [W/m²·K], wg U = 1 / (Re + R_D + Ri)							
	for gas-tight cladding				for gas-permeable cladding			
Board thickness [mm]:	Thermal resistance	for roofs	for wall	for floor	Thermal resistance	for roofs	for wall	for floor
	λ_D = 0,22				**λ_D = 0,27**			
20	0,90	0,96	0,93	0,93	0,70	1,14	1,10	1,10
30	1,35	0,67	0,66	0,66	1,10	0,80	0,78	0,78
40	1,85	0,50	0,50	0,50	1,45	0,62	0,61	0,61
50	2,30	0,41	0,40	0,40	1,85	0,50	0,49	0,49
60	2,75	0,35	0,34	0,34	2,20	0,42	0,42	0,42
70	3,25	0,29	0,29	0,29	2,55	0,37	0,36	0,36
80	3,70	0,26	0,26	0,26	3,05	0,31	0,31	0,31
	λ_D = 0,22				**λ_D = 0,26**			
90	4,15	0,23	0,23	0,23	3,45	0,28	0,28	0,28
100	4,65	0,21	0,21	0,21	3,80	0,25	0,25	0,25
110	5,10	0,19	0,19	0,19	4,20	0,23	0,23	0,23
	λ_D = 0,22				**λ_D = 0,25**			
120	5,55	0,18	0,17	0,17	4,80	0,20	0,20	0,20
130	6,05	0,16	0,16	0,16	5,20	0,19	0,19	0,19
140	6,50	0,15	0,15	0,15	5,60	0,17	0,17	0,17
150	6,95	0,14	0,14	0,14	6,00	0,16	0,16	0,16
160	7,45	0,13	0,13	0,13	6,40	0,15	0,15	0,15
170	7,90	0,12	0,12	0,12	6,80	0,14	0,14	0,14
180	8,35	0,12	0,12	0,12	7,20	0,14	0,14	0,14
190	8,85	0,11	0,11	0,11	7,60	0,13	0,13	0,13
200	9,30	0,11	0,11	0,11	8,00	0,12	0,12	0,12
210	9,75	0,10	0,10	0,10	8,40	0,12	0,12	0,12
220	10,25	0,10	0,10	0,10	8,80	0,11	0,11	0,11
230	10,75	0,09	0,09	0,09	9,20	0,11	0,11	0,11
240	11,15	0,09	0,09	0,09	9,60	0,10	0,10	0,10
250	11,60	0,08	0,08	0,08	10,0	0,10	0,10	0,10

Thermal resistance: R_D [m²·K/W]

PARAMETERS FOR termPIR® MAX 19 AL WITH GAS-TIGHT CLADDING

	Product details
Kind of core	Rigid polyisocyanurate foam (PIR)
Apparent core density	ρ = 30 kg/m³
Declared heat transfer coefficient for lining	λ_D = 0,019 (W/m·K)
Board with gas-tight cladding	termPIR® MAX19 AL
Standard boards dimensions [mm]	600 x 1200 / 1200 x 2400
Joint types	**FIT** - flat milling, **LAP** - stepwise milling*, **TAG** - tongue and groove*
Classification considering reaction to fire (the board itself)	E - termPIR® MAX 19 AL
Absorptivity [kg/kg]	-

Coefficient: U [W/m²·K], wg U = 1 / (Re + R_D + Ri)				
	for gas-tight cladding			
Board thick-ness [mm]:	Thermal resistance	for roofs	for wall	for floor
80	4,35	0,22	0,22	0,22
100	5,45	0,18	0,18	0,18
120	6,50	0,15	0,15	0,15

Thermal resistance: R_D [m²·K/W]

PARAMETERS FOR termPIR® - COMPRESSION STRENGTH

Board	Compression strength at 10% of deformation				
	σ ≥100 kPa	σ ≥120 kPa	σ ≥140 kPa	σ ≥150 kPa	NPD
for thickness [mm]:					
termPIR® AL	☐	$20 \le d_N < 30$	$140 \le d_N \le 250$	$30 \le d_N < 140$	☐
termPIR® MAX 19 AL	$80 \le d_N \le 220$	☐	☐	☐	☐
termPIR® AGRO AL		☐	☐	☐	$20 \le d_N \le 250$
termPIR® AL GK	☐	☐	☐	☐	$20 \le d_N \le 250$
termPIR® WS	☐	$20 \le d_N \le 250$	☐	☐	☐
termPIR® ETX	☐	$20 \le d_N \le 250$	☐	☐	☐
termPIR® BWS	☐	$20 \le d_N \le 250$	☐	☐	☐
termPIR® AGRO P REV	☐	$20 \le d_N \le 250$	☐	☐	☐
termPIR® AL OSB	☐	☐	☐	☐	$20 \le d_N \le 250$
termPIR® OSB AL OSB	☐	☐	☐	☐	$20 \le d_N \le 250$
termPIR® AL GK-OSB	☐	☐	☐	☐	$20 \le d_N \le 250$
termPIR® GK AL GK	☐	☐	☐	☐	$20 \le d_N \le 250$
IZOPROOF® ALu	☐	$20 \le d_N \le 250$	☐	☐	☐
termPIR® Pro-F	☐	☐	$140 \le d_N \le 220$	$50 \le d_N < 140$	☐
termPIR® Bt R-eco	☐	$20 \le d_N \le 250$	☐	☐	☐

Legenda:

NPD - not subject to declaration ☐ - does not meet the requirements

termPIR® Insulation boards

CERTIFICATES, ATTESTATION, APPROVALS

It is often said about „quality certificates", „certificates of reliability", „certificates of a good company", etc. There are many names, but it all comes down to one denominator – the purpose of having such a certificate is to obtain a document confirming the reliability of the company. Additionally, the certificate is proof for the customers that the company is trustworthy and it works fairly on the market. Certificates ISO 9001 and 14001 certificates confirm the company's compliance with international standards regarding quality management and environmental protection.

The latest ISO standards required us to implement risk management methods recognized in Europe. termPIR® boards, in addition to the CE mark, have the Keymark mark recognized on Western thermal insulation markets, which is intended for top-shelf products. This certificate confirms that the manufacturer meets the high requirements regarding, among others, the method of production, testing, and declaring parameters (especially thermal). All parameters included in the declarations of performance are periodically and randomly verified by Keymark laboratories. It is worth adding the Scandinavian certification of the Nordic Swan Ecolabel to this noble group. Product quality and safety are also confirmed by entries in the databases in the Netherlands (EPDB), the Czech Republic (SVT), and Sweden (BVB, Sundahus).

The possession of the above-mentioned certificates is also associated with continuous supervision of the products. On average, Gór-Stal plants are audited every month, and their products are tested in recognized institutes in Germany, Belgium, the Netherlands, Sweden, Finland, Hungary, and Slovakia and checked by national research units with EU notifications: Certbud, ICiMB, IMBiGS, PCBC, and ITB.

Currently, the Gór-Stal company is implementing further quality certificates.

termPIR® AL R-eco / BT R-eco / ETX R-eco

termPIR® Insulation boards

UNBEATABLE SOLUTION FOR INCREASING ENERGY EFFICIENCY OF YOUR BUILDING!

They are hard and resistant to damage - **σ10 = 150 kPa**, do not change shape over time (they do not slump), and at the same time are light. Boards with a thickness of **120 mm** are only **3.6 kg /m²**.

They are a great insulating material. termPIR® boards have a coefficient of λ_D**= 0,022 (W/m•K)** gas-tight and λ_D **= 0,025-0,027 (W/m•K)** gas-permeable.

Our boards feature increased **fire resistance** they are a self-extinguishing material, i.e. they do not support combustion.

Forget about replacing damp insulation - waterproof / absorbability **below 2%** (termPIR® AL, termPIR® AGRO AL).

They are biologically and chemically resistant. You do not have to share your home with rodents and insects or worry about fungi or mould.

Insulation made with termPIR® in comparison with traditional thermal insulation methods, it requires the use of less material, and its installation consumes less time and effort, which translates into lower investment costs.

The boards are friendly to nature and safe for the natural environment and human health. They can be reused for the same purpose or reused to produce new plates.

Possibility of washing plates with pressure washers.

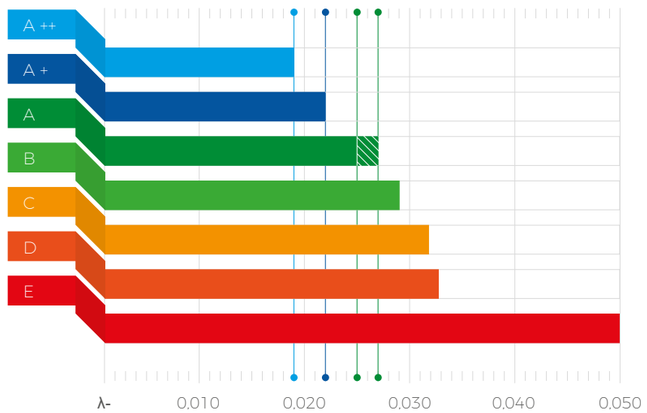
Resistance to ammonia and other volatile organic compounds.

Installation of termPIR® boards on a flat roof

termPIR® Insulation boards

INSULATION CLASSES

termPIR® boards provide thermal insulation that is more efficient when compared with other constructional materials, like mineral wool or Styrofoam. They are energy-saving, long-lasting and safe for use in residential buildings.



termPIR® MAX19 AL

termPIR® for gas-tight cladding

termPIR® for gas-permeable cladding

Styrofoam XPS

Styrofoam EPS

Mineral Wool

Cellular Concrete

termPIR® Insulation boards

KONDYGNACJE PŁYT termPIR® BOARDS

termPIR® AL

The termPIR® AL insulation boards comprise of a PIR rigid foam thermal insulation core. The boards are protected on both sides with a gas tight lining layer composed of aluminium (AL), paper and polyethylene.

termPIR® MAX 19 AL

The termPIR® MAX19 AL insulation boards comprise a rigid polyisocyanurate foam thermal insulation core, featuring a thermal conductivity coefficient of 0,019 [W/m·K]. The core is protected on both sides by gas resistant multilayer aluminium (AL), paper and polyethylene facings.

termPIR® AGRO AL

Płyty izolacyjne termPIR® AGRO AL składają się z rdzenia termoizolacyjnego ze sztywnej pianki PIR. Płyty zabezpieczone są obustronnie zmywalną, gazoszczelną okładziną z folii aluminiowej o grubości 50 µ m (Agro AL).

termPIR® AGRO P REV

termPIR® AGRO P REV insulation boards comprise a rigid polyisocyanurate foam thermal insulation core. The core is protected on both sides by gas resistant multilayer aluminium and polyethylene laminate (Agro P), with the aluminium layer facing the PIR core. termPIR® Agro P REV insulation boards are intended for use with materials that would enter into a reaction with aluminium. Boards intended for materials that may react with aluminum.

IZOPROOF® ALu

The IZOPROOF® ALu insulation boards comprise of a PIR rigid foam thermal insulation core. The boards are protected on both sides gas-tight aluminum foil lining with a thickness of 50 µm. A board intended for insulating flat roofs in glued and mechanical systems.

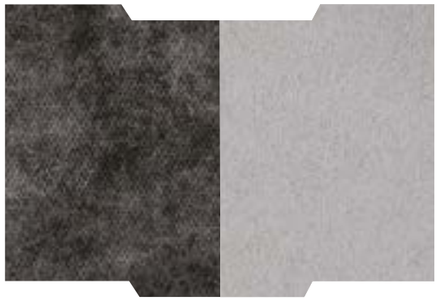
termPIR® WS

The termPIR® WS insulation boards comprise of a PIR rigid foam thermal insulation core. The boards are protected with gas- permeable lining from glass reticular fibre (WS).

termPIR® ETX

The termPIR® WS insulation boards comprise of a PIR rigid foam thermal insulation core. Covered with a gas-permeable cladding (ETX), dedicated to external walls in the ETICS system with a thickened structure made of glass veil. The above boards should be fixed to the wall with the printed side, otherwise there may be problems with the durability of the façade*

* Available with milling:
FIT (flat milling) - only for thickness 30 and 40 mm
TAG (tongue and groove) - only for thicknesses from 80 mm



termPIR® BWS

The termPIR® BWS insulation boards comprise of a PIR rigid foam thermal insulation core. The boards are protected with gas-permeable lining from glass reticular fibre (WS) on one side and with lining from glass reticular fibre impregnated with bitumen (BT) on the other side.

termPIR® AL GK

Płyty izolacyjne termPIR® AL GK składają się z płyty termPIR® z rdzeniem z pianki PIR pokrytej obustronnie gazoszczelną okładziną warstwową na bazie papieru, aluminium oraz płyty gipsowo-kartonowej o grubości 12,5 mm. Pomiędzy płytą z okładziną aluminiową, a płytą g-k znajduje się warstwa adhezyjna.

Dostępne wyłącznie z frezem FIT (frez płaski)

termPIR® OSB AL OSB

The termPIR® AL OSB (2) insulation boards consist of a termPIR® board with a PIR foam core covered on both sides with a gas-tight sandwich lining based on paper, aluminum and OSB boards on both sides with a thickness of 8 to 22 mm (one board). There is an adhesive layer between the plate with aluminum cladding and the OSB boards.

termPIR® AL GK-OSB

The termPIR® AL GK-OSB insulation boards consist of a termPIR® board with a PIR foam core covered on both sides with a gas-tight sandwich lining based on paper, aluminium and an 8 to 22 mm OSB board and a 12.5 mm thick GK board. There is an adhesive layer between the board with a glass veil cladding and the GK/OSB boards.

termPIR® AL-OSB

The termPIR® AL OSB insulation boards consist of a termPIR® board with a PIR foam core covered on both sides with a gas-tight sandwich cladding based on paper, aluminum and an OSB board with a thickness of 8 to 22 mm. There is an adhesive layer between the plate with aluminum cladding and the OSB board.

termPIR® AL GK

termPIR® AL GK composite insulation boards are composed of a termPIR® boards with a PIR foam core covered on both sides by gas-rasistant paper- and aluminium-based facings, and gypsum board with thickness od 12,5 mm. An adhesive layer bonds the paper- and aluminium-based facing and the gypsum board.

Available only with FIT (flat milling)

termPIR® Pro-F

The termPIR® Pro-F insulation boards comprise of a PIR rigid foam thermal insulation core. The boards are protected on both sides with a gas tight lining layer composed of aluminium, paper and polyethylene.

The product has received the FM Approval certificate, which means that it has passed a series of complex tests and meets the highest standards
in terms of fire protection and mechanical strength.

APPLICATION OF THERMAL INSULATION BOARDS termPIR® IN CONSTRUCTION

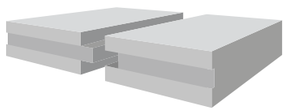
Insulation of foundations with termPIR® boards

In the range of termPIR® insulation boards you will find everything you need. When making thermal insulation of an industrial building, cold store or freezer, livestock facility or residential building with termPIR® boards, we have a guarantee of a low thermal conductivity coefficient of λ = 0.022 (W/m·K).

The use of this type of insulation allows the use of a thinner layer of insulation, thanks to which we gain a larger usable area. We cannot count on such effects when using traditional materials such as polystyrene or mineral wool.

termPIR® boards, which are used as a component of thermal insulation systems, perfectly fit into the idea of an energy-efficient building. They are used, among other things, for thermal insulation of pitched roofs, attics, flat roofs and terraces, insulation of walls, ceilings, basements, foundations and floors.

An additional advantage is the milled edges that facilitate assembly and increase thermal insulation.



TAG (tongue and groove from 40-250 mm)

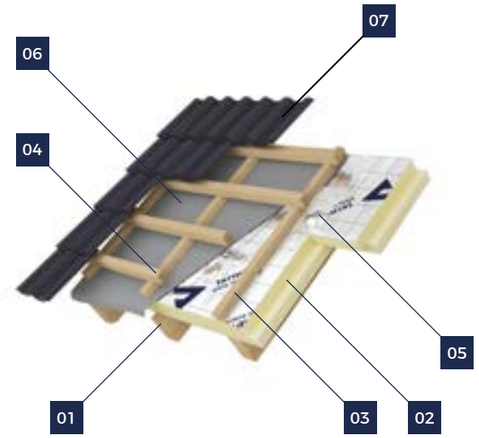
FIT (flat milling from 20-250 mm

LAP (stepwise milling from 40-250 mm)

Pitched roofs

Legend:
01. Rafter
02. Insulation boards termPIR® AL
03. Counter batten (min. 60 x 40 mm)
04. Batten
05. Aluminium tape
06. Wind proof (vapour membrne)
07. Roof covering

termPIR® boards are perfect for roof insulation, eliminating the problem of thermal bridges. When looking for lightweight and effective thermal insulation for your roof, consider choosing termPIR® solutions.

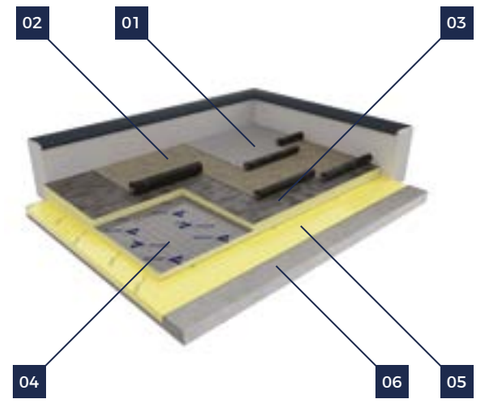


The on rafter system

Flat roofs and terraces

Legend:
01. Waterproofing (walded top- cover roofing membrane)
02. Waterproofing (weldable roofing base felt)
03. termPIR® BWS boards- sloping layer
04. termPIR® AL boards- appropriate waterproofing
05. Vapor barrier
06. Support layer (reinforced concrete slab)

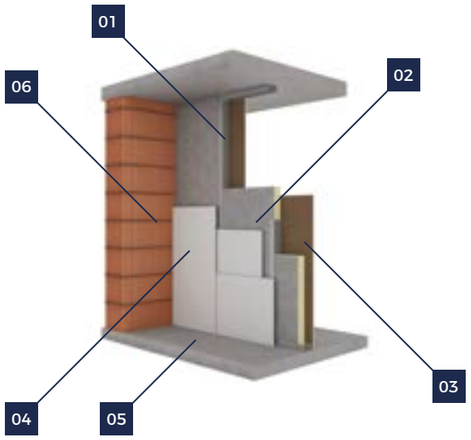
Roofs need to be insulated against moisture, frost and other weather conditions. termPIR® products will protect us against such problems. By choosing sandwich panels for the roof, you gain resistance to biological and chemical factors.



Adhesive or glued systems

Partition walls

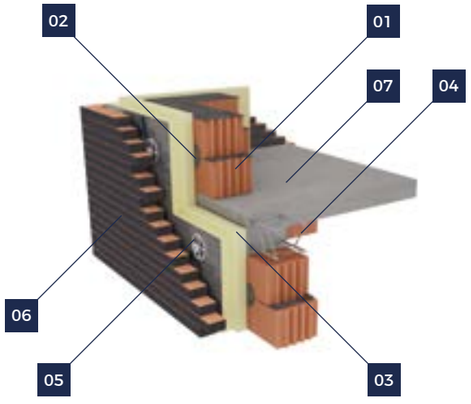
Legend:
01. Aluminum/ wooden frame
02. termPIR® WS insulation boards
03. Finishing layer e.g. g-k board
04. Finishing layer e.g. g-k board
05. Floor
06. Transverse wall



termPIR® boards offer excellent resistance to fire, water and thermal properties. For partition walls, we recommend using the termPIR® WS product.

External wall

Legend:
01. Hollow brick wall
02. Mineral or polyurethane adhesive
03. termPIR® AL / termPIR® WS insulation boards
04. Reinforced concrete tie beam
05. Fixing pin
06. Cover layer e.g. clinker brick
07. Reinforced concrete ceiling

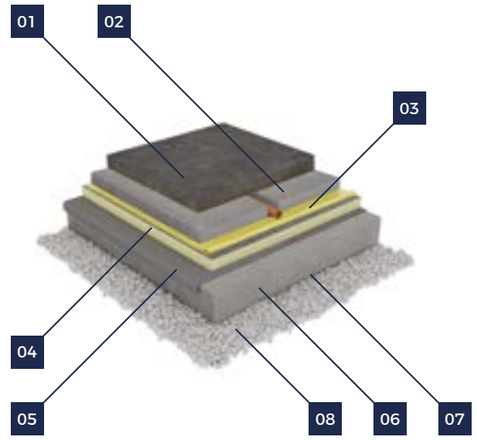


termPIR® insulation has many applications - it is a modern thermal insulator perfectly suitable for thermal insulation of external walls of a building in a two- and three-layer system.

Floors

Legend:
01. Wooden floor / tiles gres
02. Concrete screed, including heating pipes
03. Construction foil
04. Thermal insulation from termPIR® AL
05. Anti-moisture insulation from PE films (minimum thickness 0.2 mm)
06. Lean concrete
07. Water proofing (if needed)
08. Mechanically stabilized gravel

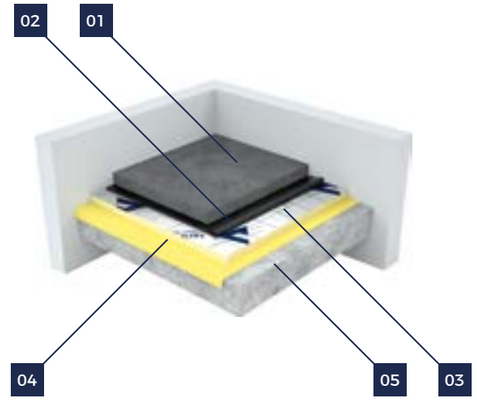
Another application of our materials is floor insulation. The basis of an energy-efficient house is proper thermal insulation. The termPIR® insulation board is easy to install, making it suitable for all surfaces.



Floor on the ground - two-layer insulation

Ceilings between storeys

Legend:
01. Concrete screed
02. Cut-off layer, e.g. construction foil
03. termPIR® AL inulation boards
04. Damp layer, e.g. roofing felt / waterproofing foil
05. Concrete ceiling



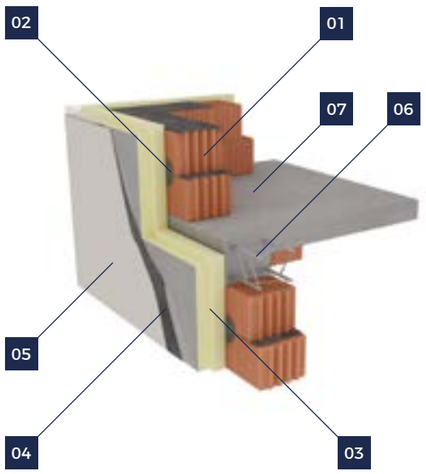
Thanks to the low thermal conductivity coefficient of termPIR® boards, it is possible to reduce the necessary insulation thickness (compared to other types of thermal insulation materials), and thus to create more usable space in the building.

We have developed along with Termo Organika the ETICS thermal insulation system witch allows users to make the most of the advantages of modern PIR inuslation material when used in the most commonly used building insulation system: External Thermal Insulation Composite System (ETICS).

This system is composed of termPIR® ETX insulation boards, specially selected adhesives, fibreglass reinforcing mesh, several types of plaster and paints as well as dedicated primers. The system comes complete with a set of accessories necessary for proper installation of the system.

EXTERNAL WALL
DOUBLE LAYER (ETICS)

Legenda:
01. Hollow brick wall
02. Mineral or polyurethane adhesive
03. termPIR® ETX insulation boards glued and attached mechanically*
04. Reinforced fibre mesh, embedded in all- purpose adhesive *
05. Thin plaster coat and render finish
06. Reinforced concrete tie beam
07. Reinforced concrete ceiling



*The ETICS thermal insulation system comprises a termPIR® ETX insulation boards and Termo Organika components. For more information please read „Guidelines on Installing ETICS Insulation Systems".

Update: 05.02.2025r

termPIR®
insulation boards

GÓR-STAL®
SANDWICH PANELS

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