



YOUR SUCCESS IS:

economy, ecology
and innovation.

About



Our company specializes in the manufacturing of precast elements, i.e. walls, ceilings, roofs and complete modular structures. Our products have pertinent technical approvals, as well as an extensive production methodology, guaranteeing high quality and cohesion with global standards. We are a leader in the manufacturing of structural insulated panels (SIPs)

ENV TECHNOLOGIES IS:

- 4 fully-equipped production plants
- Sufficient production capacity to cover nearly every order
- Proven products holding Building Research Institute approvals.



4 PRODUCTION PLANTS



Venture map

Four production plants in Europe



Production capacity

SIP Panel annual production capacity **170 000 sq. m.**



Products and technologies

MgO Green technology **main benefits:**

Additional benefits:



Economical



Fire resistance



Moisture resistance



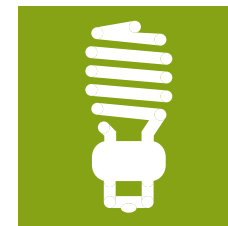
Ecological



Lightweight



Thermal insulation



Energy-efficient



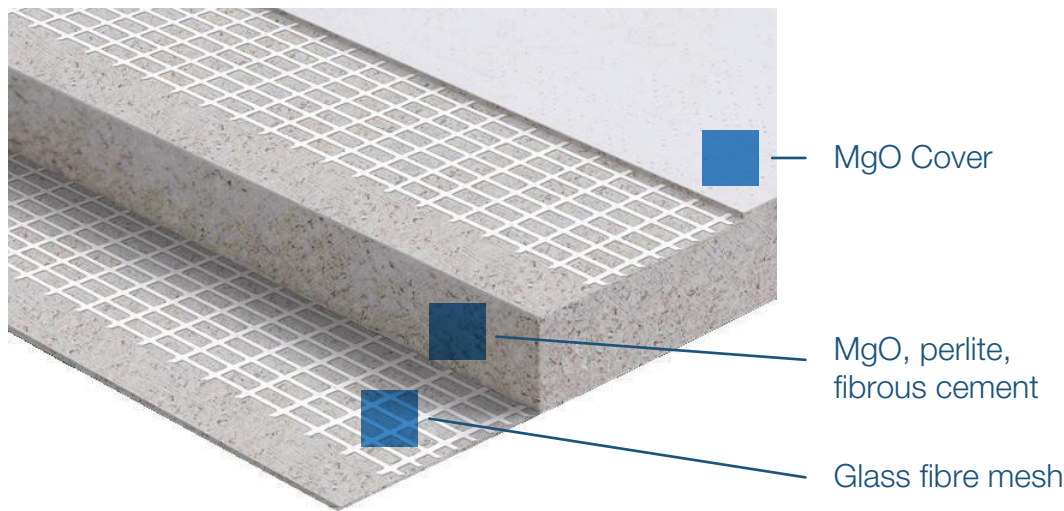
Good mechanical parameters



Lack of weather influence

What exactly is MgO GREEN?

A classical magnesium board is a sandwich board consisting of the core from powdered perlite, surrounded on both sides with a mesh from glass fibre and, Magnesium layer MgO or magnesium-cement layer, which is often reinforced (in a dispersed, hammer) with cellulose fibre with the addition of other derivatives of magnesium compounds, such as magnesium chloride – MgCl₂ or magnesium sulphates.



components:

MgO - Magnesium oxide

50%

MgCl₂ - Magnesium chloride

25%

Fiber cement

15%

Perlite

8.5%

Others (e.g. cellulose)

1%

Glass fibre

0.5%



ECONOMICAL MgO Green magnesium oxide board is an economical alternative for the materials sharing similar features. The parameters of magnesium oxide board provide high endurance and durability, resulting in economical savings.



ECOLOGICAL MgO Green magnesium oxide board is made of natural components, safe for human health and environment. It does not contain formaldehyde or other volatile substances, as it is approved by Hygienic Certificate. The magnesium oxide facing of MgO Green is resistant to growth of mold and fungi, even in conditions of high humidity.



ENERGY SAVING MgO Green board can be successfully used in energy-efficient and passive building ensuring high performance insulation and sealing. The core made of perlite results in creating a material of low thermal conductivity. MgO board is a “low-tech” and “energy friendly” product; its manufacturing does not require large amounts of energy and produces only a trace amounts of greenhouse gases.

MgO GREEN BOARD usage

- Sandwich panels and SIP Dry buildings
- Frame construction
- Building facades
- RoofsFloors, ceilings and walls
- Increased humidity sites
- The construction of cellars, attics and lofts
- Insulation of warehouses and garages
- External casing of air conditioning and ventilation systems
- For Fire-resistant doors, cable routes
- Fire walls and partitions
- Advertising boards
- Chimney decorations
- Arched and decorative elements
- Acoustic products

6 mm - MgO Green	1220 x 2440
	1220 x 2745
	1220 x 3000
8 mm - MgO Green	1220 x 2440
	1220 x 2745
	1220 x 3000
11 mm - MgO Green	1220 x 2440
	1220 x 2745
	1220 x 3000
18 mm - MgO Green	1220 x 2440
	1220 x 2745
20 mm - MgO Green	1220 x 2440
	1220 x 2745



Comparison of construction boards

	MgO Green	Plaster board	Cement board	O.S.B.
Fire propagation	None	15	None	High
Smoke emission	None	Low	N/A	High
Water resistance	YES	No	No	No
Resistance to fungi and molds	YES	No	YES	No
Resistance to insects	YES	YES	YES	No
Coefficient of heat transfer (lambda) λ , W/(m*K)	0,115	0,25	0,4	0,13
Impact resistance	High	Low	Low	Medium
Density g/cm ³	0,9	0,56	1,0	0,6
Incombustibility	High	Medium	High	Low
Structural element	YES	No	No	YES
Resistance to atmospheric exposure conditions	High	Low	Medium	Low
Resistance to frost and defrosting	High	Low	High	High
Interior finishing	Plastering and painting	Plastering and painting	Plastering and painting	Plaster board, Plastering and painting
Exterior finishing	Primer, thin-layer plaster, mesh	Internal use only	Primer, thin-layer plaster, mesh	Molded waterproof backing, mesh, thin-layer plaster

MgO research:

Strength and structural test for burden placed by objects mounted to MgO Green board (measured by force exerted by one single molly dowel) showed **1.7kN/m² (173kg)** for pulling out and **2,5kN/m² (255kg)** for shearing.

MgO Green board doesn't emit volatile organiclead or cadmium compounds with accordance to
PB LS-002/4/09-1999 PB LS-018/1/06-2006

MgO Green board received Technical Approval from the Building Research Institute in Europe

Certification:

- Technical Approval ITB AT-15-8776/2011
Hygienic Certificate issued by PZH (National Institute of Public Health - National Institute of Hygiene) HK/B/1196/01/2012
- **Fire classification, "reaction to fire" A2-s1, d0**
- **External fire performance for interior walls made of MgO Green boards** EI60/E90, EI90/E90, EI120/E120, EI180/E185

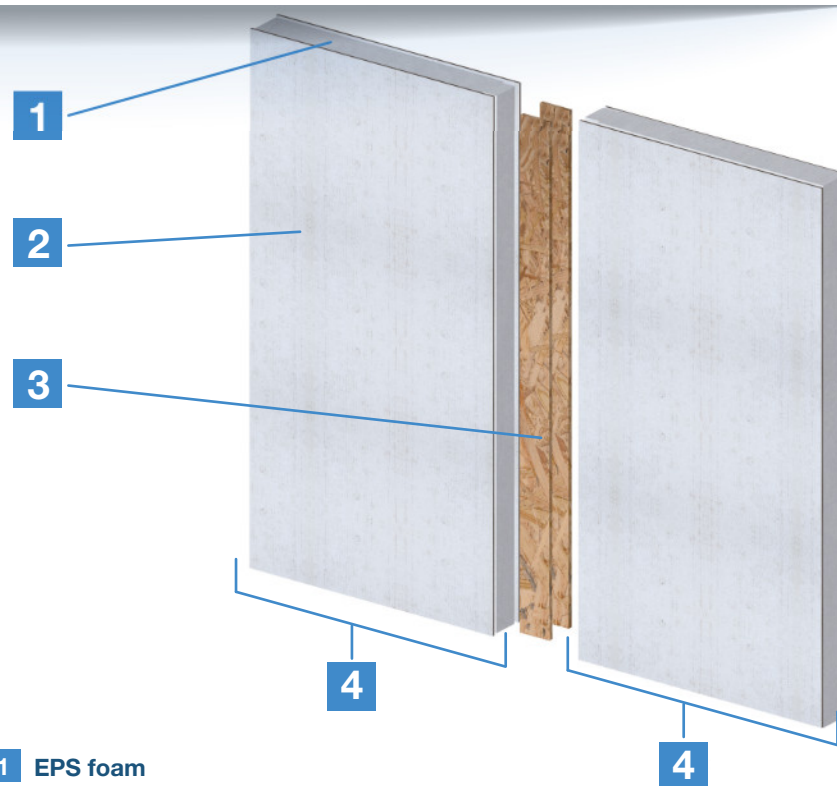


173 kg

255 kg

SIP MgO GREEN PANEL

Composite panel is a high performance, engineered, structural, super insulated solid core wall component that is fire, moisture, mould, and rot resistant. EPS insulation is structurally cured between two pieces of MgO board sheathing. This results in a wall component that is easy and economical to erect and finish, and creates high quality, durable building envelope walls, roofs, and floors that are highly efficient and cost effective.



- 1 EPS foam
- 2 MgO Green 11mm oxide magnesium board
- 3 Spline / OSB
- 4 Panel SIP MgO Green

Fasteners are applied through MgO board into the splines, top and

Standard composite panels are 1220 x 2440, 1220 x 2745, 1220 x 3000 mm

Allowable axial load is 4,8 tons/m

SIP (Structural Insulated Panel) MgO GREEN usage

- Single family and multi-family houses
- Mobile camping buildings
- Public utility buildings Industrial buildings
- Garages, farm buildings
- Small architecture facilities (garden sheds, fencing, shelters)
- Temporary construction facilities
- Floor and ceiling panels, roof panels
- Partition walls
- External walls Insulation of construction facilities
- Acoustic insulation

PANELE BUDOWLANE SIP

Panel ścienny:
TYP A: 3000 x 1220 x 170



PANELE BUDOWLANE SIP

Panel ścienny:
TYP A: 3000 x 1220 x 170



|SIP|
MgO
green

|SIP|
MgO
green

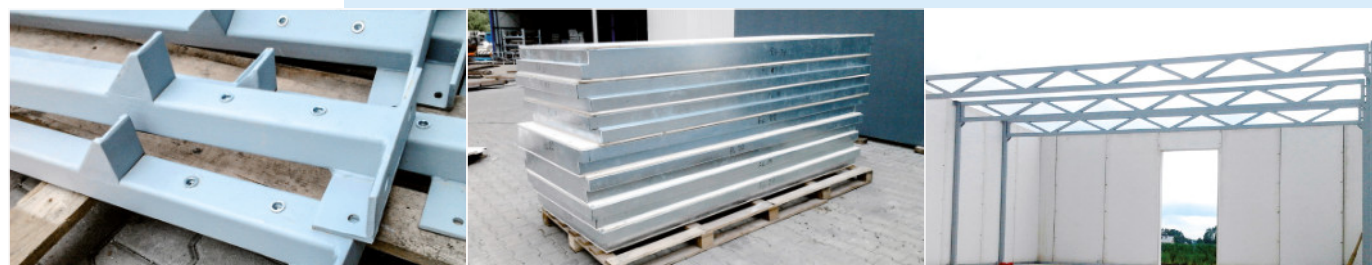
ENV
TECHNOLOGIES

SIP MgO Freen can be fastened to many different materials:

Wood



Steel

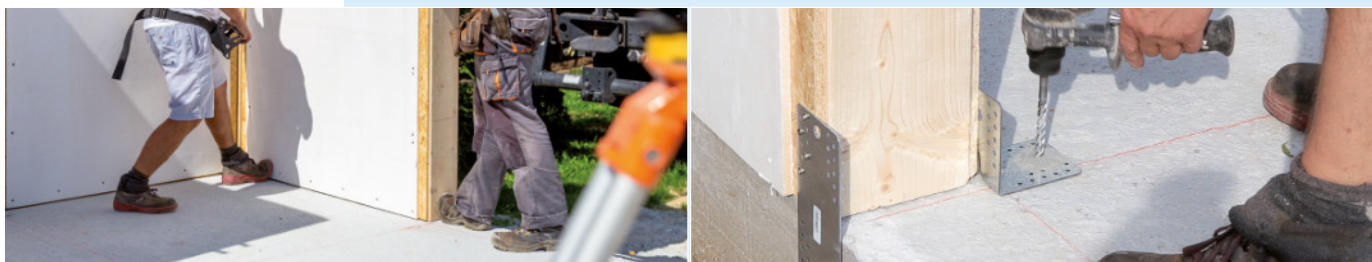


Glass fiber (pultrusion) profiles

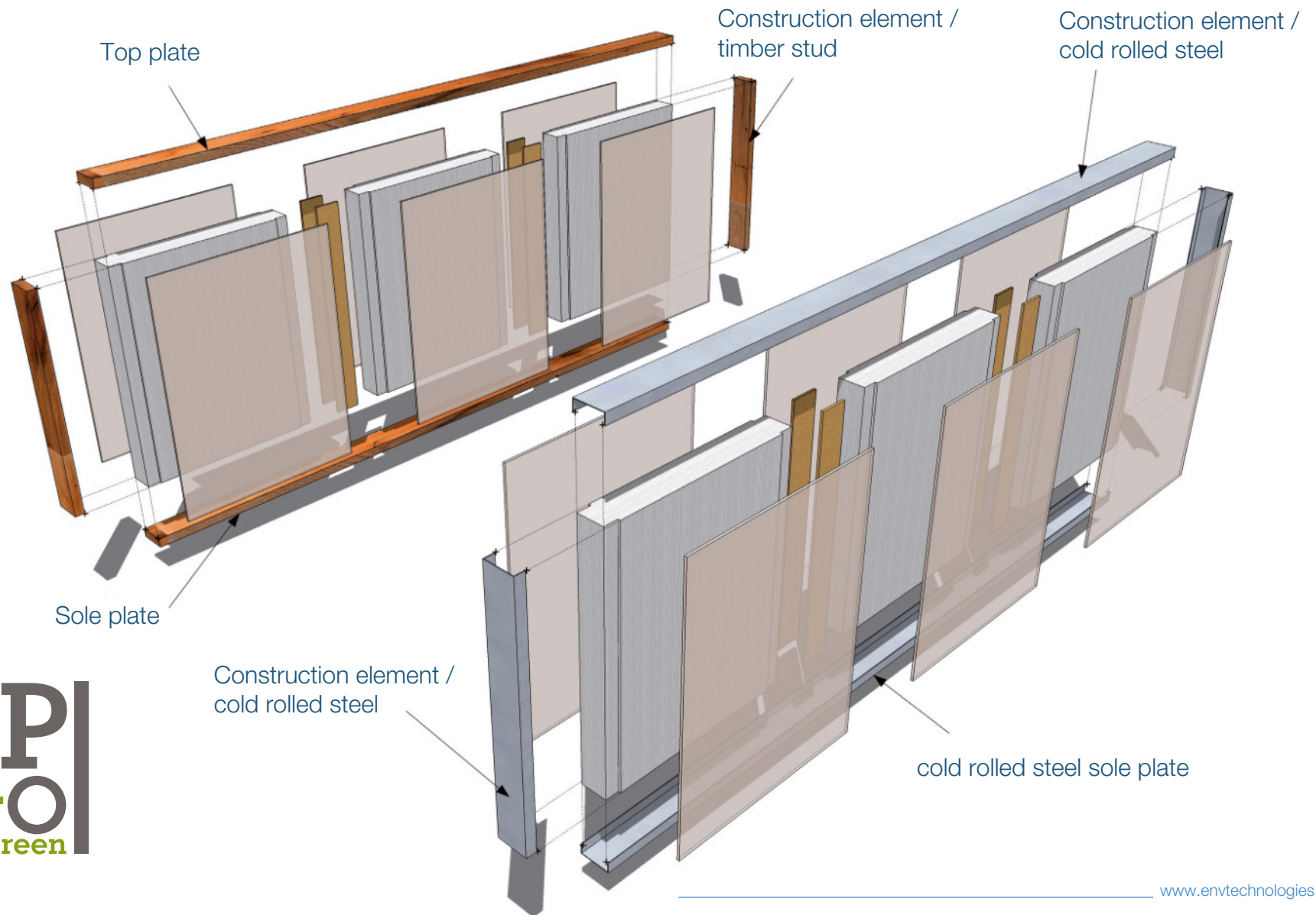


Concrete

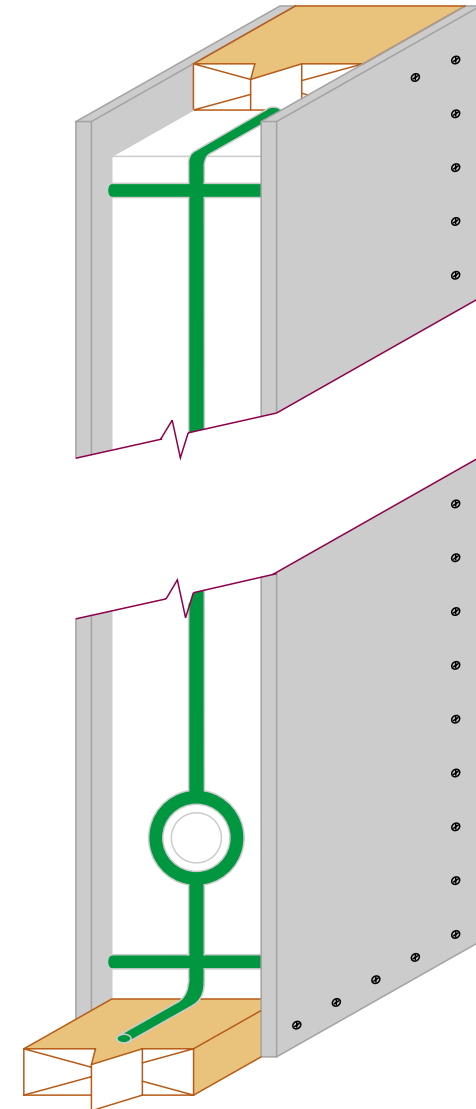
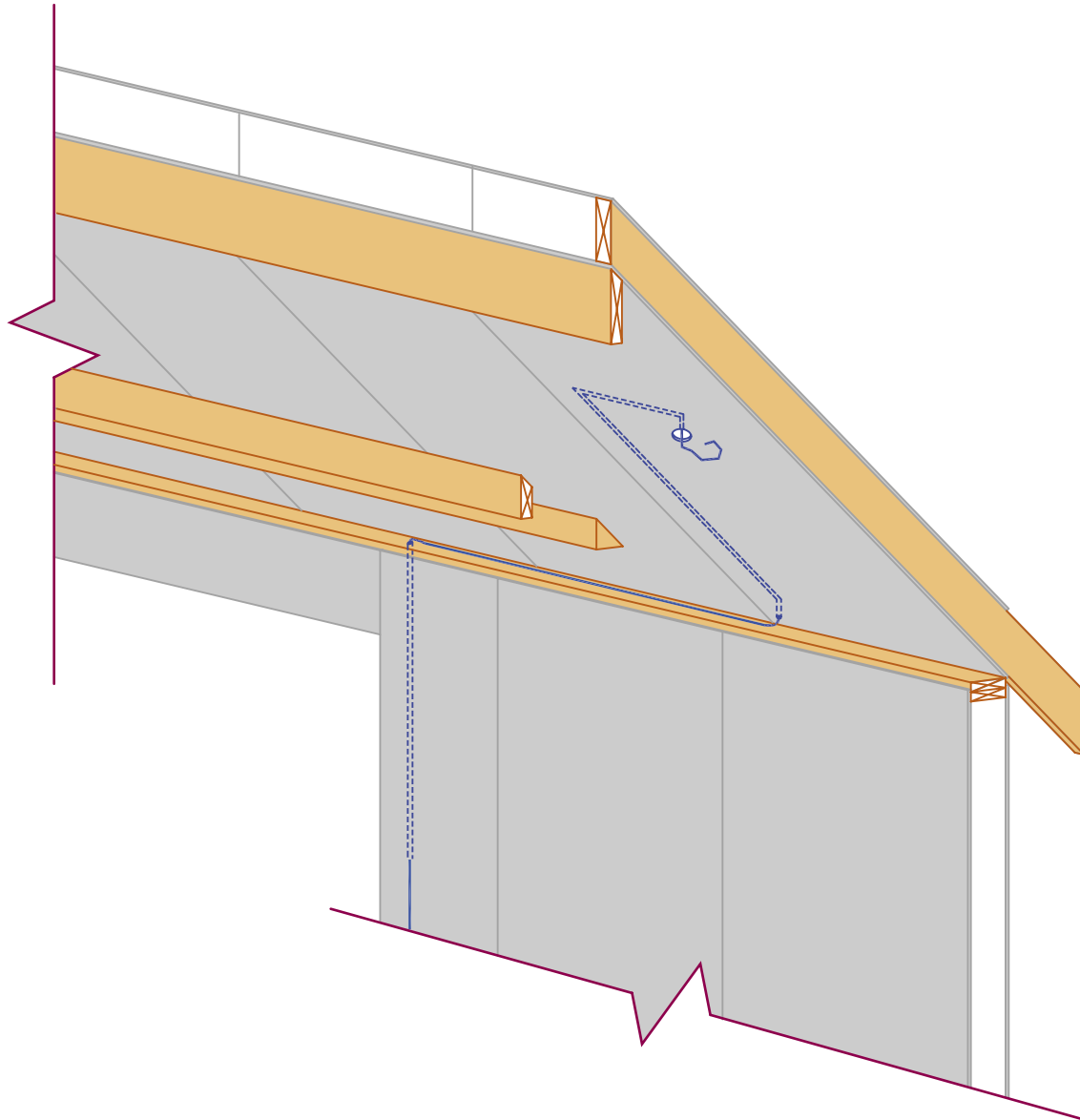
And more



Wall construction with wood and steel



Electrical installation system:



SIP MgO GREEN PANEL

Advantages of using SIP MgO Green:

The speed of erection – according to the principle “time is money”, MgO Green technology is the modern method of erecting facilities, reducing the costs and time of the construction process

Extended construction season – due to the lack of wet works, it is possible to construct in wintertime

More useful floor area - thinner walls and better thermal parameters enable to obtain **10% more of useful floor area in comparison with traditional materials**

Energy efficiency - lower costs of building exploitation by approx. 40% in relation to the traditional building

Fire safety – enhanced fire safety of the building structure in relation to the traditional frame structure

Healthy structural material – the facing of walls and structure from MgO Green panels is a barrier for the formation of mould and fungi and it protects them against decay and humidity

Lower investment costs – shorter construction time, lack of material losses during construction

Certification of materials - tests of the Technical Construction Institute, fire tests



SIP research

Research was divided into three stages:

- Full-scale elements (standard and non-standard tests)
- Small-scale elements
- Creating numerical models for FEM calculations

And consisted of series of test regarding:

- Durability
- Acoustic insulation
- Thermal stability
- Absorbability
- Freeze resistance
- Fire resistance
- Optimizing production line for SIP production
- Different assembly options for SIP building elements

We continue to do Research and Development.



Technical Approvals

Our company commissioned extensive material research to the prestigious Building Research Institute (ITB) in Europe which has issued Technical Approval and a favorable opinion as to their use. This allowed introduction of SIP MgO Green to the European markets. Further research is being conducted in cooperation with the Faculty of Civil and Environmental Engineering of Gdańsk University of Technology.

- ITB Technical Approval ITB AT-15-9016/2012
- Fire resistance class CTO W17 EI30 E60
- Fire classification ITB W17 NRO (non-fire spreading with fire spreading internally)

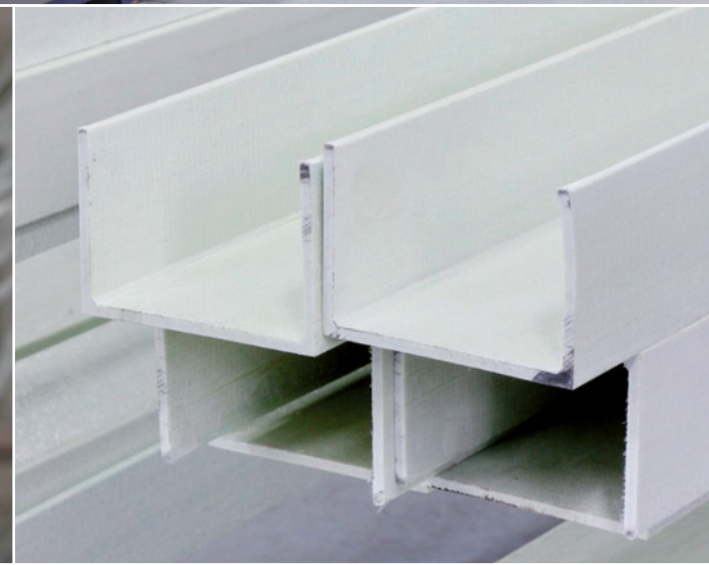


PULTRUSION

ENV Technologies is also a manufacturer of profiles made of glass fiber reinforced resins in pultrusion technology. Profiles made in this technology are resistant to corrosion as well as many chemical compounds, which allows using such profiles in high-risk environments such as e.g. shipbuilding industry, chemical industry, refineries, sewage-treatment plants, drilling platforms, building industry, agriculture, food processing, water-treatment plants, power industry, aircraft industry, aerospace industry. Depending on client's needs different kind of both resins and glass fibers can be used (e.g. Kevlar, basalt, carbon-based).

Application:

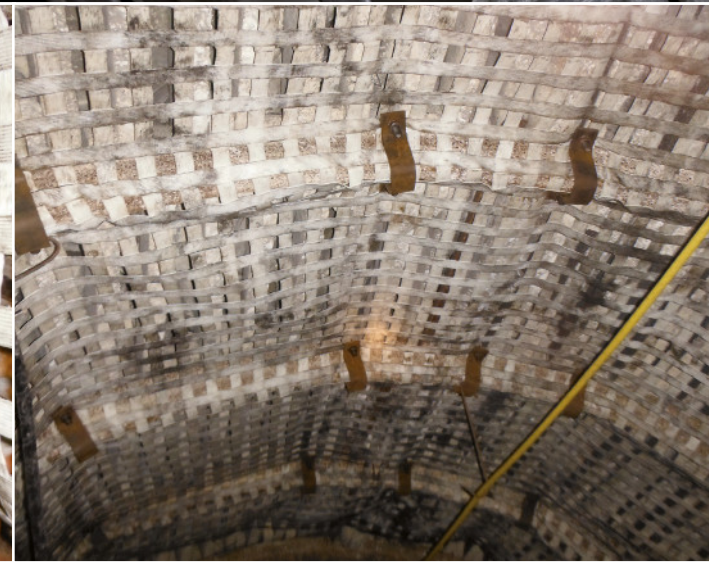
- Construction elements; it replaces steel, aluminum and wood,
- Pipes, angle bars, channel bars, I-bars and other profiles,
- Construction elements in mines,
- Construction elements under solar collectors,
- Fences,
- Bridges reinforcements, footbridges, pavements etc.,
- Channels cover,
- Hatches protection,
- Stairs steps,
- Construction elements of acoustic screens,
- Cable ducts.



GRID-ALWA LINING

Addressing the needs of rising demands to the safety in mines and undergroundworks LS Tech-Homes S.A. is pleased to present its new product GRID ALWA (80-800).

GRID ALWA is a polyester mine grid that allows to change the technologies used inwrapping and reinforcing mines ceilings and roadways. Its innovative application significantly reduces the costs of maintenance. GRID ALWA is easy to apply and increases the safety of work and its performance. It is designed to be used in underground coal mining; as well as mines of copper, zinc and lead; protection of slopes and excavations sites.



Acoustic panels MgO SILENCE PRO

Application:

- Noise screens applied in production halls, technical facilities (such as forced ventilation centers, boiler rooms, server rooms, as well as other compartments of increased fire standard)
- Private cinemas, listening rooms, recording rooms, TV studios among others
- Auditoria, theatre rooms, classrooms, corridors of places with elevated noise levels such as schools, office rooms, call centers, restaurants, pubs, railway stations, bus stations, discos
- As claddings for tunnels (railway tunnels, roadways)

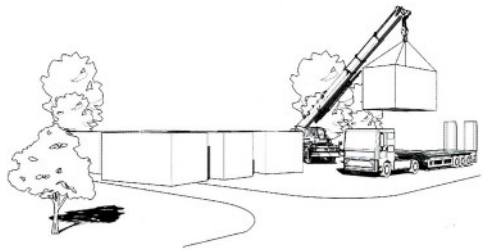


MODULAR CONSTRUCTIONS

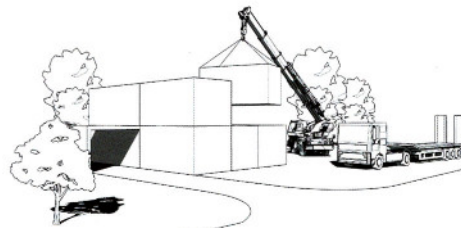
The modular construction industry is more than just a construction technology. It's a way of life, an innovative outlook on the future. Modular buildings are characterized by their fast-paced construction, functionality and attractive price. High quality combined with a high-class, environmentally-friendly and modular functional and spatial layout guarantee endless creative possibilities.

The modular technology can be used to construct nearly every type of building, from single-family structures to multi-story hotels or office buildings, residential buildings and public buildings (schools, hospitals).

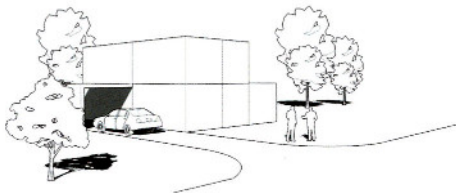
DAY 1



DAY 2



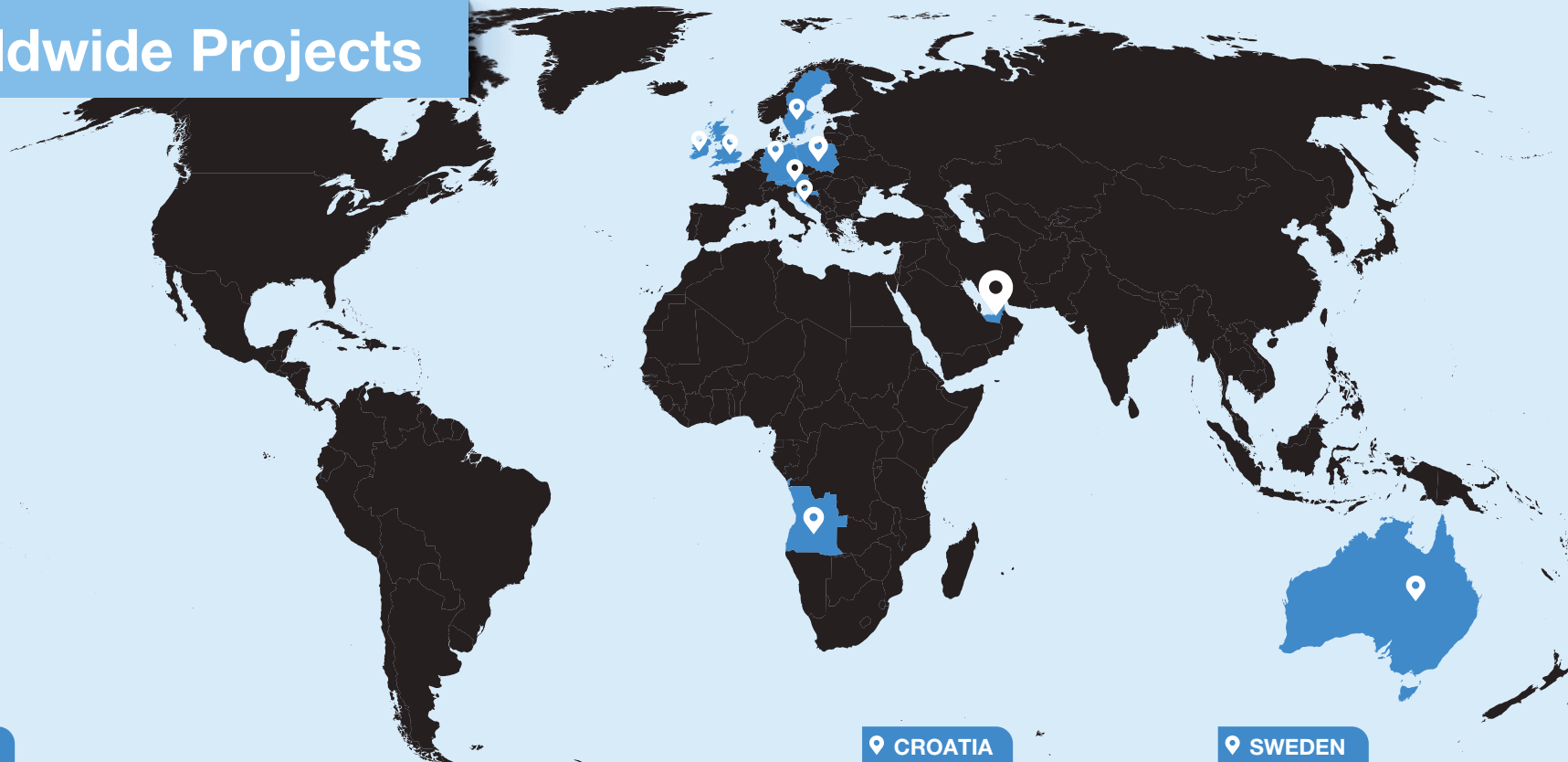
DAY 3



Modules are created in a fully-controlled production hall environment, after which they are transported and assembled at the construction site. The entire process of producing a modular building reduces the investment completion time even by 80%, which provides significant savings.



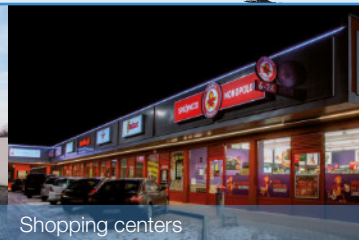
Worldwide Projects



📍 POLAND



Single family homes

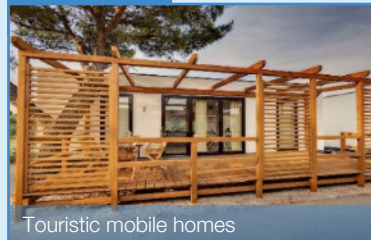


Shopping centers



Social homes

📍 CROATIA



Touristic mobile homes

📍 SWEDEN



Single family house

📍 GERMANY



Modular socials

📍 UNITED KINGDOM



Passive slab and magnesium SIP

📍 ANGOLA



Campus in Angola (Academy of Fishery)

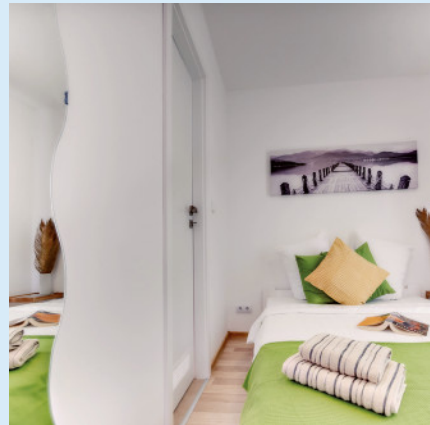
Germany (modular construction)



Angola



Croatia



Polish Nationwide Centre for Modern Rehabilitation and Care TriVita - Porąbka, Poland



HOUSE IN MIKOLOW



HOUSE IN BIELSKO-BIALA



HOUSE IN BIELSKO-BIALA



TYCHY - Commercial Pavillion



SWEDEN



WARSAW - Passive House





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