



TRAVERTA

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Perfect wooden houses

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Production of CLT-panels

- ✔ Own production on equipment leading European manufacturers – **Ledinek, Imeas, SCM Group**
- ✔ Manufacturing facilities provide annual production **100 000 m³**
- ✔ Modern production technologies and environmentally friendly products **high quality**



Average cost

570 € / m³

Production time from 1 month

European Technical Assessment ETA-21/0781 dated 04/10/2021 issued by a member of the European Organization of Institutions according to technical assessments (European Organization for Technical Assessments – EOTA) in accordance with the procedure established by this organization and the European Commission.



CLT technology

The raw material is natural moisture edged board. It is subjected to chamber drying (12%), carefully selected for the absence of defects and hidden defects and calibrated on a planer.

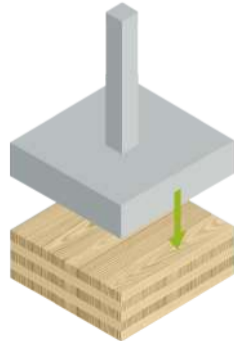


The workpieces are sorted (lamellas with the most beautiful texture go to the outer layers), spliced onto a mini-thorn and cut to a given length, after which they are laid in layers mutually perpendicular, i.e. 90 degrees relative to each other.



CLT-panel (Cross Laminated Timber)

Glue is applied between the lamellas, after which the workpiece is glued together under pressure into a single array. Adhesive systems do not contain formaldehyde and are absolutely harmless.



Advantages of CLT-panels



Organic concrete substitute

CLT panels withstand enormous loads, keeping its size and shape.

lighter than concrete

5 times

lighter than steel

16 times

Environmental friendliness

Natural wood panels "breathe" due to excellent heat transfer, natural balance of moisture and vapor permeability.



Thermal efficiency

The solidity of the structures of the walls, floor and ceiling ensure the complete absence of cold bridges. Houses made of CLT boards are windproof and are non-freezing.

Security

CLT boards offer impressive fire resistance, dimensional stability and static strength in all directions.

seismic resistance

7-8 points

burning rate

only **0,8 mm/minute**



Versatility

CLT-panels are used for walls, interfloor ceilings, warm roofs, are combined with any facing material, adapt to any architectural style.



Finished finish

Possibility of full factory finishing of walls, ceilings and distribution of engineering networks.

factory readiness

100%



GrO Thermo

innovation in construction

GrO Thermo — insulated external wall CLT-panel

This is a CLT composite panel, in which part of the inner lamellas is replaced with insulation. The insulation layer is glued and pressed into the CLT-panel in the same way as wood.

- ✔ **100% factory readiness**
interior and exterior decoration
- ✔ **Channels provided**
for engineering communications

Technical specifications of GrO Thermo

Length	Width	Thickness	R (thermal resistance)
up to 11 meters	up to 3 meters	206 mm	3,2*
		286 mm	7,5

- * The required coefficient of thermal resistance (R) for the regions of St. Petersburg and Moscow is $R = 3.2$. Therefore, it is possible to use GrO Thermo plates during the construction of facilities in regions with temperatures up to -70°C .
- * Thermal insulation equivalent to 300 mm of laminated timber.



Insulation used in GrO Thermo

The choice of insulation is determined by the required parameters of the thermal resistance of the outer walls for a particular climatic zone. Natural wood insulation or PIR insulation is most often used.

✔ Wood insulation

Wood insulation is a natural material, 94% pine. It is designed to create effective and environmentally friendly sound / thermal insulation of the house, as well as its wind protection. The wood heat insulator has excellent vapor permeability, does not accumulate moisture, so fungus and mold do not appear on it. Low thermal conductivity does not allow heat to escape outside, and cold to penetrate inside.

✔ PIR insulation

The possibility of producing a material with exceptional thermal conductivity from polyurethane, along with a whole set of special qualities, makes this material one of the most popular insulation materials. More than 95% of the volume of the material is made up of closed rigid non-combustible cells filled with an inert gas. It is due to its structure that PIR has a low coefficient of thermal conductivity, increased strength, high fire-fighting characteristics, as well as a long service life without losing its qualities.



GrO Thermo in the exterior and interior

The production facilities of our company allow us to provide a wide range of options for finishing external and internal walls.

- ✔ Surface grinding CLT
- ✔ Cutting different types of chamfers on the front
- ✔ Front lamella brushing
- ✔ Providing high quality painting



Glued laminated timber pine and Altai cedar

In the manufacture of building materials, we use a century-old forest growing in an ecologically clean region of Russia – Altai region.

✔ Altai cedar

Altai cedar is a unique and rare building material with medicinal and antibacterial properties. Each house made of Altai cedar becomes a unique and exclusive piece of architectural art.

✔ Pine

Pine was and remains a kind of leader and flagship among coniferous wood building materials. Pine lumber has always been famous for its environmental friendliness and enviable durability. Ease of processing allows the use of pine materials for the manufacture of complex structural elements.



Dry board

For the manufacture of boards, deciduous and coniferous species of trees are used, mainly pine and spruce wood. Pine and spruce boards are highly durable, due to the high resin content, the material is resistant to decay, and during interior decoration the room is filled with a coniferous aroma.

✔ Cut dry board

Edged board is lumber, which is obtained as a result of sawing a log into rectangular canvases with smooth edges.

✔ Surfaced dry board

A planed board is an edged board that has been processed on all four sides. It has a regular geometric shape and smooth surfaces.



Individual design

We provide services for the professional design of residential buildings and commercial real estate.

We have many years of experience working with a team of specialists: experienced architects, designers and engineers will develop a project of any level of complexity.

✔ **Designing "from scratch" with the formation of technical specifications from the architect**

Planning solutions, facades, sections

✔ **3D rendering**

Photorealistic rendering in 3DS Max

✔ **Development of a complete set of project documentation**

Working documentation of sections of architectural and structural solutions, reinforced concrete and metal structures, external and internal engineering networks.



Modular houses from GrO Termo/CLT

These are just some of the layout options that our company implements.



Barnhouse 45

Square	Proportions	Bedrooms	Bathrooms
45 m ²	7.2 × 6.75	1	1



High tech 60

Square	Proportions	Bedrooms	Bathrooms
60 m ²	9.6 × 6.75	2	1



Fachwerk 75

Square	Proportions	Bedrooms	Bathrooms
75 m ²	12 × 6.75	2	1-2





Fachwerk 105

Square	Proportions	Bedrooms	Bathrooms
105 m ²	16.8 × 6.75	3	3



1st floor

2nd floor



1st floor

2nd floor



2nd floor



Barnhouse 120

Square	Proportions	Bedrooms	Bathrooms
120 m ²	9.6 × 6.75	4	2



High tech 150

Square	Proportions	Bedrooms	Bathrooms
150 m ²	12 × 6.75	4	2



1st floor

2nd floor



Wood product specification

Name	Length	Width	Thickness	Quality	Price ^{**}
Crosslinked wood panel molded [*]	up to 16 m	up to 3,6 m	60-400 mm	Category C two industrial sides, stitching required	530 €/m ³
Crosslinked wood panel molded [*]	up to 16 m	up to 3,6 m	60-400 mm	Category B one side is front, the other is industrial	590 €/m ³
Crosslinked wood panel molded [*]	up to 16 m	up to 3,6 m	60-400 mm	Category A two front sides	640 €/m ³
Crosslinked timber panel with cutout	up to 16 m	up to 3,6 m	60-400 mm	Category C two industrial sides, stitching required	620 €/m ³
Crosslinked timber panel with cutout	up to 16 m	up to 3,6 m	60-400 mm	Category B one side is front, the other is industrial	670 €/m ³
Crosslinked timber panel with cutout	up to 16 m	up to 3,6 m	60-400 mm	Category A two front sides	720 €/m ³

* The calculation of volumes is based on the volume of "rough" panels required for the manufacture of the kit.

** The information is for informational purposes only, it is not a public offer. Prices are indicated on the terms of FCA delivery. Prices are valid on the day the presentation is sent.

Name	Length	Width	Thickness	Quality	Price ^{**}
GrO Thermo (wood insulation / PIR insulation)	up to 11 m	up to 3 m	206 mm	Category A two front sides	690 €/m ³
GrO Thermo (wood insulation / PIR insulation)	up to 11 m	up to 3 m	286 mm	Category A two front sides	580 €/m ³
Glued laminated timber (pine)	up to 12 m	185 mm	160-280 mm		570 €/m ³
Glued laminated timber (Altai cedar)	up to 12 m	185-270 mm	160-280 mm		850 €/m ³
Structural glued laminated timber	up to 12 m	120-400 mm	120-400 mm		850 €/m ³
Dried / edge-surfaced lumber	up to 6 m	up to 100 mm	up to 200 mm		250 €/m ³

We provide a full range of services for the design and development of project documentation

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 SALE@TRAVERTAWOOD.COM

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