Constructive panels

**THERMAL INSULATION OF THE EXTERNAL WALLS**

CEWOOD cemented wood wool panels are natural, environmentally friendly and healthy material manufactured in Latvia. Wood wool from fine quality timber combined with a premium quality cement as a binding agent are used to manufacture the panels. Due to their natural raw ingredients the panels ensure pleasant microclimate in the premises characteristic to wooden structures.

**Advantages**

CEWOOD constructive panels are durable material that does not change its properties during the use. Properties of such material during its use have been tested in Europe in the course of 100 years and in Latvia – in the course of more than 50 years. The panels have high thermal inertia preventing rapid temperature fluctuations in the premises if constructed properly.

- **Ecology** – environmentally friendly, ecological material
- **Health** – maintains an environment that is beneficial for a human body
- **Longevity** – long service life, does not deform, not subject to rodent and termite impact
- **Handiness** – easy to transport, handle, install, plaster
- **Thermal insulation** – good insulation properties
- **Acoustics** – excellent acoustic insulation and absorption parameters

**Technical data**

CEWOOD constructive panels are made of 3.0 mm wide wood wool and the panel’s dimensions are 2400x600 mm. Possible thickness of panels is 25, 50, 75 and 100 mm.

<table>
<thead>
<tr>
<th>CEWOOD code</th>
<th>Thickness (mm)</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Weight (kg/m²)</th>
<th>Thermal resistance (Ro) (m²·K/W)</th>
<th>Thermal conductivity (λ) (W/m·K)</th>
<th>Specific heat capacity (c) (J/(kg·K))</th>
<th>Minimum strength levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW-G25R115</td>
<td>25 (+2)</td>
<td>2400 (+3/-2)</td>
<td>600 (+2)</td>
<td>11,50</td>
<td>0,35</td>
<td>0,066</td>
<td>2100</td>
<td>≥ 1300</td>
</tr>
<tr>
<td>CW-G50R195</td>
<td>50 (+2)</td>
<td>2400 (+3/-2)</td>
<td>600 (+2)</td>
<td>19,50</td>
<td>0,75</td>
<td>0,066</td>
<td>2100</td>
<td>≥ 700</td>
</tr>
<tr>
<td>CW-G75R280</td>
<td>75 (+2)</td>
<td>2400 (+3/-2)</td>
<td>600 (+2)</td>
<td>28,00</td>
<td>1,10</td>
<td>0,066</td>
<td>2100</td>
<td>≥ 500</td>
</tr>
<tr>
<td>CW-G100R360</td>
<td>100 (+2)</td>
<td>2400 (+3/-2)</td>
<td>600 (+2)</td>
<td>36,00</td>
<td>1,50</td>
<td>0,066</td>
<td>2100</td>
<td>≥ 300</td>
</tr>
</tbody>
</table>

- **While bending (EN 12089) kPa**
  - >= 1300
  - >= 700
  - >= 500
  - >= 300
- **While pressing (EN 826) kPa**
  - >= 300
  - >= 200
  - >= 150
  - >= 100
- **Fire reaction class (EN 13501-1:2007)**
  - B-s1, d0
  - B-s1, d0
  - B-s1, d0
  - B-s1, d0
THERMAL INSULATION OF THE EXTERNAL WALLS

Assembly

1. Plinth wall of the building
2. Existing external wall
3. Thermal insulation – mineral wool or eco wool in a timber frame
4. Angle
5. Squared timber of plinth of the thermal insulation frame, treated with an antiseptic (Fig. 3). Sizes according to the frame design, minimum size – approx. 60*100 (h)
6. Spaced cladding, 21*100 mm, s=605 mm
7. Frame structure of the thermal insulation frame.
8. CEWOOD panel, 25 mm.
9. Plaster A4
10. Glass fibre mesh SSA 1363-4) in adhesive mortar (for example Sakret BAK)-4 kg/m²
11. Decorative trim, paint coat

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10. Glass fibre mesh SSA 1363-4) in adhesive mortar (for example Sakret BAK)-4 kg/m²
11. Decorative trim, paint coat
12. Galvanised screw 4.5*45 with a widened head for fastening wood wool panels
13. Sheet metal air-hole b=55 mm (plinth profile)
14. Bracket
15. Thermal insulation XPS 50 mm
16. Sealing
17. Wood-fibre thermal insulation
18. Vapour barrier
19. Board, 21*100, L=900 mm
20. Adhesive mortar
21. distance (step) between frame props. According to the requirements for timber frame structure, as well as depending on dimensions of panels’ mineral wool. Typically ≤ 1 m.
22. distance between fixtures – wood screws, nails ≤ 600 mm
23. thickness of thermal insulation layer. According to LBN 002-15. Approximately 100-120 mm.

Fig. 2.
Fastening

In a building’s elevation CEWOOD panels 25 mm and 50 mm in thickness are fastened with galvanised wood screws (45*4.5, 70*5) or nails with washers (d≥20 mm) to horizontally placed boards (21*100). Fastening step in the vertical strip along the building’s corner is 400 mm. The boards provide additional stability to the board prop frame which needs to ensure that the frame remains stable and elevation plaster does not crack. For elevations facing a wind pressure exceeding 6.5 MPa, distance between the fastenings along the entire elevation plane is ≤ 400 mm. Unless the wind pressure exceeds 3.5 MPa, if WW panels with pressure strength ≥200 KPa are used, it is possible to replace washers (d=20 mm) with wood screws with a widened head (d=12 mm) and 400 mm step.

The panels 50 mm and more in thickness can be attached to the very prop of the frame exactly in the panel joints and longitudinal joints by applying a cement-base adhesive mortar. In order to avoid the “floating ends”, the panel joints are secured with a board and wooden screws.

Plaster

A thin cement or combined mortal coat is applied to CEWOOD panels before applying the plaster to cover the panel pores, and is left to set. Two plaster structure types are applied to CEWOOD panels in the elevation –

- mineral plaster (A4) consisting of 4 layers,
- light plaster (A3) consisting of 3 layers.

Intended for panels with compression resistance ≥ 200 kPa, not recommended if the panels are fastened with steel washers with d ≥ 20 mm.

Types of mortar forming the plaster structure are selected according to the instructions provided by plaster manufacturers.
Important!

In a building construction, the panels’ function is to provide thermal insulation and limit off the construction materials. Wood wool panels are attached to the new wooden frame where mineral wool or eco wool is inserted as a thermal insulation material. The constructive solution allows using soft mineral wool thermal insulation panels with minimum content of synthetic binding agents, featuring high thermal insulation capacity and lower cost. CEWOOD wood wool panels have sufficient mechanical durability.