# JAK MODULES

## FOREST RETREAT

Appropriately designed segments make it possible to build houses as well as housing estates in an unlimited number of combinations of living space. Only the investor's imagination is the limit to creating the original character of the building's interior. Unrealistic...? Not at all. All you need to do is unleash the dream of your own place on Earth

## PREFABRICATION SYSTEM

### Structural timber

GL24h glued laminated timber is used for the frame structure in the prefabrication system. The sawn timber used in the framing of the buildings is chamber-dried and four-sided planed. The moisture content of the structural timber is no more than 15%, as the building structure is enclosed.

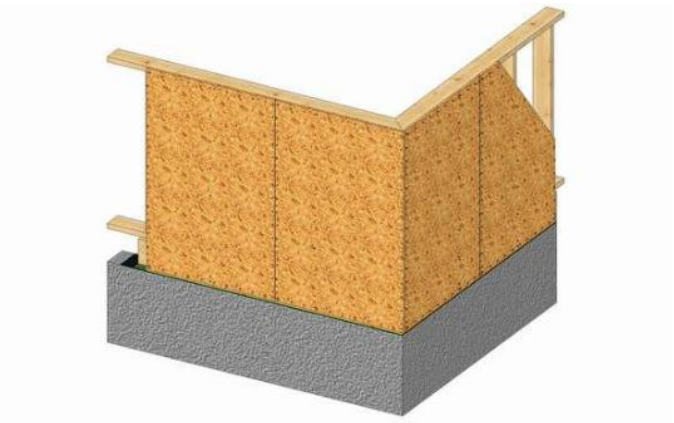
### Basic construction modules

The thickness of the beams used in the system is 60mm. The width of the beams can vary between 80mm and 360mm.

*Fig. 1) Wall structure*

## Floor, wall and roof sheathing

Due to the influence of atmospheric conditions and the properties of the boards themselves, boards with moisture-resistant properties are used for floor, wall and roof sheathing: OSB/ 3 wood-based boards, fibre-gypsum boards from companies (e.g. Fermacell® ), Steico® wood fibre boards.



*(Fig. 2) Exterior wall sheathing*

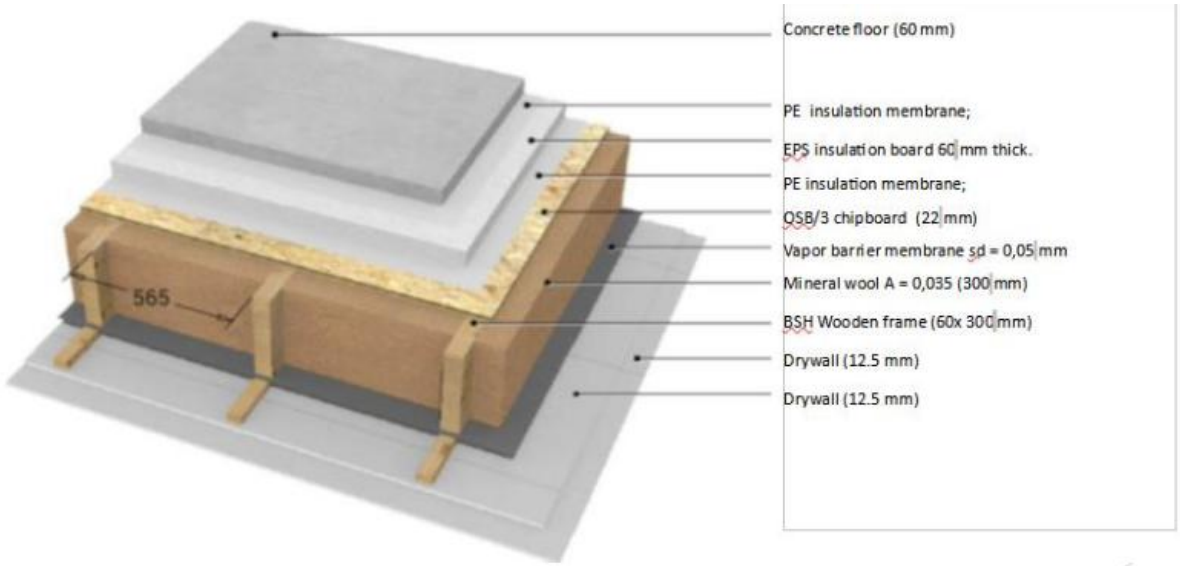
## Thermal insulation

The building envelope of the system meets the thermal insulation requirements applicable from 2020 onwards, as set out in the Regulation of the Minister of Infrastructure on the technical conditions to be met by buildings and their location (Journal of Laws 2019, item 1065) at a level = 0.20 W/(m2 x K).

**For the system envelope , the thermal transmittance is no more than 0.16 W/(m2 x K).**

## Partition design

Intermediate floor (from above)



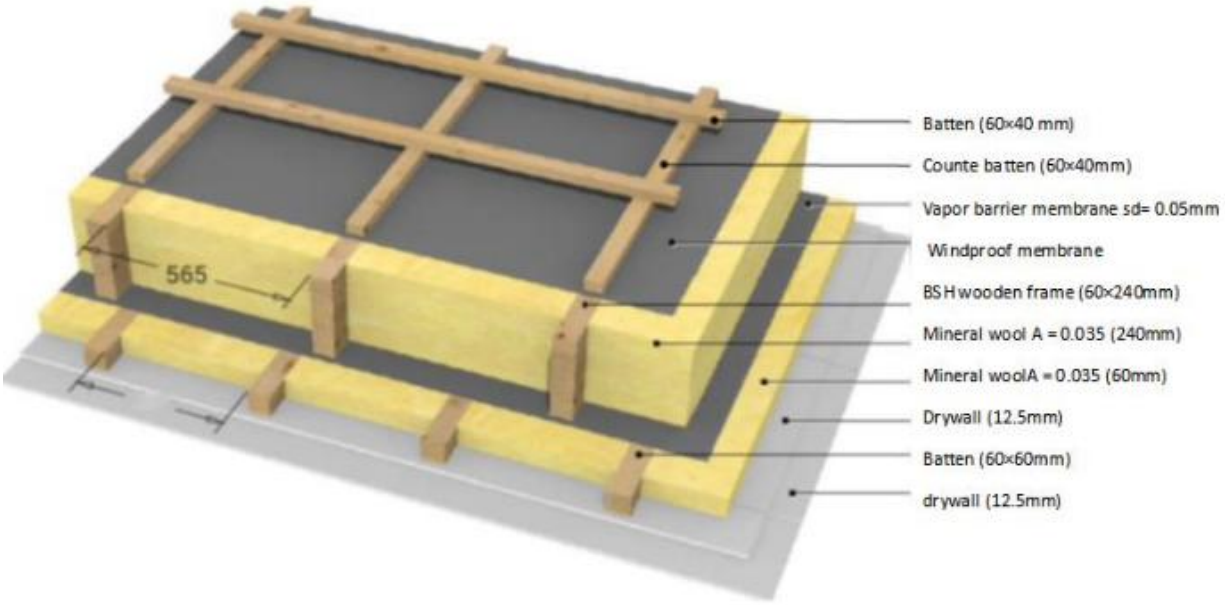

*(Fig. 4) Layout of the inter-storey ceiling layers*

## Partition design

| | |
|---|---|
| Top finishing layer of the floor | Concrete or laid floor, depending on the design<br>Polyethylene (PE) insulation membrane<br>Extruded polystyrene (EPS) insulation board, 60 mm thick |
| Ceiling sheathing | OSB/3 wood-based board, 22 mm thick |
| Ceiling structure | BSH glulam frame, 60 mm thick and 300 mm wide |
| Acoustic insulation | Mineral wool with A = 0.035 W/(m x K), 300 mm thick<br>Acoustic insulation > 50 dB |
| Moisture insulation | Vapor barrier membrane, 0.15 mm thick<br>Water vapor permeability < 10 g/m$^2$/24h |
| Interior finishing | Batten grid, 30 mm thick and 50 mm wide<br>*2 x drywall, 12.5 mm thick* |
| Thermal transmittance | 0.12 W/(m$^2$ x K) |

*Note: The elements of the building envelope written in italics to be made on the construction site.*

## Roof panel and soffit (inside)




*(Fig. 5) Layout of the roof panel layers*

| | |
|---|---|
| Interior finishing | A batten grid, 60 mm thick and 60 mm wide<br>Mineral wool with λ = 0.035 W/(m x K), 60 mm thick;<br>2 x drywall, 12.5 mm thick; |
| Moisture insulation | Vapor barrier membrane 0.15 mm thick<br>Water vapor permeability < 10 g/m²/24h |
| Wall structure | BSH glulam frame, 60 mm thick and 240 mm wide, attached to the top plates and roof ridge |
| Thermal and acoustic insulation | Mineral wool with A = 0.035 W/(m2 x K), 200 mm thick<br>Acoustic insulation > 50 dB |
| Wind and moisture insulation | Windproof membrane, 0.3 mm thick<br>Water vapor permeability > 1000 g/m²/24h |
| Exterior finish | Batten and counter batten grid, 30 mm thick and 50 mm wide<br>*Steel tile or coated modular metal sheet, depending on the design, with air supply in the roof eaves and air exhaust in the ridge*<br>*Alternatively, other roofing, laid in accordance with the relevant technical and installation requirements* |
| Thermal transmittance | 0.14 W/(m² x K) |

*Note: The elements of the building envelope written in italics to be made on the construction site.*

## Partition design

External wall (inside)

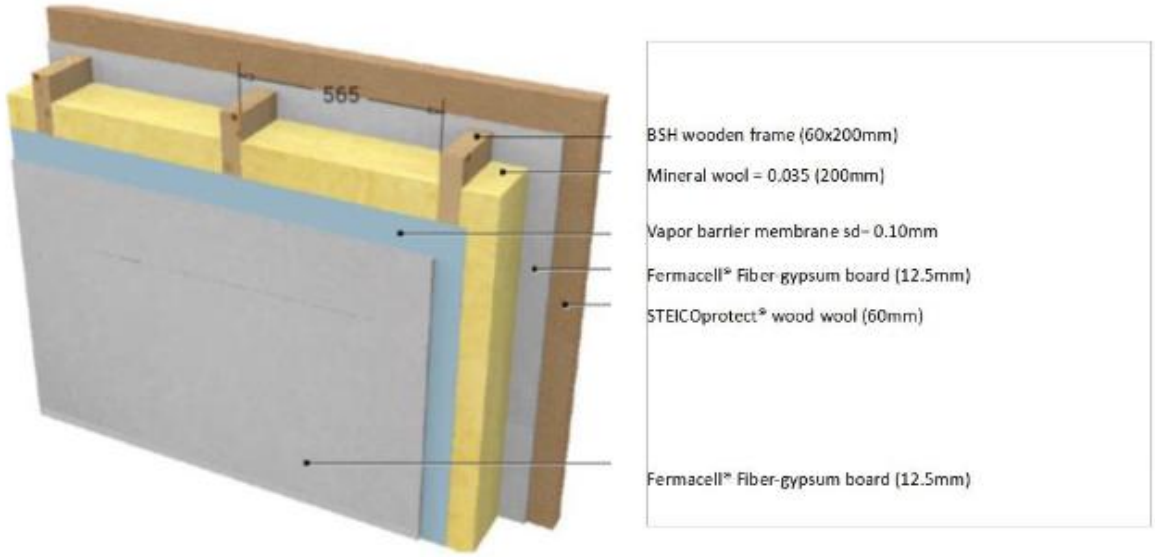



*Fig. 6) Typical layout of the external wall layers*

| | |
|---|---|
| Interior finishing: | Fiber-gypsum board, 12.5 mm thick (e.g. Fermacell® or Fibris®)<br>Board glued to the panel's wood structure |
| Moisture insulation: | Vapor barrier membrane, 0.15 mm thick<br>Water vapor permeability < 10 g/m$^2$/24h |
| Wall structure: | BSH glulam frame, 60 mm thick and 200 mm wide |
| Thermal and acoustic insulation: | Mineral wool, λ = 0.035 W/(m x K), 200 mm thick<br>Acoustic insulation > 50 dB |
| Exterior sheathing: | Fiber-gypsum board, 12.5 mm thick (e.g. Fermacell® or Fibris®)<br>Board glued to the panel's wood structure |
| Exterior finish: | STEICOprotect® wood wool board, 60 mm thick.<br><br>*Lightweight mineral plaster on fiberglass mesh glued to wood wool*<br>*Alternatively, facade materials with a ventilation gap: vinyl siding, wood siding, brick or clinker tile, installed in accordance with the relevant technical and installation requirements* |
| Thermal transmittance: | 0.16 W/(m$^2$ x K) |

Note: The elements of the building envelope written in italics to be made on the construction site.

**Partition design**

Interior wall

| | |
|---|---|
| Interior finishing: | Fiber-gypsum board, 12.5 mm thick (e.g. Fermacell® or Fibris®)<br>Board glued to the panel's wood structure |
| Wall structure: | BSH glulam frame, 60 mm thick and 80 mm wide |
| Thermal and acoustic insulation: | Mineral wool, λ = 0.035 W/(m x K), 80 mm thick<br>Acoustic insulation > 40 dB |

**Dimensions**

Living room: 26.90 m2

Bedroom 1: 9.33 m2

Bedroom 2: 9.33 m2

Bathroom: 4,40 m2

Utility room:  2,82 m2

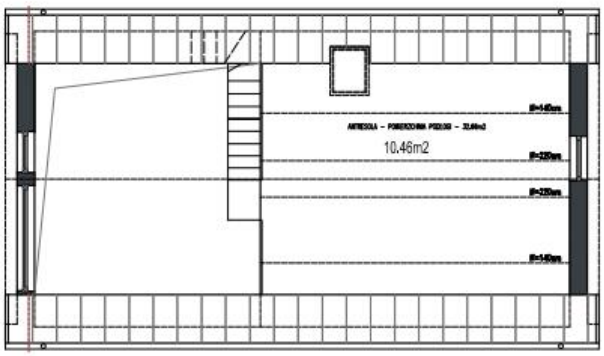
Vestibule:  3,17 m2

Corridor: 4.48 m2

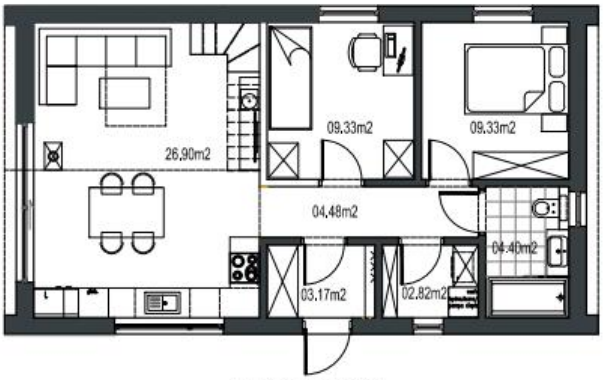
**TOTAL GROUND FLOOR:  60,43 m2**

**Mezzanine: 10,46m2**

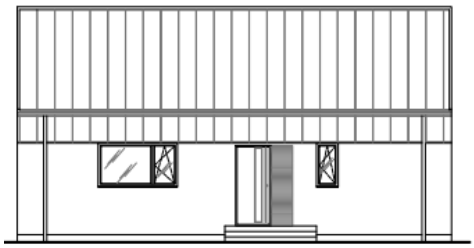
**TOTAL HOUSE:  70,89 m2**




RZUT ANTRESOLI

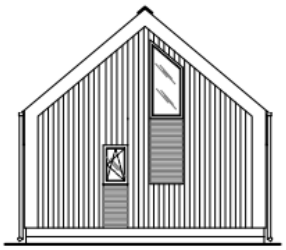



RZUT PARTERU



ELEWACJA FRONTOWA


ELEWACJA SZCZYTOWA



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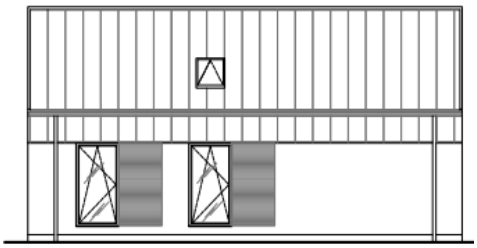
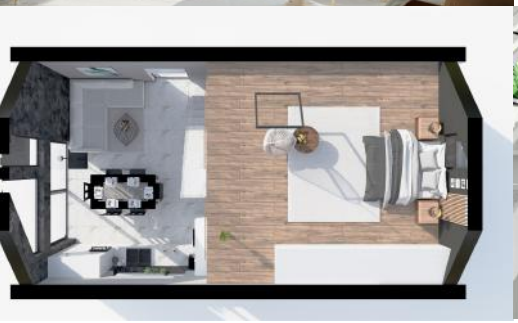


ELEWACJA BOCZNA



J. A. K. MODULES

the bull under the steel frames