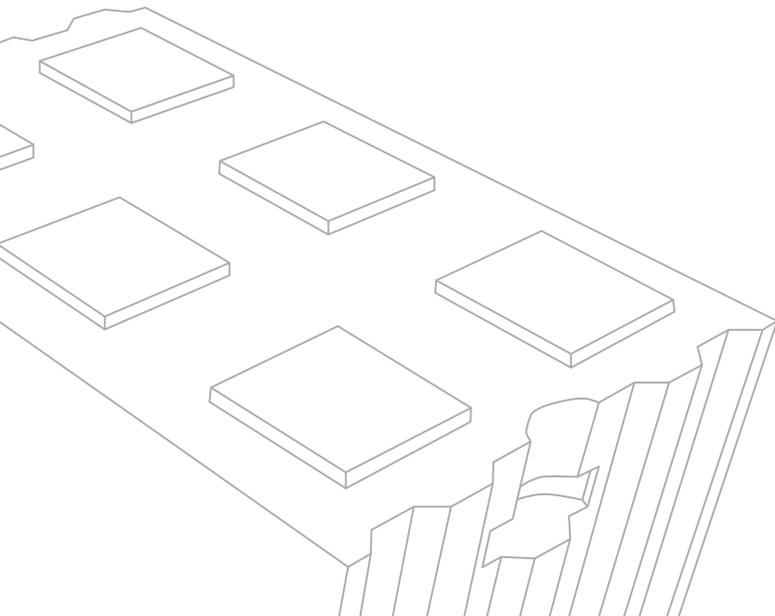




WYW  
BLOCK



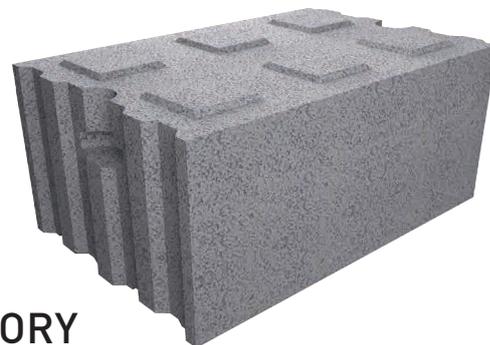
ENERGY EFFICIENT  
BUILDING STRUCTURE



...more than brick.

## ABOUT US

Our company manufactures and distributes revolutionary products that provide solutions world-wide to the greatest challenges of the construction industry. The polystyrene concrete panels and poured material and the **WYW Block „brick”** are suitable for building **AA+\*** energy rated buildings. Also, the polystyrene concrete panels and poured material offers a solution for **modernizing old buildings**.

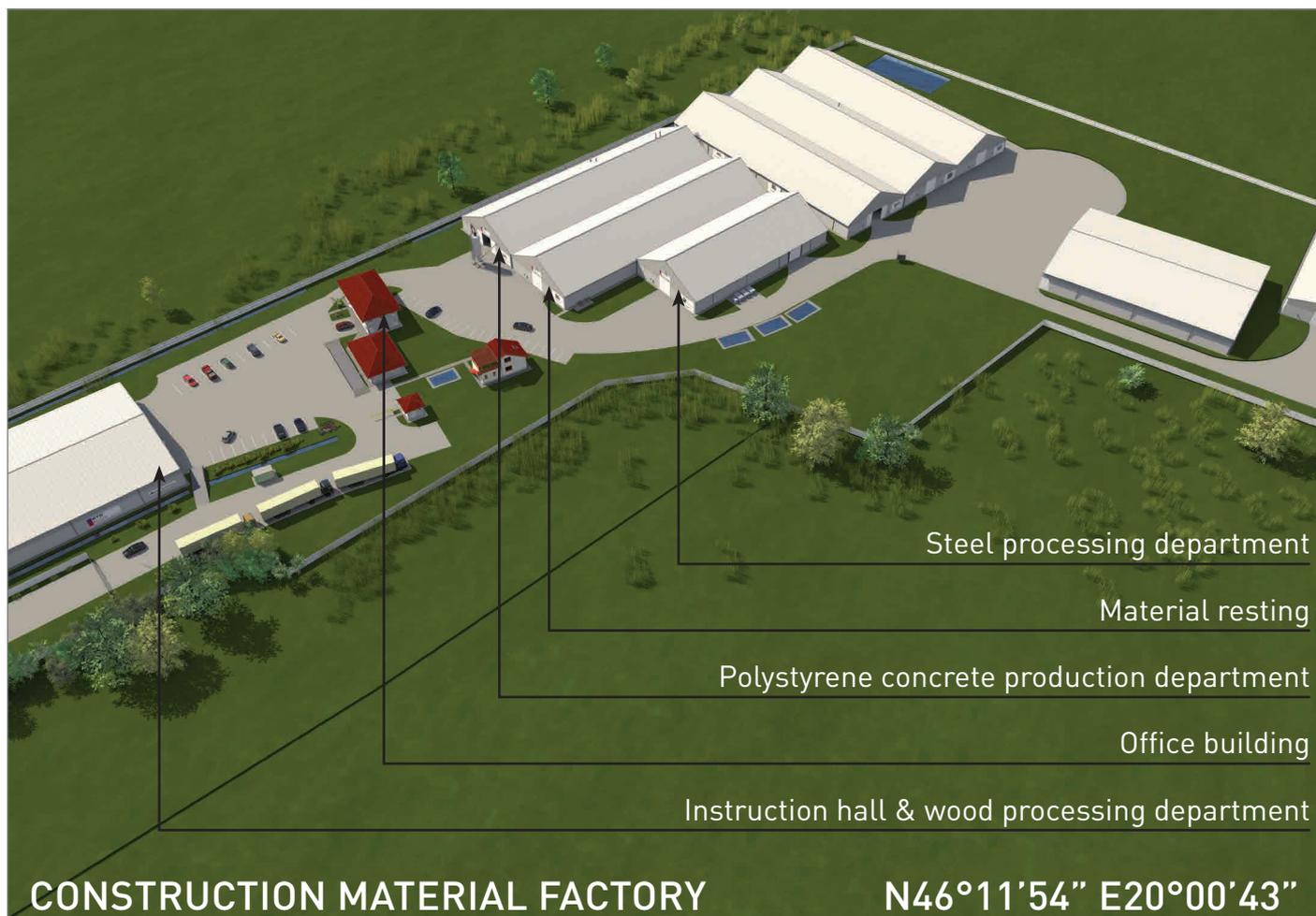


## WYW BLOCK CONSTRUCTION MATERIAL FACTORY

Our main activity, the production of construction materials takes place at our headquarters. We aim to serve the demands of the Hungarian market as well as the markets of the neighboring countries with our production, primarily to supply the material demands of buildings built with Löglen and WYW Block technologies. To ensure the trust of our clients, we have product liability insurance for the area of the EU.

In addition, the training of designers, contractors and sales personnel happens here. The participants can get to know the specific features of the above mentioned technologies.

Furthermore, we make room for research and development, since we understand the importance of continuous renewal and the development of newer and better products in our fast-changing world.



\*to achieve an energy rating ask for the help of a building energetics expert

### POLYSTYRENE CONCRETE PRODUCTION DEPT.

Within the factory, this is where the production and processing of polystyrene concrete and the production of polystyrene concrete panels, poured material and WYW Block „brick” takes place. In addition, it is possible to recycle polystyrene packaging material and leftover insulation.



### MATERIAL RESTING

The freshly produced polystyrene concrete is placed here until it reaches the adequate state when it becomes workable.



### OFFICE BUILDING

The theoretical instruction related to Löglen and WYW Block technologies takes place in the office building. Furthermore, design and administrative tasks are done here and the building provides venue for presentations and meetings.



### INSTRUCTION HALL & WOOD PROCESSING DEPT.

As implied by its name, the practical instructions related to the Löglen and WYW Block technologies are held here, and this is the hall where the wood required for the roof structures is processed and then the roof structures are preassembled with punched metal plate fasteners on a specialized workbench.



### STEEL PROCESSING DEPT.

The steel components used in Löglen and WYW Block construction systems are made here.



### FURTHER CAPACITY

The factory complex of WYW Block Zrt. provides space for storage, preassembly of buildings and there is further capacity to launch additional activities.



## POLYSTYRENE CONCRETE

Polystyrene concrete has been present in the construction industry for several decades, however, its application has not spread worldwide yet. Polystyrene is used for building insulation, since it offers a cheap solution, but in terms of fire-safety it has a great disadvantage that when the material burns, toxic smoke is produced. In contrast, polystyrene concrete is non-flammable, it provides excellent fire safety and it produces a minimal amount of smoke when burning.

Conventional concrete can be applied primarily for the construction of load-bearing structures, while structures built from polystyrene concrete have excellent insulating ability as well, therefore, they require no additional insulation. The two technologies can be combined well, polystyrene concrete can be applied as a frame filling with a reinforced concrete pillar structure, and the pillars can be insulated with polystyrene concrete panels to avoid the formation of thermal bridges. The durability of polystyrene concrete rivals that of conventional concrete.

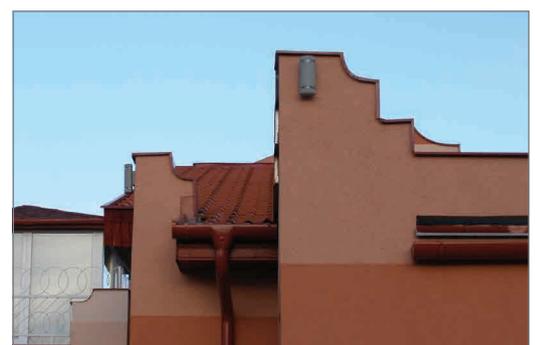
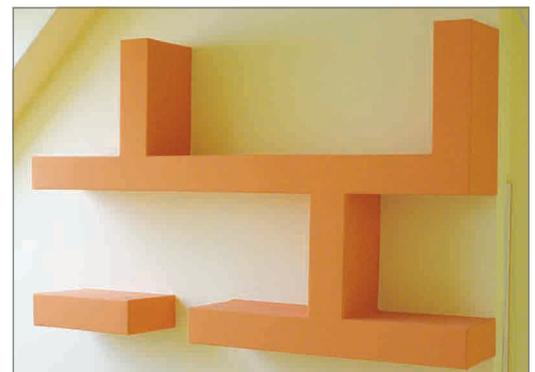
To make polystyrene concrete, we mix cement and water with EPS beads, so the main difference from conventional concrete is that instead of sand and gravel, we use EPS beads. This is what provides the advantages of the material, its excellent insulation and fire safety, and, compared to conventional construction materials, its significantly lower density. The density of polystyrene concrete is  $300 \text{ kg/m}^3$ , which enables building elements of bigger size that speed up construction works.

Polystyrene concrete is easily workable, it can be cut to size with simple tools, the grooves for pipes and wires can be made quickly and easily.

Polystyrene concrete is excellent for insulating existing buildings, creating dividing and partition walls, shelves and other indoor or outdoor decorations, attic conversion and creating the sloping layer of flat roofs. Its areas of application are similar to those of plasterboard systems.

Since the material is easy to work with and, due to its low density, building elements of bigger size can be applied, it enables fast construction, and due to its easy workability, simpler DIY works can be done with it.

With polystyrene concrete, we can create a so called Thermohouse, which is the result of a thermal-bridge-free, energy retaining, but "breathing" construction system, that provides a healthy and natural atmosphere for the people living in the house.



## OUR PRODUCTS

### POLYSTYRENE CONCRETE INSULATING SHEET

At the polystyrene concrete production department of our company, we produce the WYW Block Optimum Panel (made from original EPS beads) and WYW Block Green Panel (made from recycled EPS beads) polystyrene concrete insulating sheets in accordance with the National Technical Assessment (NTA) no. A-133/2014 issued by ÉMI Nonprofit Kft. The products are available in the following sizes:

Length:	max. 3000 mm
Width:	500-600 mm
Thickness:	30-200 mm

The polystyrene concrete insulating sheets are excellent for outdoor and indoor stuccoes, insulation, sills, formwork, parapet, partition walls or as the insulating layer of flat roofs.



### WOOD STRUCTURES

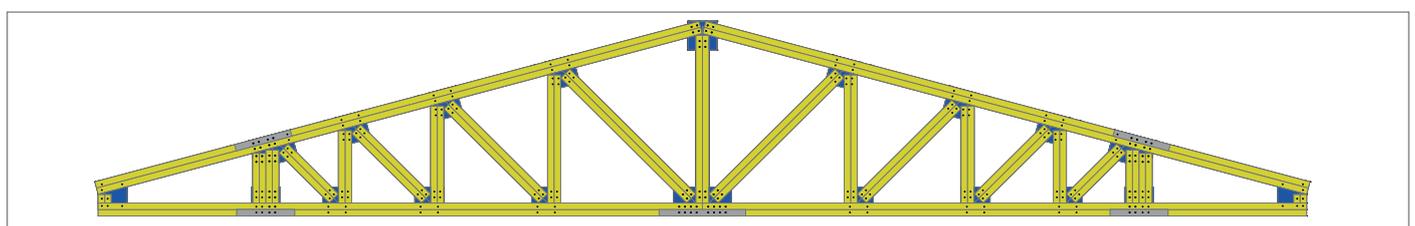
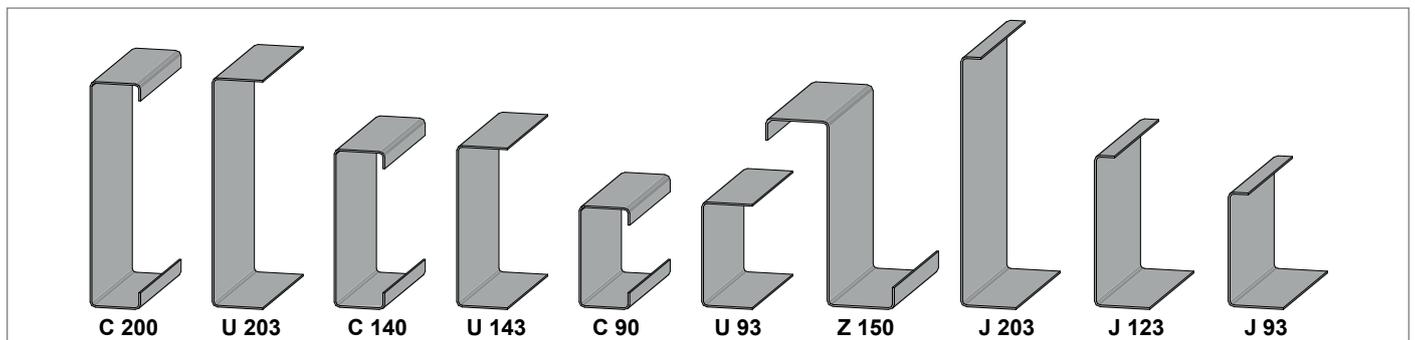
At our wood processing department, the members required for wood roof structures are cut to size and if necessary, they are treated with a specialized wood protection material.

The prefabricated wood structures assembled with punched metal plate fasteners are made from the cut-to-size members according to standard no. MSZ EN 14250:2010. Production is based on the plans of the ordered roof structure.



### STEEL PRODUCTS

At the steel processing department the "U", "C", "Z", "J" cold rolled steel sections and steel structures made thereof are produced according to standard no. MSZ EN 1090-1:2009+A1:2011. Wall modules, joists, roof trusses needed for building structures are preassembled from the steel profiles on special workbenches.



## CHOOSING THE OPTIMAL SOLUTION

Would you like a house for your family? Thinking of building a multistory apartment building? Would you like to start the construction of an office building with a pillar structure?

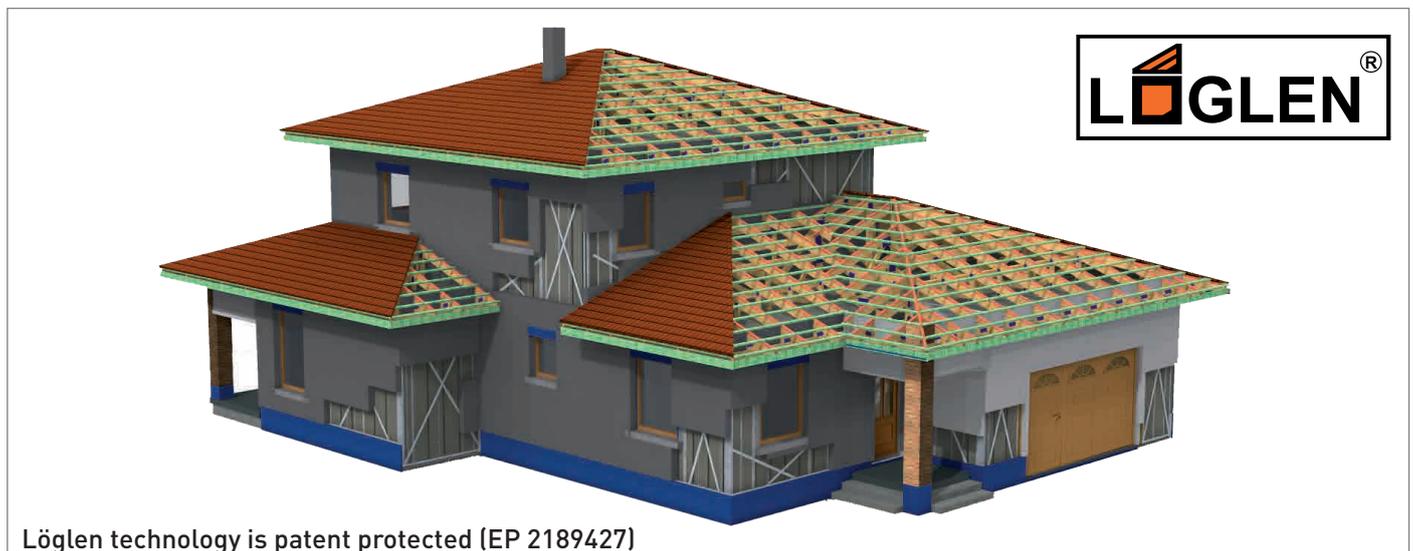
Löglen technology may offer an ideal solution for the construction of family homes, office and community buildings or, based on structural calculations, multistory apartment buildings. In addition, it may be a good choice for building the structure of agricultural buildings (accommodation for animals) and cold storages with the consideration of establishing good thermal properties.

Löglen technology combines the load bearing ability of steel or wood frame structures with the excellent characteristics of polystyrene concrete. As a result, you will get a healthy, safe and livable home with low maintenance costs. There are buildings built with this technology in Hungary, Austria, Slovakia and Sweden.

The combination of WYW Block "brick", as a frame filling, and a pillar structure may be the ideal solution for you. In addition, WYW Block "brick" is an efficient building component of single story residential buildings.

## LÖGLEN TECHNOLOGY

A building built with Löglen technology will look exactly like the ones built with conventional building material, however, considering the properties, you get something much more. Buildings built with Löglen technology meet the requirements of **AA+** energy rating without additional insulation. Their maintenance cost is low, their durability in case of steel frame is at least 50 years, so it is a good long-term choice, and also, the durability of polystyrene concrete rivals that of conventional concrete.



### LOAD BEARING STEEL FRAME STRUCTURE

The load bearing steel frame structures are manufactured from 1.5 mm thick hot-dip galvanized steel "U" (93; 143; 203) and "C" (90; 140; 200) profiles.



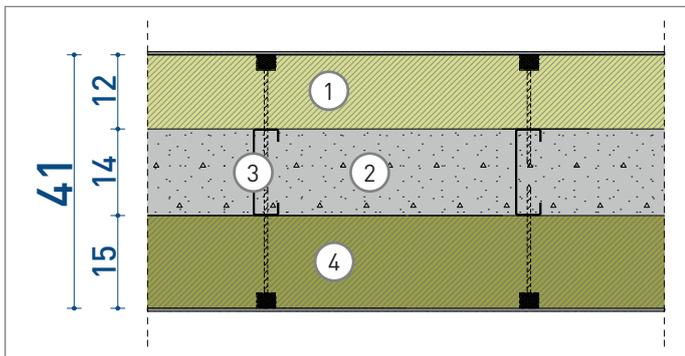
### LOAD BEARING WOOD FRAME STRUCTURE

The load bearing wood frame structures are made of finger jointed, kiln-dried, laminated timber of size 60x140 mm, with a steel "U" profile at the top and bottom of the wall modules.



## STRUCTURAL MEMBERS WITH STEEL FRAME

### LOAD BEARING WALL WITH STEEL FRAME



- ① 12 cm Polystyrene concrete panel
- ② 14 cm Poured polystyrene concrete
- ③ 14 cm Steel wall column
- ④ 15 cm Polystyrene concrete panel

Weight: 145 kg/m<sup>2</sup>

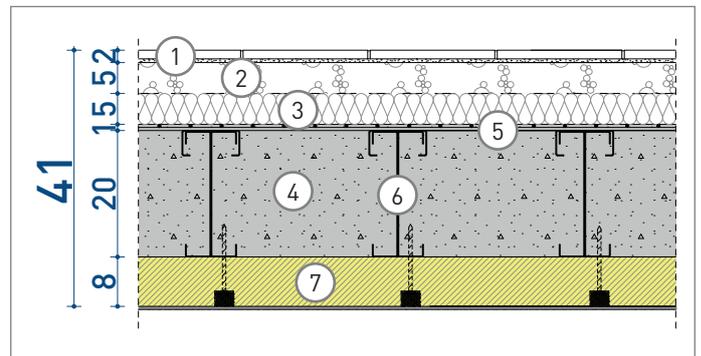
Thermal transmittance: U=0.21 W/m<sup>2</sup>K

Fire safety: (REI 90) A2\*<sup>1</sup>  
(REI 240) A2\*<sup>2</sup>  
(REI -M 240) A1\*<sup>3</sup>

Soundproofing: 38 dB

\*1 single steel frame structure  
\*2 double steel frame structure  
\*3 double steel frame structure + 6 cm fireproof plaster

### LOAD BEARING SLAB WITH STEEL FRAME



- ① 2 cm Floor cover
- ② 5 cm Estrich
- ③ 5 cm Impact sound insulation
- ④ 20+1 cm Poured polystyrene concrete
- ⑤ Load distribution mesh
- ⑥ 20 cm Steel joist
- ⑦ 8 cm Polystyrene concrete panel

Weight: 250 kg/m<sup>2</sup>

Loadability: 395 kg/m<sup>2</sup>

Fire safety: (REI-120) A2\*<sup>4</sup>

Span: max. 6.00 m

\*4 slab reinforced with C90 profile

## APPLICATION OF LÖGLEN CONSTRUCTION TECHNOLOGY

Löglen construction technology includes the structure of the building, it does not include the foundation and the finishing works required for turn-key condition. The WYW Block steel and wooden frame construction element sets, manufactured by WYW Block Zrt., are required for applying Löglen construction technology. The European Technical Assessment of the products is in progress and an NTA has been issued in Hungary (A-51/2014 by ÉMI Nonprofit Kft.) and in Slovakia (SK TP-16/0032 by TSUS n.o.) for the element sets.

The construction process of a house with a floor area of 100-120 m<sup>2</sup>, built with Löglen construction technology is presented below.

### PRODUCTION AND PREASSEMBLY IN THE FACTORY

While the foundation works are in progress, the wall modules and roof structures are preassembled, the polystyrene concrete products required for the structure of the building are produced and prepared, and other necessary supplementary materials are procured and put together at the factory of WYW Block Zrt.



### ON-SITE ASSEMBLY

As soon as the foundation of the building hardens, the on-site assembly of the building structure can begin. This includes the following processes:

**Erection of steel structure**

**2 days**

**On-site assembly of roof structure**

**3 days**



...more than brick.

**Fixing polystyrene concrete panels**

**4 days**

**Dividing walls**

**1 day**



**Pouring polystyrene concrete**

**3 days**

**Polishing surfaces**

**1 day**



**Battens, underlayment on roof structure**

**2 days**

**Building structure total**

**16 days**



The structure of a house with a floor area of 100-120 m<sup>2</sup> is finished in 16 days under ideal conditions. It is possible to start building engineering installations during on-site assembly, therefore the technology shortens the construction time of the building significantly.

## WYW BLOCK CONSTRUCTION SYSTEM

The core component of WYW Block construction system is the polystyrene concrete masonry unit: the WYW Block “brick”.

The WYW Block “brick” has only inherited the shape of conventional bricks. The WYW Block building block is much better in terms of parameters, and due to its size construction becomes faster, while its weight provides easy movability.

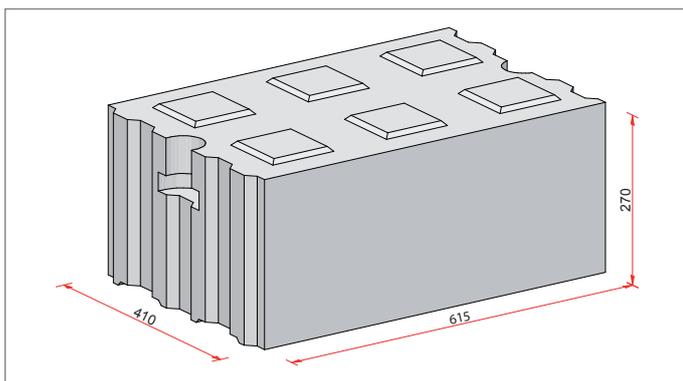
The construction system is perfectly suited for building single story family homes and for building the frame filling walls of framed buildings, thereby providing excellent insulation and fire safety.

WYW Block construction system enables faster construction of taller buildings and bigger apartment buildings compared to other, conventional technologies. Also, the construction system allows making these buildings energy efficient with **AA+** energy rating.

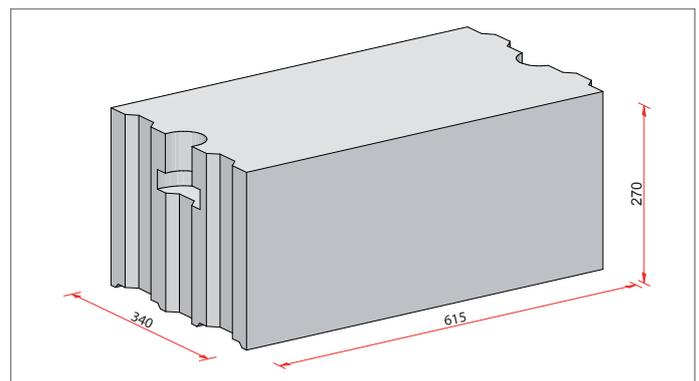
A huge advantage of the system is that, in contrast to its competitors, it is able to deliver the expected thermal insulation values without applying additional insulation. This way you may save time, space and money.

The basic element set of the system is the WYW Block Optimum or Green “brick” masonry unit 38, and WYW Block Optimum or Green “brick” masonry unit 30.

The masonry units are solid blocks made by processing precast polystyrene concrete and they are available in the sizes below:



Size 38  
length: 615 mm  
width: 410 mm  
height: 270 mm  
specified weight: 20.13 kg



Size 30  
length: 615 mm  
width: 340 mm  
height: 270 mm  
specified weight: 16.79 kg



The products are made of original (Optimum) or recycled (Green) EPS beads.

The ÉMI Nonprofit Kft. for Quality Control and Innovation in Building has issued a National Technical Assessment for the WYW Block masonry units, whose number is A-37/2015.



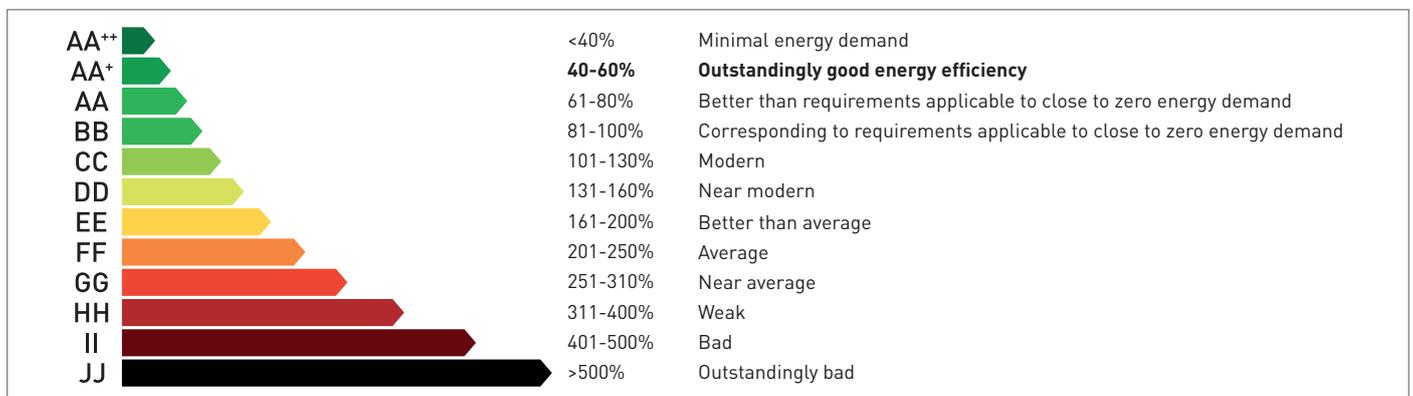
Based on the assessment, beside the low density (300 kg/m<sup>3</sup>) it has excellent insulating capability (in case of 41 cm wall U=0.18 W/m<sup>2</sup>K). In addition, it will provide 240 minutes of fire protection without additional layers. The fire resistance class of the masonry units is A2 (s1, d0), therefore they are non-flammable.

There is no need to worry about mold and mycosis either, since the walls are **permeable and free of thermal bridges**, so air handling units are not always necessary.

To fix the building blocks after easy assembly an adhesive foam is needed, which minimizes water usage and moisture content of the building material. This way the construction does not depend on the season or the weather, it is **applicable down to -10°C**.

Compared to conventional building materials the weight of **WYW Block** "brick" is lower, and due to its bigger size it enables **easy and faster construction**. Also, the weight of the building structure will be less, so the sizes of the foundation and supporting structure of the building can be decreased, thereby achieving significant savings.

Thanks to the material, the waste generated during the production and use of the **WYW Block** building block is mostly **reusable**. This contributes to the **eco-friendly** nature of the product and technology, which is an extremely important requirement nowadays.



## FURTHER AREAS OF APPLICATION

- Developing the fire safety and insulation of industrial halls with lower costs
- Insulation of the flat roof of industrial halls, department stores
- Renovation of historic buildings, development of facades (due to its light weight and workability)
- Replacement of wood slabs with slabs with lightweight structure, thereby saving time and money
- False ceiling
- Decoration



VIDEO

# WYW BLOCK ZRT

H-6758 Rösztke, Kälterület 082/38.

Tel: +36 62 573 330

E-mail: info@wywblock.hu

[WWW.WYWBLOCK.COM](http://WWW.WYWBLOCK.COM)



REFERENCES

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