

GABLOK THE INSULATED SELF BUILDING BLOCK

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Summary. *The concept of Gablok was introduced in 2019 by two Belgian engineers. The method consists of insulated hardwood blocks, insulated beams, lintels, and a tailored floor system, allowing for quick and easy DIY construction of the house's interior and exterior.*

Key words: *insulated, self-building, assembly, simplicity, lightness, lintels.*

Introduction

Gablok, a Belgian company, has developed a cost-effective wooden house kit in response to growing building prices and increased interest in environmentally friendly dwellings.

With the rise of technology, engineers from Gablok decided to create a system of insulated framework blocks to let people self-build their own houses without the help of machinery or construction companies.

The inspiration for Gablok sprang from a nostalgic longing for the interlocking construction sets of our youth. Gabriel Lakatos, the company's founder, spent almost 25 years in conventional building before filing the Gablok patent in 2018.

This will give a game-changing building technique with an insulated timber frame, with the goal of making it easier for people to undertake construction projects on their own without incurring excessive costs.

Assembly

Experts create a detailed installation plan before sending the Gablok building kit to the job site.

After the insulated structure has been assembled, the remaining steps include roofing and external construction, including the application of plasters, bricks, cladding, etc.

The system is simple to assemble on-site and requires no drying time, which is especially useful for reducing waste caused by processing in situ.

As for the dimension of the openings (doors, windows,...) they can be modified in the process of the building stage.

1. Insulation type

Gablok has opted for expanded polystyrene with a graphite additive (EPS) as its primary insulator.

Air makes up around 98% of expanded polystyrene, while the remaining 2% comes from oil refining byproducts. The primary form takes the shape of spherical styrene beads.

When the beads come into contact with water vapor, their volume increases by a factor of 40 without the need of solvents or other adhesives.

Styrene monomer, contrary to popular belief, is a plant-based component. It's neither harmful or damaging, and it doesn't change over time or have any other bad effects on the environment.

2. Carbon impact

EPS doesn't harm the ecosystem in any way. Its superior insulating properties are a major plus.

A conventional home or wood frame insulated with EPS will have a less carbon footprint than a palace.

Shipping EPS is cheaper and takes up less room than other options.

It may grow in size without using excessive quantities of resources like water or electricity. The insulation blocks we use are made by expanding EPS and then molding it into the appropriate shape by a firm called X-PACK, based out of Verviers.

3. Components used

Insulating value and energy performance are greatly improved in Gablok buildings due to the combination of wood and EPS.

The thermal conductivity ("U" value) of a wall built in Gablok is 0.15 w/m²k. The blocks will be able to meet the 2021 EPB requirements.

The thermal conductivity value ("λ" value) of the EPS is R=0.035w/mK.

4. Wood frame construction

The walls that sustain the weight of the house are made of Gablok insulated wood blocks that snap together like Legos. The distance, called „sheathing”, between two rafters which hold the insulated wood blocks together is +/-40 cm. Distance that allows to place the various technical connections necessary for the proper functioning of blocks.

The flooring are also provided with a 10-cm gap allowing passage of various adductions, sanitary loads and electrical instalations.

5. Ground fixation method

The wood structure of the self-construction is fixed to the ground with the help of anti-tear bars. The concrete slab is differentiated from the traditional house.

All that remains is to follow the structural plan for our self-build. This plan is provided on site with the detailed scheme of insulated wooden blocks.

Each structure built with Gablok includes a kit of insulated wooden blocks. Wooden elements designed to fit together easily and stably, giving the opportunity to specialists to assemble the blocks properly, limiting the mistakes.

6. Quality of materials

The timber that was utilized to construct Gablok materials is 18mm thick OSB: a mixture of natural rubber and wood flakes (chips).

The special feature of OSB is that the wood that makes it up is **ultra compacted**. It will therefore not move through time, it is stable and durable.

7. Kit details

In the kit of the self-construction timber, were created 8 items:

- The linking elements: the rafters
- The floor lintels
- The lintels
- The beams
- The insulated wood block waist
- The insulated blocks for walls
- The insulated blocks for the side
- Slats: side and top

In addition to these 8 kinds of wood blocks that will allow you to make your project, you will also get the screws and the plan for the installation of the frame.

Conclusion

From the technical point of view Gablok are lighter than the traditional building blocks, with the mass of 7.5 kilograms.

They offer an easy installation process, and can be lifted by everybody. They are eco-friendly, are not made of toxic materials, and offer a large gamma of elements for building from the foundation to the roof during to the given assembling plan.

These insulated wooden blocks were made with a do-it-yourself project in mind. The framework of the future home is made up of interlocking Gablok OSB wood blocks.

With a Gablok wooden house kit, you may save time and money by constructing your own home. Your order of wooden blocks will arrive on a secure pallet. These inexpensive deals save time, which is invaluable in the building industry. The high cost of labor and materials has made current building methods unsustainable.

Gablok gives the possibility to all people that does not earn a lot of money to build the house of their dreams, using light materials.

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