



**SZERELVENYBOLT.HU**



**HUNGARY**



**SZERELVÉNYBOLT LTD.**

**CONSTRUCTION MATERIAL MANUFACTURING**

Production and distribution activities of WYWBLOCK Zrt. Were taken over by  
Szerelvénybolt Kft.

# CONSTRUCTION MATERIAL PRODUCTION AND TECHNOLOGIES



# WYW BLOCK

## SZERELVÉNYBOLT

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Website: [www.wywblock.hu](http://www.wywblock.hu)

[www.loglen.com](http://www.loglen.com)



Industry: Construction industry

We are searching for contracting companies and investors for technology transfer.

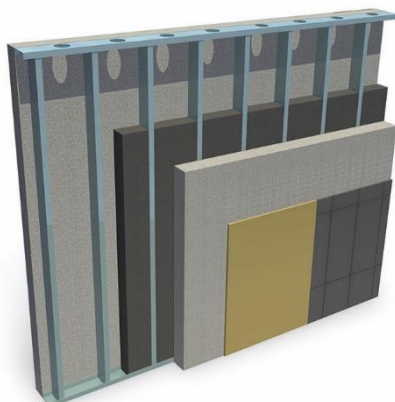


[Video](#)



EOTA® ([www.eota.eu](http://www.eota.eu))

ETA – 20/0610



EOTA® ([www.eota.eu](http://www.eota.eu))

ETA – 16/0953

Szerelvénybolt LTD. produces polystyrene concrete construction materials, steel and lumber structures under the WYW BLOCK brand name and supports their application in most fields of the construction industry (construction of residential, industry, agricultural and community buildings, schools, hospitals, etc.).

We have our own patented construction technology and system under LÖGLEN brand name. The patent is protected in numerous countries of the World (e.g.: EU, USA, China and Russia). Several buildings have been built with this construction technology and with decades of experience a complex knowledge base has been developed which includes the know-how related to planning, production and construction.

Along with the production we are continuously working on developing new products.

LÖGLEN construction technology combines polystyrene concrete with steel or lumber load-bearing structures. Polystyrene concrete is applied in the structure in panel and bulk, poured form. The polystyrene concrete and the frame structure create a homogeneous structure without thermal bridges and its durability is minimum 50 years.

(<https://youtu.be/YkLw3p9ra6E>)

Our WYW BLOCK construction technology and system, with the WYW BLOCK „brick” masonry unit as its basic component, is suitable for building two story family homes and the frame filling walls of framed buildings. Also it enables faster construction compared to traditional technologies. Walls composed of these masonry units have excellent insulating capabilities and fire safety standards, required insulating values can be achieved without further, subsequent insulation, which saves time and money.

(<https://youtu.be/hSzdaNj8Zzw>)



References



Abu Dhabi project

## WYW Block - LÖGLEN Introduction

Revolutionary European construction technology startup combining:



- ✓ outstanding thermal parameters of polystyrene pearl concrete
- ✓ load-bearing strength of steel, lumber or pillar structures
- ...together forming a solid, thermal bridge-free, homogenous building

Production lines use European, best-in-class, top brand machinery

Requiring simple, globally accessible raw materials

WYW Block and LÖGLEN technologies are patented world-wide



Europe Hungary Eurasia Vietnam China U.S.A. S. Africa Kenya Morocco

WYW Block and LÖGLEN systems are EU Building Code compliant and are approved by EMI Nonprofit Kft. (ETA – 16/0953, ETA – 20/0610, EOTA® -[www.eota.eu](http://www.eota.eu))

## Endless application possibilities



### Residential

- Single Family Houses
- Multi Level Block Housing

### Industrial

- Factory Buildings
- Office Buildings

### Retail

- Retail buildings
- shopping centers

### Agriculture

- Animal accommodation
- Storage, Cold(!) storage

### Community

- Hospitals
- Schools, Universities
- Churches, Mosques

### Social

- Low-cost housing
- Emergency / Relief housing

### Government

- Military barracks, Prisons
- Storage Facilities



## WYW Block - LÖGLEN Technology benefits



### Speed

16 days\* to finished structure  
Light weight, fast assembly



### Exceptional Insulation

AA+ Energy classified  
less energy usage



### Excellent Fire Safety

A2 fire safety rating  
4hrs fire protection



### Light Weight

8x lighter than concrete  
2.5x lighter than brick



### Sound Isolation

Appropriate sound absorption



### Eco-Friendly

Reusable production waste  
and building materials



### “Breathing” walls

Permeable, vapor-diffusion  
through the wall structure



### Healthy

Thermal bridge-free insulation  
prevents mold, mycosis



### Durable

50+ years lifetime. Durability  
rivals conventional concrete.



### Price

Premium technical content,  
quality at a price advantage

\*requires a ready to build, load bearing foundation  
Based on the construction of a 100-120sqm house

## The investment opportunity

WE'RE OFFERING: WYW-Block/LÖGLEN Construction Systems



- ✓ Licenses, Sales and Distribution Rights, Know-How
- ✓ Building material factory design and operation support
- ✓ All necessary production machinery and software
- ✓ Factory set-up, Training and support
- ✓ Integrated Construction Technology

COMPLETE SOLUTION: The Building Materials Factory produces all necessary elements for the WYW-Block/LÖGLEN construction systems

PRODUCTION CAPACITY: 36,000-360,000 m<sup>2</sup> (GFA) annually /factory

PROFITABILITY: Base-case calculation use market price for raw materials:

## LÖGLEN, WYW Block Building Systems

A Revolutionary PolyStyrene Pearl "PSP" Concrete Construction System

PSP Concrete Wall Panels    Granule

Steel/Lumber Frames

WYW BLOCK

PSP Concrete "Brick" blocks

## AA+: Thermal "Wrap" Concept

**Thermal "Wrap"**  
Interior living space is "wrapped" around in 30-50cm wide PSP concrete structure, which also provides highly effective (AA+) insulation.

**AA+ Insulation**  
PSP concrete panels and the injected granule fuse into a strong, homogenous, thermal bridge-free wall and slab.

Slab 41cm    Granule 30-50cm    Wall structure 41cm

## Complete building construction system

External wall w/ steel or lumber frame structure

Ceiling slab

Dividing wall

WYW BLOCK

Self-supporting wall (single-story building!)

High-Rise frame filling

## Hot (cold) day outside, comfortable inside...

**Exceptional heat insulation (AA+)**  
The entire width of the PSP Concrete structure is working as insulation.

Illustration

Time	Room Temperature	Wall structure 41cm	External Temperature
9:00 AM	23°C		21°C
12:00 PM	23°C		38°C
15:00 PM	26°C		35°C
18:00 PM	23°C		25°C

## Simple, easy-to-source raw materials

### Polystyrene Pearl aka "PSP" Concrete



Cement



Polystyrene balls



Water



Additives

### Load-bearing Structures



Steel (hot-dip, galvanized)



Lumber

### Supplementary materials



Mounting



Binding and Surface treatment

## PSP Concrete Panel Production Process

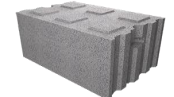
- ① **Mixing** Raw materials mixed using special formula
- ② **Compression** Pressure compressed into special boxes
- ③ **Heat Treatment** No heat treatment required!
- ④ **Drying** Ventilated in outside storage units
- ⑤ **Cut-to-size** Panels are cut to exact size
- ⑥ **Waste recycled** Cutting waste is recycled into bulk granule
- ⑦ **Storage** Cut panels are packaged and stored
- ⑧ **Delivery** Panels are shipped to building site



Wall panels



Dividing walls



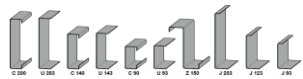
WYW Blocks

## Production of load-bearing structures

### Steel Structures



Special automatic steel production line



Production of all necessary steel profiles



Frames assembled in factory to specs

### Lumber Structures



Automatic planer



Automatic cutting to size and milling



Structures assembled in factory to specs



Lumber frames



Steel frames



Lumber roof



Steel roof

## Light weight, energy efficient and more...

### Polystyrene Pearl (PSP) Concrete: key technical parameters



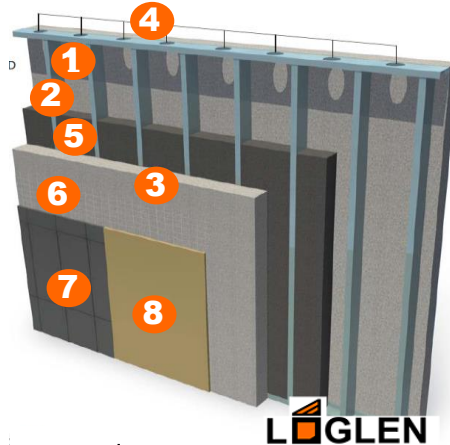
<b>Density</b>	300 kg/m <sup>3</sup>
<b>Thermal conductivity</b>	0.069 W/mK
<b>Sound isolation</b>	41 cm - 42 dB
<b>Fire resistance</b>	A2
<b>Vapor diffusion</b>	$\mu = 7-10$

### Excellent energy efficiency and thermal insulation

AA++	< 40%	Minimal energy demand
AA+	40-60%	<b>Outstandingly good energy efficiency</b>
AA	61-80%	Better than required
BB	81-100%	Up to the requirement
CC	101-130%	Modern
DD	131-160%	Near modern
EE	161-200%	Better than average
FF	201-250%	Average
GG	251-310%	Near Average
HH	311-400%	Weak

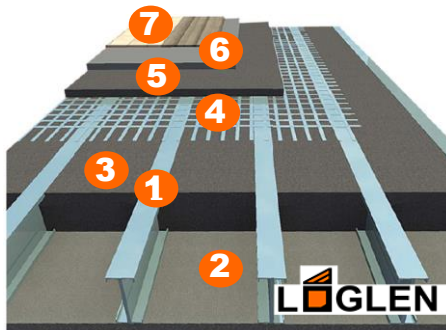
## Load-bearing wall with steel frame – 41cm

- ① 14cm steel structure
- ② 15cm PSP concrete panel (external)
- ③ 12cm PSP concrete panel (internal)
- ④ Injection holes 8cm diameter
- ⑤ 14cm injected PSP concrete granule
- ⑥ Fiberglass net
- ⑦ Plaster
- ⑧ Wall coverage - paint, tile, etc...



The panels and the injected identical material embrace the steel frames and fuse into a solid, homogenous mass, creating a strong, thermal bridge-free structure.

## Load-bearing slab with steel frame – 41cm



- ① 20cm steel beam
- ② 8cm PSP concrete panel
- ③ 20+1cm poured PSP concrete granule
- ④ Load-distribution grid
- ⑤ 5cm impact sound insulation
- ⑥ 5cm estrich/screed concrete
- ⑦ 2cm Flooring



### Uniquely **SUPER-FAST** construction

**LOGLEN** slab technology supports its own light weight, thus **no shuttering** nor **strutting is required**: no need to wait weeks for the concrete to set before continuing. Right after the slab is poured, construction of the next floors can immediately continue!

## Only 16 days\* to build a house structure



### PREPARATION

Production and pre-assembly at the factory



### START (Day 1)

Erection of the (pre-fab) steel structure



### Day 3

On-site assembly of the roof structure



### Day 6

Fixing the PSP concrete panels



### Day 10

Dividing walls (piping, wiring installed)



### Day 11

Pouring PSP concrete in walls, slabs



### Day 14

Polishing surfaces



### Day 15

Battens, underlayment of roof structure





















### Day 16

Building structure complete, no further insulation necessary

\*requires a ready to build, load bearing foundation  
Presents the construction process of a 100-120sqm house

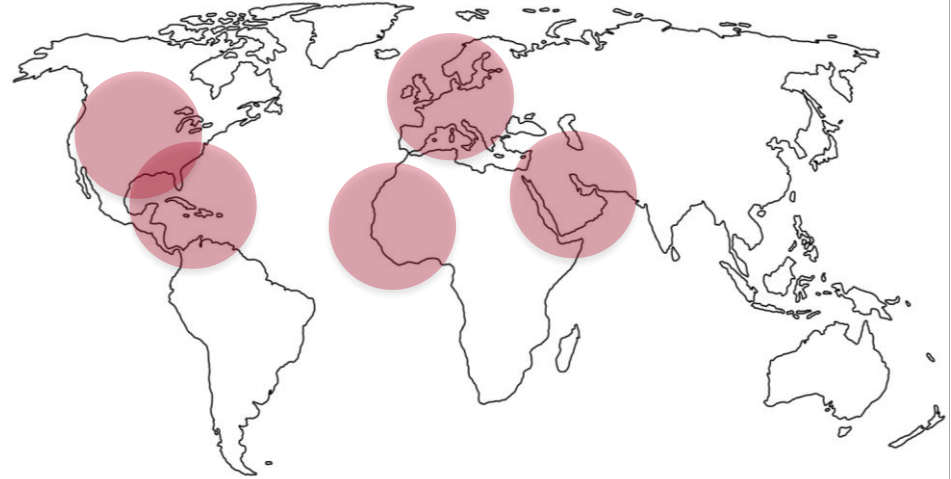
## Used from single-story to high-rise buildings

Building types	External walls	Dividing walls	Load bearing structure	Slabs
 High-rise		 	Steel/ Concrete Pillars	Concrete slab
 Multi level (max. 3)		 		
 1-2 story	 	 	 	

## Reference Factory in Rösztke, Hungary



## Active global projects pipeline



## Abu Dhabi project pilot house



- 672.6 m<sup>2</sup> two-story luxury house
- Structure completed in 1 month
- 3 supervisors
- 16 unskilled workers

□ [Time-lapse video](#)



## Apartment house

**WYW BLOCK** ... több mint téglá.

38-as falvastagság ...  
U=0,18 W/m<sup>2</sup>K

WWW.WYWBLOCK.HU

OBILDA-TESTVERHEGY LAKÓKERT

Tervezők: ZOOM DESIGN KIT.  
06-1/430-11-39  
Borók Tamás Riez Zoltán  
E/1 01-3713/12 E/1 01-4883/12

Építkezés helye: 1037 Budapest  
Kocsis Sándor u. 4.

## Sweden

**WYW BLOCK**

AA+

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Tamas Megyesi  
016 428 7520

BYGGFIRMA: KBL Bygg och Badrum AB  
030 201 7040

BYGGPLATS: Finnsjöng. Mellby 3:10  
SVERIGE

WWW.WYWBLOCK.HU

**LOGLEN**



REFERENCES, HUNGARY



**WYW BLOCK** ... több mint téglá.



**ÉPÜLETSZERKEZET**



**ALACSONY ENERGIÁJÚ ÉPÜLET** **A+**

TERVEZŐ: **Csillag Tibor**  
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KIVITELEZŐ: **INNOVASZER Kft.**  
TEL.: 06-20510-41-37

Építkezés helyszíne: 6729 Szeged,  
Detre János u. 14/A

TOVÁBBI INFORMÁCIÓ: [WWW.WYWBLOCK.HU](http://WWW.WYWBLOCK.HU)



# SZEGED



**WYW BLOCK** ... több mint téglá.



**ÉPÜLETSZERKEZET**



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TERVEZŐ: **Csuka Zoltán**  
06-30355-36-37

KIVITELEZŐ: **VERES BAU Kft.**  
06-70727-95-95

Építkezés címe: 6726 Szeged  
Klára u. 26.

TOVÁBBI INFORMÁCIÓ: [WWW.WYWBLOCK.HU](http://WWW.WYWBLOCK.HU)



# SZEGED



**WYW BLOCK** ... több mint téglá.



**ÉPÜLETSZERKEZET**



**ALACSONY ENERGIÁJÚ ÉPÜLET** **AA+**

TERVEZŐ: **Seres Bélané**  
épl. építésszámolók

KIVITELEZŐ: **DOMUS HAUS Kft.**  
TEL.: 06-70317-30-12

Építkezés címe: 9172 Győrzámoly Hrsz.: 833/16.

TOVÁBBI INFORMÁCIÓ: [WWW.WYWBLOCK.HU](http://WWW.WYWBLOCK.HU)



# GYŐRZÁMOLY





# REFERENCES, HUNGARY



**WYW BLOCK** ... több mint félszáz év



TERVEZŐ: Szabó István  
KIVITELEZŐ: Építő Kft.  
GYÁRTÓ: WYW BLOCK Zrt.  
Építkezés címe: 8701 Torony, Borek utca, hrsz.5475

AA+



## TORONY



**WYW BLOCK** ... több mint félszáz év



TERVEZŐ: Szabó István  
KIVITELEZŐ: Építő Kft.  
GYÁRTÓ: WYW BLOCK Zrt.  
Építkezés címe: 2045 Törökbálint, Fenyő köz 13.


AA+



## TÖRÖKBÁLINT




**WYW BLOCK** ... több mint félszáz év



TERVEZŐ: Bobbly Andrea  
KIVITELEZŐ: Optimal House Kft.  
GYÁRTÓ: WYW BLOCK Zrt.  
Építkezés címe: 6725 Szeged, Török u. 3/a

AA+



## SZEGED



# REFERENCES, HUNGARY



## BUDAPEST

**WYW BLOCK** ... több mint téglá.

**"38"** -as ( falvastagság 41 cm )  
**U=0,18 W/m<sup>2</sup>K**

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TOVÁBBI HÁZAK, MODELLEK QR KÓD



ÓBUDA-TESTVÉRHEGY LAKÓKERT



Tervezők: ZOOM DESIGN Kft.  
06-1/430-11-39  
Borók Tamás Riez Zoltán  
É/1 01-3711/12 É/1 01-4493/12

Építkezés helye: 1037 Budapest  
Kocsis Sándor u. 4.



**WYW BLOCK** ... több mint téglá.

**"38"** -as ( falvastagság 41 cm )  
**U=0,18 W/m<sup>2</sup>K**

WWW.WYWBLOCK.HU

TOVÁBBI HÁZAK, MODELLEK QR KÓD



Tervező: Korényi és Társai Építész Kft.  
É/1 01-2590  
06-1/381-0411

Építető: Elektrocentrum Kft.

Kivitelező: Albert Sámuel E.V.

Építkezés helye: 1037 Budapest, Bécsi út 250.

Várható befejezés: 2017 IV. negyedév

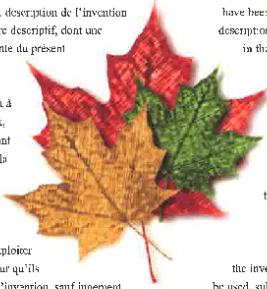




Brevet canadien / Canadian Patent

Le présent brevet a été accordé en vertu d'une demande de brevet déposée en vertu de la Loi sur les brevets. Le titre et la description de l'invention figurent dans le mémoire descriptif, dont une copie fait partie intégrante du présent document.

Le présent brevet confère à son titulaire et à ses représentants légaux, pour une période expirant vingt ans à compter de la date du dépôt de la demande au Canada, le droit, la faculté et le privilège exclusif de fabriquer, construire, exploiter et vendre à d'autres, pour qu'ils l'exploitent, l'objet de l'invention, sans jugement en l'espèce rendu par un tribunal compétent, et sous réserve du paiement des taxes périodiques.



The Commissioner of Patents has received a petition for the grant of a patent for an invention. The requirements of the Patent Act have been complied with. The title and a description of the invention are contained in the specification, a copy of which forms an integral part of this document.

The present patent grants to its owner and to its legal representatives of its owner, for a term which expires twenty years from the filing date of the application in Canada, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used, subject to adjudication before any court of competent jurisdiction, and subject to the payment of maintenance fees.

BREVET CANADIEN 2,743,205 CANADIAN PATENT

Date à laquelle le brevet a été accordé et délivré	2016/10/18	Date on which the patent was granted and issued
Date du dépôt de la demande	2009/11/10	Filing date of the application
Date à laquelle la demande est devenue accessible au public pour consultation	2010/05/27	Date on which the application was made available for public inspection

Commissionnaire aux brevets / Commissioner of Patents

3536 (3/09) 01/09/16



US008539721B2

(12) United States Patent  
Antal

(10) Patent No.: US 8,539,721 B2  
(45) Date of Patent: Sep. 24, 2013

(54) LIGHTWEIGHT BUILDING STRUCTURE PRODUCED BY USING A MORTAR AND A METHOD FOR THE PRODUCTION  
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2007/0062143 A1 \* 3/2007 Noushad 52426

(76) Inventor: Istvan Antal, Szeged (HU)  
(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 115 days.

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Tang et al. "Mechanical and drying shrinkage properties of structural-graded polystyrene aggregate concrete", Jan. 18, 2008, pp. 403-409, vol. 30, No. 5, Cement and Concrete Composites, Elsevier Applied Science, Barking, GB (Abstract).

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Primary Examiner — Branon Painter  
(74) Attorney, Agent, or Firm — Abe Hershkovitz, Hershkovitz & Associates PLLC

(21) Appl. No.: 13/128,789  
(22) PCT Filed: Nov. 10, 2009

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§ 371 (c)(1),  
(2), (4) Date: May 11, 2011

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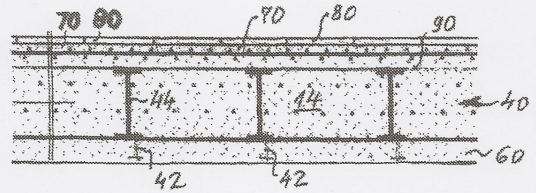
(30) Foreign Application Priority Data  
Nov. 19, 2008 (HU) 0800701

(51) Int. Cl. E94B 7/04 (2006.01)  
(52) U.S. CL. USPC 52/91.1; 52/426

(58) Field of Classification Search  
USPC 52/91.1, 426  
See application file for complete search history.

(56) References Cited  
U.S. PATENT DOCUMENTS  
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3,992,844 A \* 11/1976 Greter 52/426

2 Claims, 1 Drawing Sheet



URKUNDE

Es wird hiermit bescheinigt, dass für die in der Patentschrift beschriebene Erfindung ein europäisches Patent für die in der Patentschrift bezeichneten Vertragsstaaten erteilt worden ist.

CERTIFICATE

It is hereby certified that a European patent has been granted in respect of the invention described in the patent specification for the Contracting States designated in the specification.

CERTIFICAT

Il est certifié qu'un brevet européen a été délivré pour l'invention décrite dans le fascicule de brevet, pour les Etats contractants désignés dans le fascicule de brevet.

Europäisches Patent-Nr.	European patent No.	Brevet européen n°
	2189427	
Patentinhaber	Proprietor of the patent	Titulair du brevet

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Állomás utca. 2,  
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Benoit Battistelli  
Náminst des Europäischen Patentamts  
President of the European Patent Office  
Président de l'Office européen des brevets

München, den 25.12.13  
Paris, le 25.12.13

The Director of the United States Patent and Trademark Office

The United States of America

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.



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...more than a brick.