WOOD WOOL CONSTRUCTION PANELS

THERMAL INSULATION OF THE EXTERNAL WALLS

WWW.GREENACOUSTICS.CO.ZA

SALES@GREENACOUSTICS.CO.ZA

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.

CEWOOD code		CW-G25R115	CW-G50R195	CW-G75R280	CW-G100R360
Thickness	mm	25 (±2)	50 (±2)	75 (±2)	100 (±2)
Length	mm	2400 (+3/-2)	2400 (+3/-2)	2400 (+3/-2)	2400 (+3/-2)
Width	mm	600 (±2)	600 (±2)	600 (±2)	600 (±2)
Weight	kg/m^2	11,50	19,50	28,00	36,00
Thermal resistance (Ro)	m^2·K/W	0,35	0,75	1,10	1,50
Thermal conductivity (λD)	W/m·K	0,066	0,066	0,066	0,066
Specific heat capacity (c)	J/(kg·K)	2100	2100	2100	2100
Minimum strength levels					
• 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

External wall

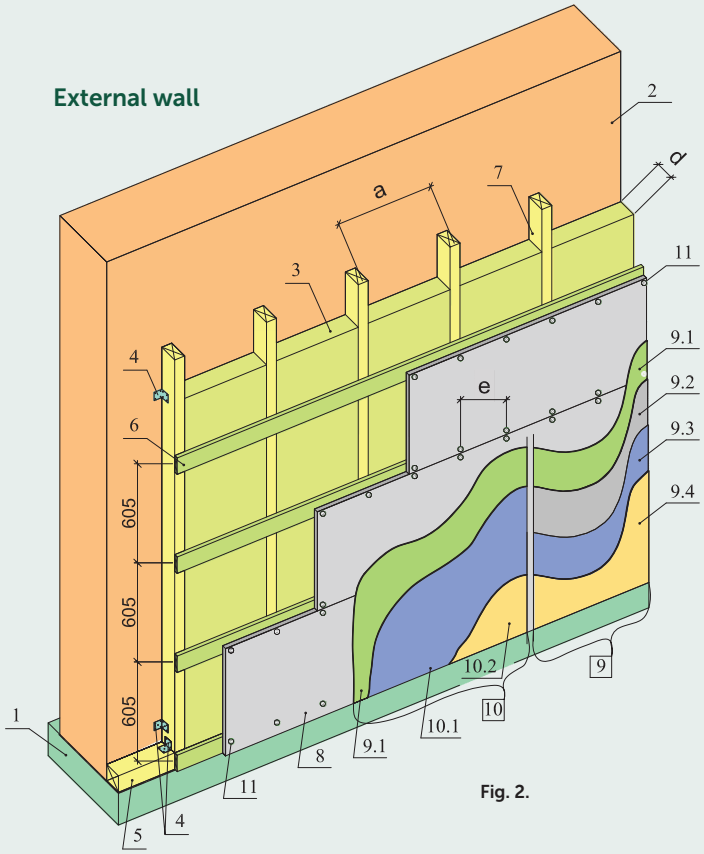


Fig. 2.

(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
- **9.1.** Cement or cement-lime mortar (for example Sakret CLP+, ZM or Pmsuper) layers, 3-4 mm or 5-7 kg/m^2
- **9.2.** Undercoat (for example Sakret CLP+), 15-20 mm
- **9.3.** Glass fibre mesh SSA 1363-4) in adhesive mortar (for example Sakret BAK)-4 kg/m^2
- **9.4.** Decorative trim, paint coat

(10) Plaster A3
- **10.1.** Glass fibre mesh in adhesive mortar 5-6 kg/m^2
- **10.2.** Decorative plaster, paint coat

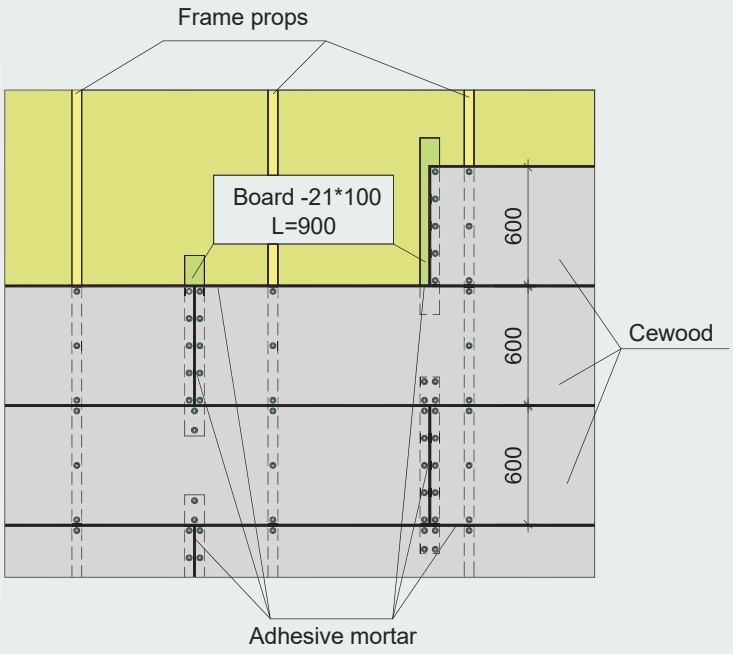
(11) Galvanised screw 4,5*45 with a widened head for fastening wood wool panels
(12) Sheet metal air-hole b=55 mm (plinth profile)
(13) Bracket
(14) Thermal insulation XPS 50 mm
(15) Sealing
(16) Wood-fibre thermal insulation
(17) Vapour barrier
(18) Board, 21*100, L=900 mm
(19) Adhesive mortar
(a) distance (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.
(e) distance between fixtures – wood screws, nails ≤ 600 mm
(d) thickness of thermal insulation layer.
According to LBN 002-15. Approximately 100-120 mm.

THERMAL INSULATION OF THE EXTERNAL WALLS

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.



It is recommended to use 50 mm and thicker panels indoors as they have greater heat capacity (inertia) and are better at retaining the heat during the cold season and cool temperature in hot summers. Thermal inertia of the frame prevents the premises from rapid cooling and heating in case of sudden temperature fluctuations. In order to avoid the "floating ends", the panel joints are secured with a board and wooden screws or adhesive mortar is applied to panel joints.

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.

THERMAL INSULATION OF THE EXTERNAL WALLS

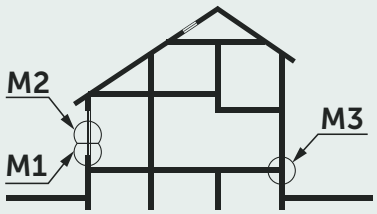


Fig. 1.

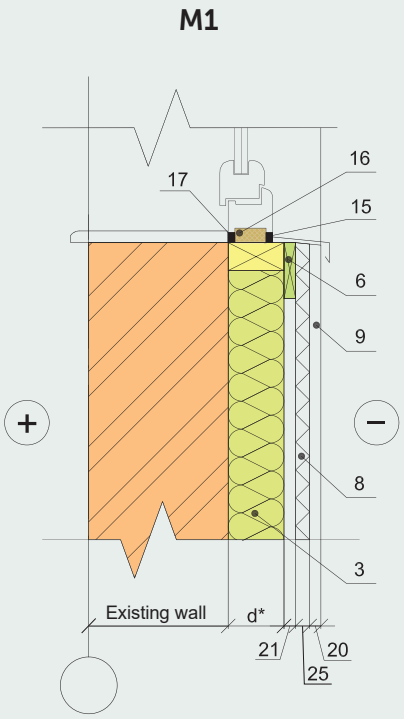


Fig. 4.

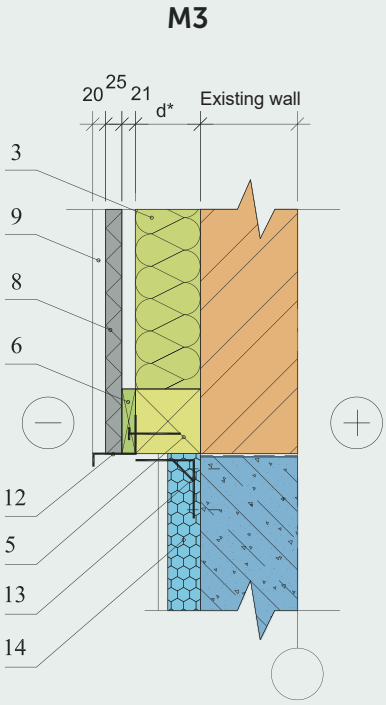
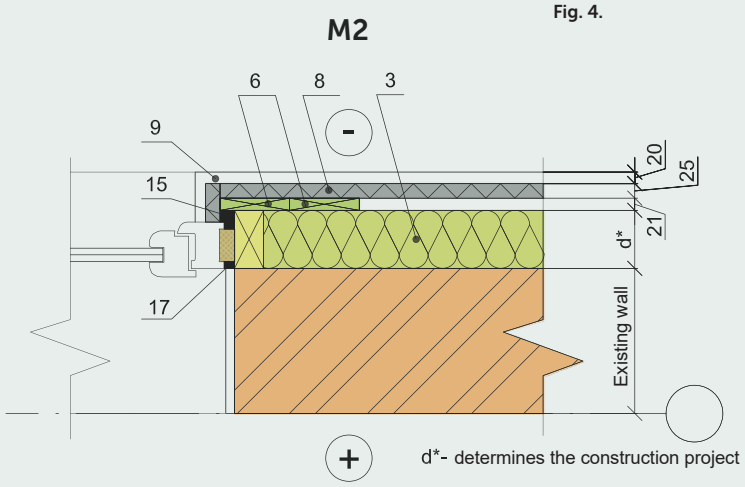


Fig. 3.



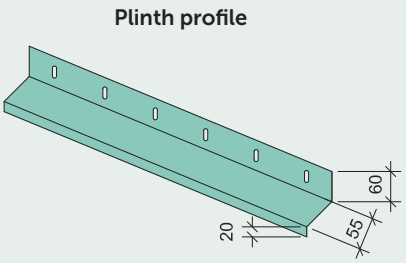


Fig. 5.

Important!

In a building consruction 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.