

Public-law institution jointly founded by the federal states and the Federation

**European Technical Assessment Body
for construction products**



European Technical Assessment

**ETA-09/0230
of 19 May 2025**

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

"Krivaja Homes"

Product family
to which the construction product belongs

Timber building kits

Manufacturer

Krivaja-TMK L.t.d.
Radnicka 2
72220 ZAVIDOVICI
BOSNIEN-HERZEGOWINA

Manufacturing plant

Plant 1

This European Technical Assessment contains

43 pages including 2 annexes which form an integral part of this assessment.

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

EAD 340308-00-0203

This version replaces

ETA-09/0230 issued on 28 November 2014

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific part

1 Technical description of the product

The company Krivaja-TMK L.t.d. manufactures timber building kits with the trade name "Krivaja Homes".

A building kit consists of predesigned and prefabricated building components such as walls, roofs and floors in varying numbers according to the scope of application (building project). Depending on the building project the kit is put together at the factory and mounted on site.

The main load-bearing structures are timber frames.

The prefabricated building components and the related components are shown in Annex A. Essential construction details and connections are described in Annex B.

The internal linings, roofing materials, stairs, service installations and other building components which are needed for a complete building are not part of this European Technical Assessment in the following called ETA. Windows and doors are not part of the kit; however, they are installed at the factory.

This also applies to additional load-bearing components (e.g., joists or steel girders for concentrated loads / point loads) which according to its structural analysis are required for each individual construction works.

The external- and internal wall elements have a width of at most 12.0 m and a height of at most 3.00 m. In case of closed elements, the studs are arranged in a grid-pattern of 62.5 cm. The wooden components do have on fitting the wall elements a moisture content of $\leq 12\%$.

The external walls are taken to the site as prefabricated elements. The exterior plaster is mounted on the site.

Non-load-bearing internal walls can be arranged in any order.

The internal walls are taken to the site as prefabricated elements.

The ceiling elements (suspended floor) are manufactured according to the structural calculation. The ceiling elements are manufactured with a width of 1.20 m of up to 2.40 m maximum. The ceiling beams are arranged in a grid pattern of 62.5 cm. On delivery to the plant the wooden components have a moisture content of $\leq 12\%$.

The ceiling elements are taken to the site as prefabricated elements. The impact sound insulation, the fibre gypsum board and the gypsum board are part of the kit but are installed on the site. The floor covering is not part of the kit and is installed on site.

The roofing elements are manufactured according to the structural calculation. They are manufactured with a width of 1.20 m up to 2.40 m maximum. The rafters are arranged in a grid pattern of max. 0.90 m. On delivery to the plant the wooden components have a moisture content of $\leq 12\%$.

In case the production of roof in elements (panels) is not possible, roof parts are delivered and mounted separately. The roof construction consists of either roof trusses or rafters and beams. The distance between rafters is max. 1.25 m.

Exterior wall cladding:

Exterior walls (Type 1 and Type 2) get an external insulation system according to ETA-11/0505 (cladding Type 1) where the insulation boards (EPS according EN 13163) are glued with the adhesive "StoPrefa Coll" over the entire surface (amount of wet application approx. 1.0 kg/m² to 1.5 kg/m²) onto the fibre gypsum boards of the external walls.

The composition of the adhesive is deposited with DIBt. It is a paste-like synthetic resin dispersion. The insulation boards can additionally be fixed with suitable mechanical fasteners. Insulation boards shall be used with the designation T2-L2-W2-S2-P4-DS(70,-)2-DS(N)2 and a tensile strength according to EN 1607 of at least 100 kPa¹. The surface of the wall shall be flat, dry, free of grease and dust-free and shall have a bond strength of at least 0.08 N/mm².

The insulation boards are coated with the plaster "StoLevel Classic" (amount of wet application approx. 2.5 kg/m² to 3.5 kg/m² and a thickness from 1.5 mm to 3.5 mm). The composition of the plaster is deposited with Deutsches Institut für Bautechnik.

Reinforcement "Sto-Glasfasergewebe" is worked into the outer third of the base coat. The reinforcement consists of coated glass fibre mesh, with a mass per unit area of about 155 g/m² and a mesh size of 6 mm x 6 mm. Additional information is deposited with Deutsches Institut für Bautechnik.

The external plaster "StoSilco" is used (amount of wet application 3.0 kg/m² to 4.5 kg/m² and a thickness up to approx. 3.0 mm). The composition of the external plaster is deposited with Deutsches Institut für Bautechnik.

The exterior wall Type 1 may as well get an external cladding Type 2, if the construction is in accordance with the structural calculations and if the physics relating to construction fulfil the requirements at the place of use.

No reused wood shall be used for this kit.

For windows normally wooden-windows are used. In Annex A there is a description of a wooden-window given. Other windows are allowed to be used as well if they fulfil the requirements at the place of use.

For roof covering normally concrete tiles according to EN 490²/491³ or clay tiles according to EN 1304⁴ are used. Other roofing's which fulfil the requirements at the place of use may also be used.

The connections to each other of the individual building components are shown in Annex B.

The necessary characteristic values for structural design can be gathered from Annex A or the standards referred to there, ETA, etc.

The anchorage of the external wall building components to the substructure (basement or foundation slab made of concrete) is performed with steel angles which are connected with screws with the external walls and with steel dowels with the foundation slab. The anchorage of the external wall building components to the substructure is shown in Annex B.

2 Specification of the intended use in accordance with the applicable EAD

The timber building kit is intended to be used for the following types of buildings:

- residential buildings (single-, multi-storey, terraced houses, semi and multi-family houses)
- commercial buildings (hotel complexes, office buildings, industrial buildings)
- public buildings (e.g., kindergartens, schools)

The intended use shall be evaluated in each individual case depending on the climatic boundary conditions.

The provisions made in this ETA are based on an assumed working life of "Krivaja Homes" of at least 50 years and of at least 25 years for the exterior wall cladding, provided that the conditions to utilisation, care and maintenance laid down in clause 3.1 are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

¹ Each individual value of a test result shall include the value given here.

² EN 490:2017 Concrete roofing tiles and fittings for roof covering and wall cladding – Product specifications

³ EN 491:2011 Concrete roofing tiles and fittings for roof covering and wall cladding – Test methods

⁴ EN 1304:2013 Clay roofing tiles and fittings – Product definitions and specifications

The performances given in Section 3 are only valid if timber building kits are used in compliance with the specifications and conditions given in Annex A and B.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Resistance, stiffness and stability of wall, floor and roof elements and their connections against vertical and horizontal loads	See Annex A All building components are described with regard to their components and their structure
Shear resistance in plane direction against horizontal loads	No performance assessed
Compression resistance - log walls	No performance assessed
Settling of construction of log	No performance assessed
Corrosion protection of metal fasteners	No performance assessed

By means of this description of the load-bearing building components both mechanical resistance and stability for each load-bearing building component and their connections between the components shall be determined.

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of materials and components	The classification for reaction to fire of materials and components is given in Annex A
Resistance to fire	No performance assessed
External fire performance of roof covering	No performance assessed

3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Water vapour resistance	The works shall be designed such that the building envelope with regards to interstitial and surface condensation meets the general requirements. The assessment of relevant building parts, including wet room envelopes, shall be calculated according to EN ISO 13788 ⁵ considering relevant design climatic conditions. Particular building elements were calculated according to EN 15026 ⁶ and stated in annex A.
Watertightness	Provided the kit is properly manufactured and assembled the building envelope is resistant to penetrating water (also driving rain-resistant) and snow. In case of ranges of application with extreme conditions of driving rain and snow the intended use shall be assessed in every individual case.

⁵ EN ISO 13788:2013 Hygrothermal performance of building components and building elements - Internal surface temperature to avoid critical surface humidity and interstitial condensation - Calculation methods

⁶ EN 15026:2023 Hygrothermal performance of building elements - assessment of moisture transfer by numerical simulation

Durability class/ use class	Durability class/ use class see Annex A
Content, emission and/or release of dangerous substances	No performance assessed

3.4 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Impact resistance	Due to technical experience the impact resistance is sufficient. The complete wall construction with a wood-based panel or a gypsum board having thickness of at least 12.5 mm is sufficiently shock-proof.

3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal resistance	No performance assessed
Air permeability	When the kit has been properly manufactured and assembled the building envelope is sufficiently airtight. The measuring shall be performed according to ISO 9972 ⁷ if necessary.
Thermal inertia	No performance assessed

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

According to Decision 99/455/EC of the Commission⁸, the system to be applied is 1.

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 19 May 2025 by Deutsches Institut für Bautechnik

Anja Dewitt
Head of Section

beglaubigt:
Vössing

⁷ EN ISO 9972:2018 Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method

⁸ Official Journal of the European Communities L 178/56-57 of 14.07.1999

Annex A1 – Specification of the technical description

Substructure

The substructure of the building is not part of this ETA.

The kit can be used for a separate construction works or be placed as a heightening on an existing construction works. The substructure has to consist of concrete with strength class C20/25 according to EN 206-1 and must have a thickness of at least 10 cm.

The height tolerances of the surface of the substructure amounts to ± 5 mm.

More information as to the dimensions, if necessary and the description of the details (e.g., protective measures against rising moisture) for the manufacture of the substructure will be delivered by the manufacturer of the kit.

Execution of construction works

The manufacturer provides an assembly schedule containing the following aspects:

- construction techniques and necessary equipment
- temporary bracing and weather protection
- completion of joints between components of the kit (fixing, sealing against climatic influences, etc.)
- fixing of wind anchorage to the substructure and between building parts
- additional building materials and building components applied on site and which are a precondition for the fitness of use of the kit
- special boundary conditions (e.g., special crane requirements, hoisting strap positions, etc.)

The building components of the kit are compiled at the manufacturing plant in accordance with this ETA.

The ETA is issued for the product on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik.

Manufacture, planning and design

The manufacture of a kit shall be conducted on the basis of a specific structural design for the construction works.

The factory production of the building components takes place in dry and heated sites and the temporary storage of the components is usually below roofs.

The dimensioning of building elements and the selection of materials for wall-, floor- and roof- elements shall be carried out in accordance with the requirements of structural and building physics calculations. Non-load-bearing internal walls can be arranged in any way inside the building. Exterior walls either get external insulation systems according to European Technical Assessments (description see Details B to D in Annex A) or have been designed in accordance with generally recognised rules of construction (description see Details E to K in Annex A). The evidence against lift of, of the wall building components with the substructure shall be provided.

Packaging, transport and storage

The instructions of the manufacturer related to packaging, transport and storage shall be observed.

Use, maintenance, repair

It is the manufacturer's responsibility to ensure that exact instructions are enclosed to each delivery regarding the use of the kit which includes both the general conditions of this ETA as well as the specific installation instructions.

Serviceability

For the serviceability of the kit, it shall be ensured that suspended floors have sufficient stiffness to avoid unacceptable vibration through normal use. The assessment of this requirement is part of the calculation of mechanical resistance and structural stability.

Durability class/ use class

Softwood that fulfils the needs of natural durability of solid wood according to EN 350¹ respective Table 1 is used as construction wood.

Table 1: Classes of natural durability against destructive fungi

Wood Types	Classes of natural durability ^a
Spruce and fir	4
Pine and larch	3-4
^a The classes relates to heartwood.	

Only technically dried timber with a moisture content up to 20 % is used.

The building components are not treated with chemical wood preservatives.

Table 2: Classification of building components according to EN 335²

Type of building component	Use class
Load-bearing structures wall, ceiling, roof	1
Internal linings (non-loadbearing) and internal planking (load-bearing) of walls and ceilings	1
Sleepers (solid timber) of internal and external walls of the ground floor	2
Internal linings (non-loadbearing) and internal planking (load-bearing) of walls and ceilings, behind ventilation or for covering insulation	2
Weather exposed exterior walls including exterior wall cladding	3

Termites are only found in certain limited areas in Europe. The assessment of durability in this ETA contains no information about resistance to termites. Use in areas where termites occur is not recommended without appropriate chemical wood protection.

In order to reach the intended working life of the kit, the user has to care and maintain it according to the service manual of the manufacturer. This service manual is part of the kit.

The durability against corrosion of metallic fasteners, used for these kits, has to meet the requirements of EN 1995-1-1³ under consideration of the corrosivity category according to EN ISO 12944-2⁴.

1

EN 350:2016

Durability of wood and wood-based products - Testing and classification of the durability to biological agents of wood and wood-based materials

2

EN 335:2013

Durability of wood and wood-based products - Use classes: definitions, application to solid wood and wood-based products

3

EN 1995-1-1:2004+AC2006+A1:2008+A2:2014

Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings

4

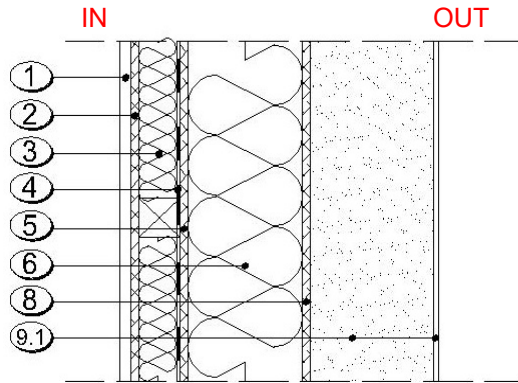
EN ISO 12944-2:2017

Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 2: Classification of environments

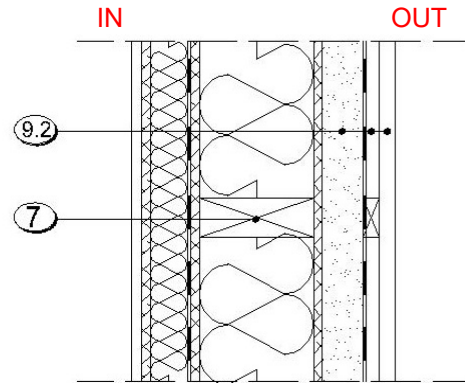
Annex A2 – Description of the building components

External wall Type 1

(Horizontal section)



Wall cladding Type 1



Wall cladding Type 2

Components

Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire
1	Gypsum board (Paper weight $>220\text{g/m}^2$ $\leq 320\text{ g/m}^2$)*	12.5	EN 520	B-s1, d0 (2006/673/EC)
2.1	OSB/3-board Density $\geq 600\text{ kg/m}^3$	10.0 12.0 15.0	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
2.2	Fiber gypsum board	12.5	ETA 03/0050	A2-s1,d0
3a	Mineral wool 040 MW-EN 13162-T3-DS (70,-)-MU1-AFr5 Density $\geq 10\text{kg/m}^3$	50	EN 13162	A1
3a1	Wood wool - WF-EN 13171-T2-TR1.0- MU3-AFr5	50	EN 13171	E
3a2	Rock wool MW-EN 13161-T2-WS- WL(P)-MU1	50	EN 13162	A1
3b	Lathing Density $\geq 350\text{ kg/m}^3$	45/50	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
4	PE-Foil $s_d > 100\text{m}$	0.11	EN 13984	E
5.1	OSB/3-board Density $\geq 600\text{ kg/m}^3$	10.0 12.0 15.0	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
5.2	Fiber gypsum board	12.5	ETA 03/0050	A2-s1,d0
6a	Mineral wool 040 MW-EN 13162-T3-DS (70,-)-MU1-AFr5 Density $\geq 10\text{kg/m}^3$	100 120 140 160	EN 13162	A1
6b	Wood wool - WF-EN 13171-T2-TR1.0- MU3-AFr5	100 120 140 160	EN 13171	E
Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire

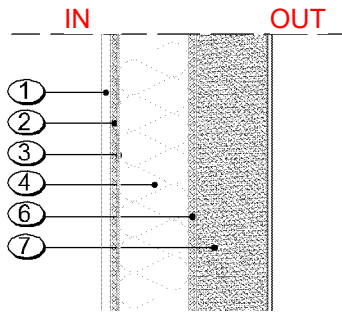
6c	Rock wool MW-EN 13161-T2-WS- WL(P)-MU1	100 120 140 160	EN 13162	A1
7	Stud C24 Density ≥350 kg/m³	45/100 45/120 45/140 45/160	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
	Top chord GL24c Density ≥350 kg/m³	90/100 90/120 90/140 90/160	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
	Bottom chord Density ≥350 kg/m³	60/100 60/120 60/140 60/160	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
8.1	OSB/3-Board Density ≥ 600 kg/m³	10.0 12.0 15.0	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
8.2	Fiber gypsum board	12.5	ETA 03/0050	A2-s1,d0
Exterior wall cladding Type 1				
Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire
9.1a	Glue: Sto Prefa Coll	Full-surface application	ETA-11/0505	The whole system C-s2,d0
9.1b	Insulation board: EPS EN 13163-T2-L2- W2-S2-P4-DS(70,-)2- DS(N)2 Additional properties see chapter 1	100 150	ETA-11/0505	
9.1c	Plaster "StoLevel Classic" with reinforcement "Sto- Glasfasergewebe"	1.5.-3.5	ETA-11/0505	
9.1d	External plaster "StoSilco"	≤ 3.0	ETA-11/0505	
Exterior wall cladding Type 2				
9.2a	Lathing Density ≥ 350 kg/m³	45/50	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
9.2b	Insulation board: EPS EN 13163-T2-L2- W2-S2-P4-DS(70,-)2- DS(N)2	50	EN 13163	E
9.2c	PP (steam permeable) foil s _d ≤ 0.3 m	-	EN 13859-1 EN 13859-2	E
9.2d	Lathing Density ≥ 350 kg/m³	45/20	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
9.2e	Wooden cladding	20	EN 338 EN 14081	D-s2,d0 (2003/593/EC)

* Joints between gypsum boards: dimension of the gap $\leq 4 \text{ mm}$

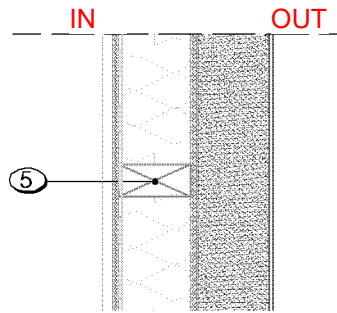
Components	Type	Spacing[mm]		Description
		Edge	Middle	
Gypsum board	Staple Type 1	≤ 100	≤ 200	Last page of Annex A
OSB-board	Staple Type 1	≤ 100	≤ 200	
Fibre gypsum board	Staple Type 1	≤ 100	≤ 200	

Components	Type	Spacing[mm]		Description
		Edge	Middle	
Gypsum board	Nails 2.5x3.5	50-150	150	Last page of Annex A
OSB-board	Nails 2.1x3.5	120	120	
Fibre gypsum board	Nails 2.5x3.5	50-150	150	

External wall Type 2
(Horizontal section)



Wall cladding Type 1



Wall cladding Type 1

Components

Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire
1	Gypsum board (Paper weight $>220\text{g/m}^2$ $\leq 320\text{ g/m}^2$)*	12.5	EN 520	B-s1,d0 (2006/673/EC)
2.1	OSB/3-board Density $\geq 600\text{ kg/m}^3$	10.0 12.0 15.0	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
2.2	Fibre gypsum board	12.5	ETA 03/0050	A2-s1,d0
3	PE-Foil $s_d > 100\text{ m}$	0.11	EN 13984	E
4a	Mineral wool 040 MW-EN 13162-T3-DS (70,-)-MU1-AFr5 (Density $\geq 10\text{kg/m}^3$)	100 120 140 160	EN 13162	A1
4b	Wood wool - WF-EN 13171-T2-TR1.0- MU3-AFr5	100 120 140 160	EN 13171	E
4c	Rock wool MW-EN 13161-T2-WS- WL(P)-MU1	100 120 140 160	EN 13162	A1
5	Stud C24 Density $\geq 350\text{ kg/m}^3$	45/100 45/120 45/140 45/160	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
	Top chord Density $\geq 350\text{ kg/m}^3$	90 (2x45)/100 90 (2x45)/120 90 (2x45)/140 90 (2x45)/160	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
	Bottom chord Density $\geq 350\text{ kg/m}^3$	60 (45)/100 60 (45)/120 60 (45)/140 60 (45)/160	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
6.1	OSB/3-board Density $\geq 600\text{ kg/m}^3$	10.0 12.0 15.0	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
6.2	Fibre gypsum board	12.5	ETA 03/0050	A2-s1,d0

Exterior wall cladding Type 1				
7a	Glue: StoPrefa Coll	Full-surface application	ETA-11/0505	The whole system C-s2,d0
7b	Insulation board: EPS EN 13163-T2-L2- W2-S2-P4-DS(70,-)2- DS(N)2 Additional properties see chapter 1	100 150	ETA-11/0505	
7c	Plaster „StoLevel Classic" with reinforcement "Sto- Glasfasergewebe"	1.5-3.5	ETA-11/0505	
7d	External plaster "StoSilco"	≤3	ETA-11/0505	

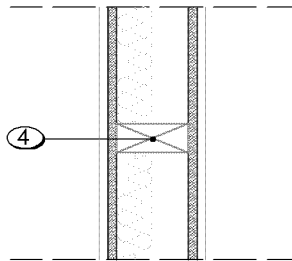
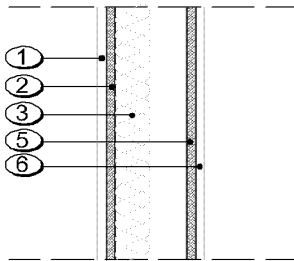
* Joints between gypsum boards: dimension of the gap ≤ 4 mm

Fasteners

Components	Type	Spacing[mm]		Description
		Edge	Middle	
Gypsum board	Staples Type 1	≤ 100	≤ 200	Last page of Annex A
OSB-board	Staples Type 1	≤ 100	≤ 200	
Fibre gypsum board	Staples Type 1	≤ 100	≤ 200	

Components	Type	Spacing[mm]		Description
		Edge	Middle	
Gypsum board	Nails 2.5x3.5	50-150	150	Last page of Annex A
OSB-board	Nails 2.1x3.5	120	120	
Fibre gypsum board	Nails 2.5x3.5	50-150	150	

Internal wall
(horizontal section)



Components

Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire
1	Gypsum board (Paper weight $>220\text{g/m}^2 \leq 320\text{ g/m}^2$)*	12.5	EN 520	B-s1,d0 (2006/673/EC)
2.1	OSB/3-board Density $\geq 600\text{ kg/m}^3$	10.0 12.0 15.0	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
2.2	Fibre gypsum board	12.5	ETA 03/0050	A2-s1,d0
3	Mineral wool 040 MW-EN 13162-T3-DS (70,-)-MU1-AFr5 Density $\geq 10\text{kg/m}^3$	50 100 120 140	EN 13162	A1
3.1	Wood wool - WF-EN 13171-T2-TR1.0- MU3-AFr5	50 100	EN 13171	E
3.2	Rock wool MW-EN 13161-T2-WS- WL(P)-MU1	50 100	EN 13162	A1
4	Stud C24 Density $\geq 350\text{ kg/m}^3$	45/100 45/120 45/140	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
	Top chord GL24c Density $\geq 350\text{ kg/m}^3$	60/100 60/120 60/140	EN 14081	D-s2,d0 (2003/593/EC)
	Bottom chord Density $\geq 350\text{ kg/m}^3$	60/100 60/120 60/140	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
5.1	OSB/3-board Density $\geq 600\text{ kg/m}^3$	10.0 12.0 15.0	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
5.2	Fibre cellulose board	12.5	ETA 03/0050	A2-s1,d0
6	Gypsum board (Paper weight $>220\text{g/m}^2 \leq 320\text{ g/m}^2$)*	12.5	EN 520	B-s1,d0 (2006/673/EC)

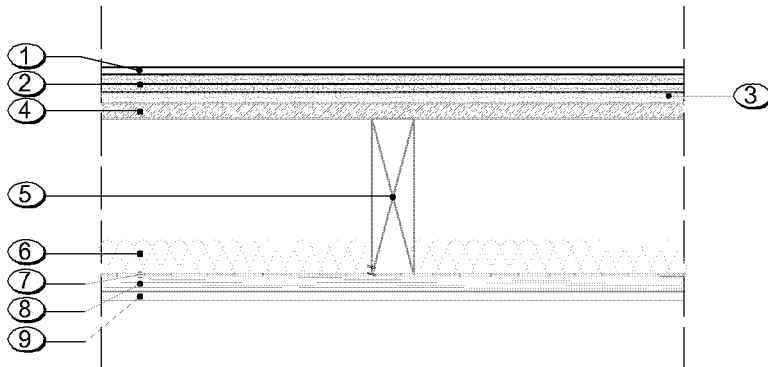
* Joints between gypsum boards: dimension of the gap $\leq 4\text{ mm}$

Fasteners

Components	Type	Spacing [mm]		Description
		Edge	Middle	
Gypsum board	Staples Type 1	≤ 100	≤ 200	Last page of Annex A
OSB-board	Staples Type 1	≤ 100	≤ 200	
Fibre gypsum board	Staples Type 1	≤ 100	≤ 200	

Components	Type	Spacing[mm]		Description
		Edge	Middle	
Gypsum board	Nails 2.5x3.5	50-150	150	Last page of Annex A
OSB-board	Nails 2.1x3.5	120	120	
Fibre gypsum board	Nails 2.5x3.5	50-150	150	

Ceiling (Horizontal section)



Components

Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire
1	Floor covering**	-		
2	Dry screed 2E22	2x12.5	ETA 03/0006	A2-s1,d0
3	Earthwool Acoustic Floor	35 70	EN 13162 EN ISO 50001	A1 EN ISO 13501-1
4	OSB/3-board Density $\geq 600 \text{ kg/m}^3$	22	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
5	Beam C24 Density $\geq 350 \text{ kg/m}^3$	60/220	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
6	Mineral wool 040 MW-EN 13162-T3-DS (70,-)-MU1-AFr5 Density $\geq 10 \text{ kg/m}^3$	50	EN 13162	A1
7	PE-Foil sd > 100 m	0.11	EN 13984	E
8.1	OSB/3-board Density $\geq 600 \text{ kg/m}^3$	22	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
8.2	Lathing Density $\geq 350 \text{ kg/m}^3$	22	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
9	Gypsum board (Paper weight >220g/m ² $\leq 320 \text{ g/m}^2$)*	12.5	EN 520	B-s1,d0 (2006/673/EC)

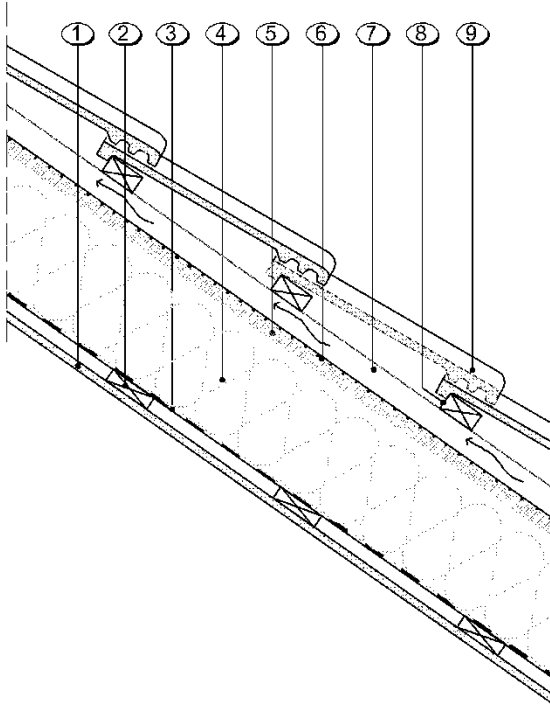
* Joints between gypsum boards: dimension of the gap $\leq 4 \text{ mm}$

** Not part of the kit

Fasteners

Component	Type	Spacing[mm]		Description
		Edge	Middle	
Gypsum board	Screw TN 25	≤ 170	≤ 170	Last page of Annex A
OSB-board	Screw Zd 4/60	≤ 200	≤ 200	

Roof
(Horizontal section)



Components

Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire
1	Gypsum board (Paper weight $>220\text{g/m}^2$ $\leq 320\text{ g/m}^2$)*	12.5	EN 520	B-s1,d0 (2006/673/EC)
2	Lathing (Density $\geq 350\text{ kg/m}^3$)	22	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
3	PE-Foil $s_d > 100\text{ m}$	0.11	EN 13984	E
4	Rafter C24 (Density $\geq 350\text{ kg/m}^3$)	80/180-80/300	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
4a	Mineral wool 040 MW-EN 13162-T3-DS (70,-)-MU1-AFr5 (Density $\geq 10\text{kg/m}^3$)	180 - 300	EN 13162	A1
4a1	Wood wool - WF-EN 13171-T2-TR1.0- MU3-AFr5	180 - 300	EN 13171	E
4a2	Rock wool MW-EN 13161-T2-WS- WL(P)-MU1	180 - 300	EN 13162	A1
5.1	OSB/3-board Density $\geq 600\text{ kg/m}^3$	18	EN 300 EN 13986	D-s2,d0 (2007/348/EC)
5.2	Roof deck	22	EN 300 EN 13986	D-s2,d0 (2003/593/EC)
6	Roofing felt, PE foil $s_d \leq 0.3\text{ m}$ (diffusible)	0.20	EN 13859-1-2	E
7	Counter lathing Density $\geq 350\text{ kg/m}^3$	48/48	EN 338 EN 14081	D-s2,d0 (2003/593/EC)

Nr.	Product	Dimensions [mm]	EN-Standard ETA	Reaction to fire
8	Roof lathing Density $\geq 350 \text{ kg/m}^3$	48/48	EN 338 EN 14081	D-s2,d0 (2003/593/EC)
9	Roof covering	-		

* Joints between gypsum boards: dimension of the gap $\leq 4 \text{ mm}$

Fasteners

Components	Type	Spacing [mm]		Description
		Edge	Middle	
Gypsum board	Screws 3.5x25	≤ 170	≤ 170	Last page of Annex A
OSB-board	Screws 4x60	≤ 200	≤ 200	
Counter lathing	3.8x100			
Roof lathing	3.8x100			

Example of the windows

Example of the characteristics of wooden window

Permeability according to EN 12207: class B

Rain resistance according to EN 12208: class B

Wind resistance according to EN 12210: class B

Thermal transmittance coefficient of the frame according to EN 12412-2: $U_f = 1.57 \text{ (W/(m}^2\text{K))}$

Thermal transmittance coefficient of the glass according to EN 673: $U_g = 1.10 \text{ (W/(m}^2\text{K))}$

Thermal transmittance coefficient of the window according to EN ISO 10077-1: $U_w = 1.25 \text{ (W/(m}^2\text{K))}$

Degree of energy transmittance according to EN 410: $g = 50 - 63 \%$

Fasteners

Staples

For staples the characteristic value of the withdrawal strength related to a staple shank is

$$f_{ax,k} = 40 \cdot 10^{-6} \cdot \rho_k^2 \text{ [N/mm}^2\text{]} \quad (\rho_k = \text{characteristic value of raw density in kg/m}^3\text{)}.$$

The following staples in accordance with EN 14592 are made of galvanized (zinc coat $\geq 86 \text{ g/m}^2$) round steel wire with tensile strength of $\geq 1000 \text{ N/mm}^2$ and have the following dimensions:

Type	Shaft length	Minimum length of resin	Back width	Wire diameter
	l_n	l_H	b_R	d_n
	[mm]	[mm]	[mm]	[mm]
Type 1	50	> 28	10.6	1.51

Screws

Screws in accordance with EN 14592 are made of phosphate round steel wire (type of thread: double thread) and have the following dimensions:

Diameter d_n x length l_n

3.5x25mm

4.0x60mm

3.8/100mm

The characteristic value of withdrawal strength is $f_{ax,k} = 70 \cdot 10^{-6} \cdot \rho_k^2 \text{ [N/mm}^2\text{]} \quad (\rho_k = \text{characteristic value of raw density in kg/m}^3\text{)}.$

Nails

Nails shall be in accordance with EN 14592.

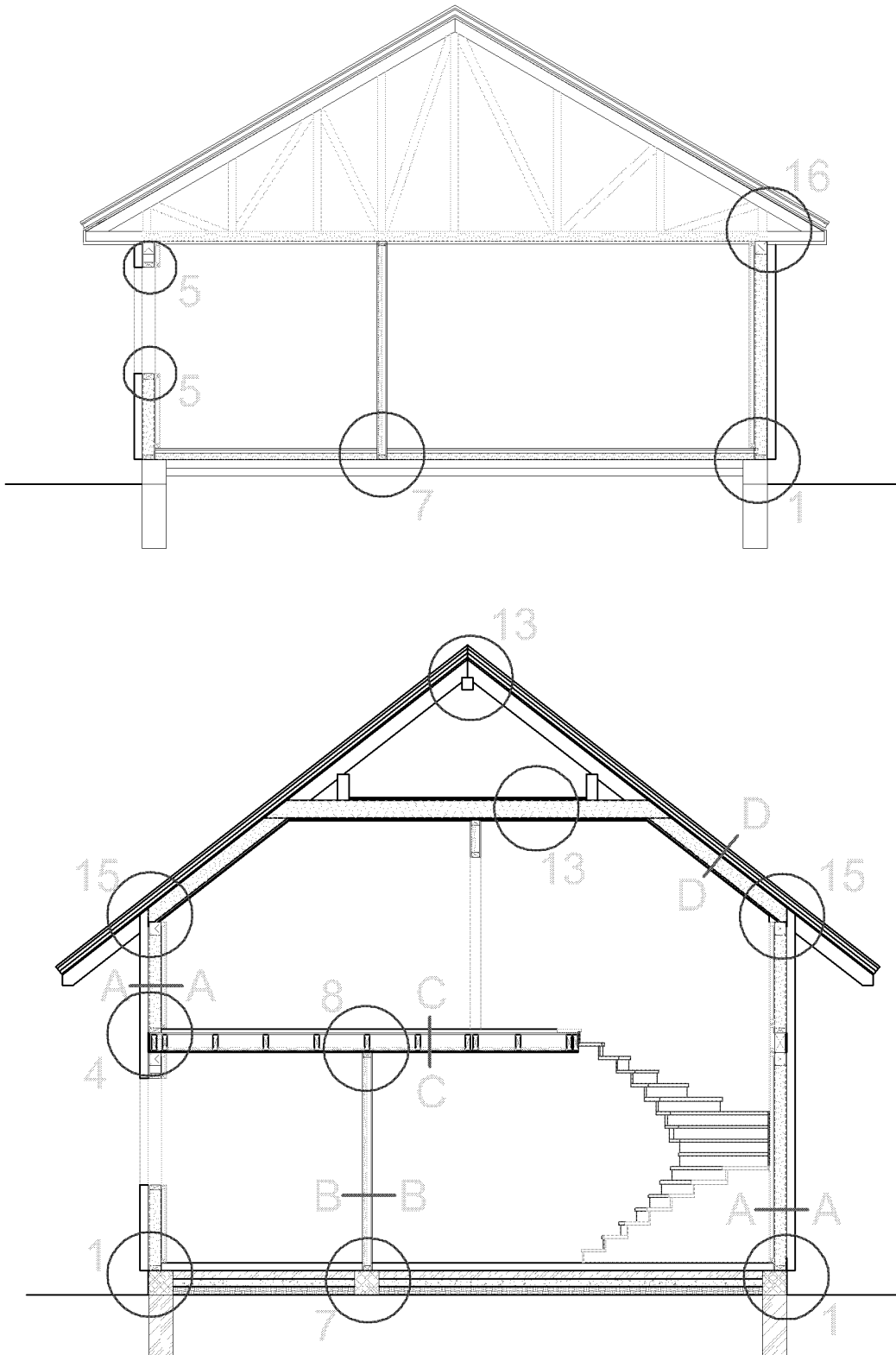
Round cross-sectional threaded shank nails for structural timber products. They are made of non-alloy steel rods according to EN ISO 16120.

Type	length	diameter	head area $2.5 \cdot d_n^2$
	[mm]	[mm]	[mm ²]
2.1x35	35	2.1	11.03
2.5x35	35	2.5	15.63

Annex B – Construction details

Gebäudequerschnitt

Cross-section - building

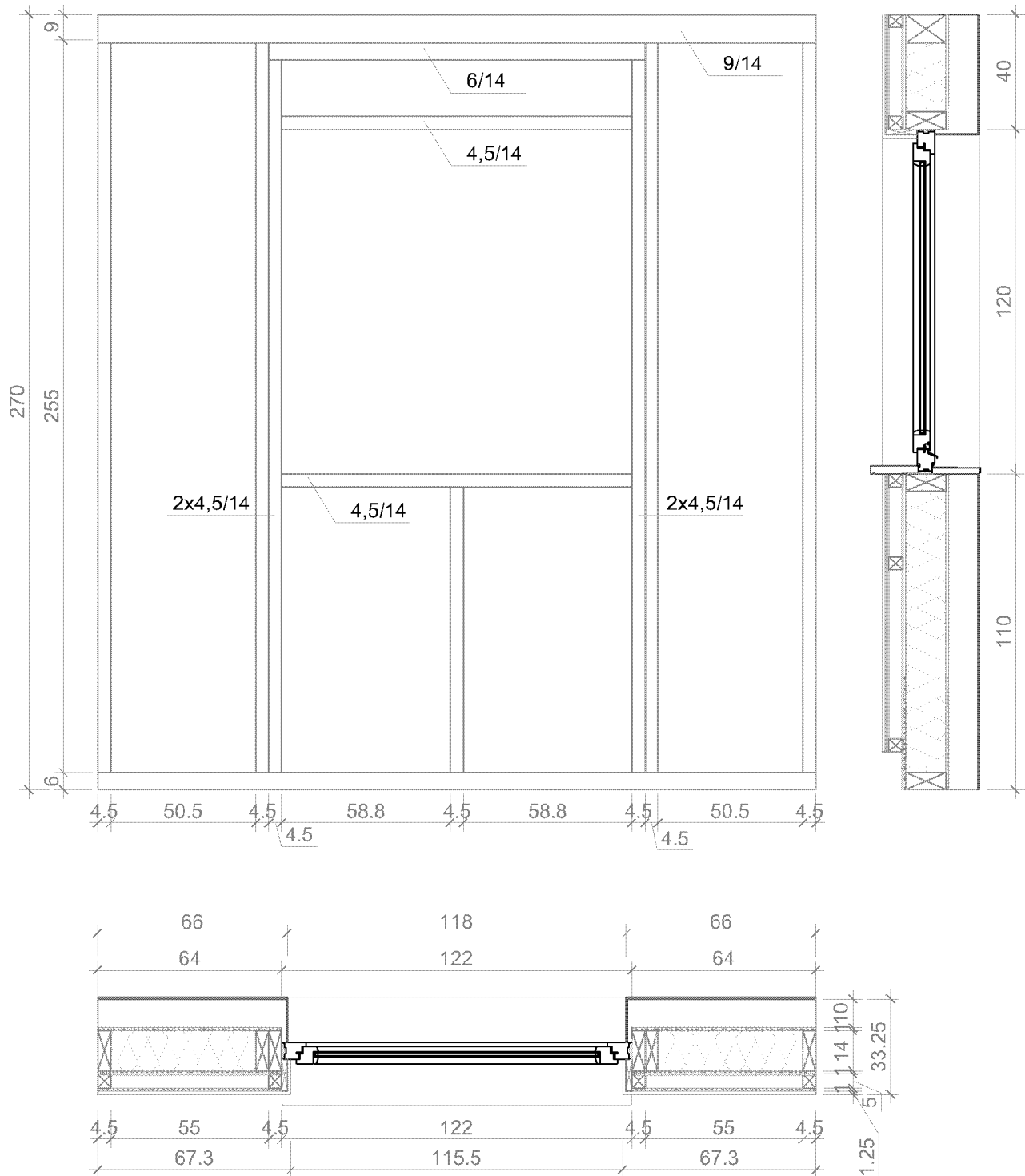


Außenwand-Element (Vertikalschnitt)
External wall element (vertical-section)

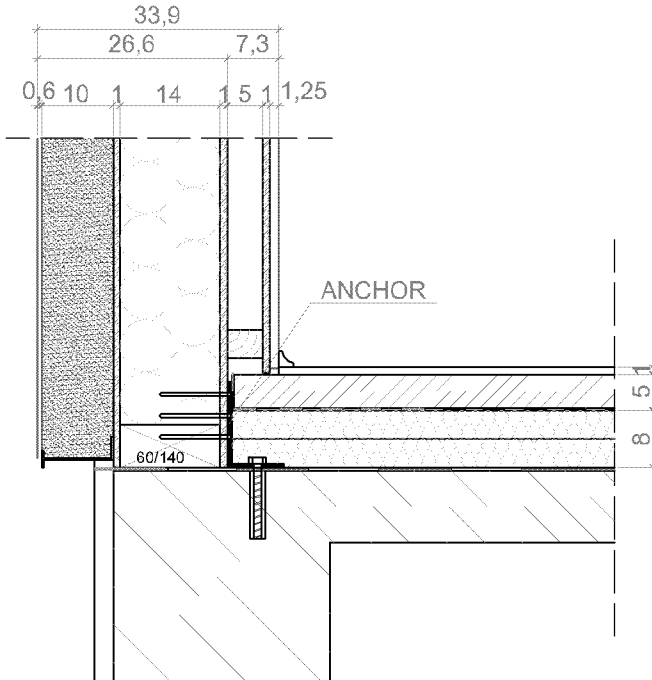


Außenwand-Element – Fenster (Vertikalschnitt)

External wall element – window (vertical-section)



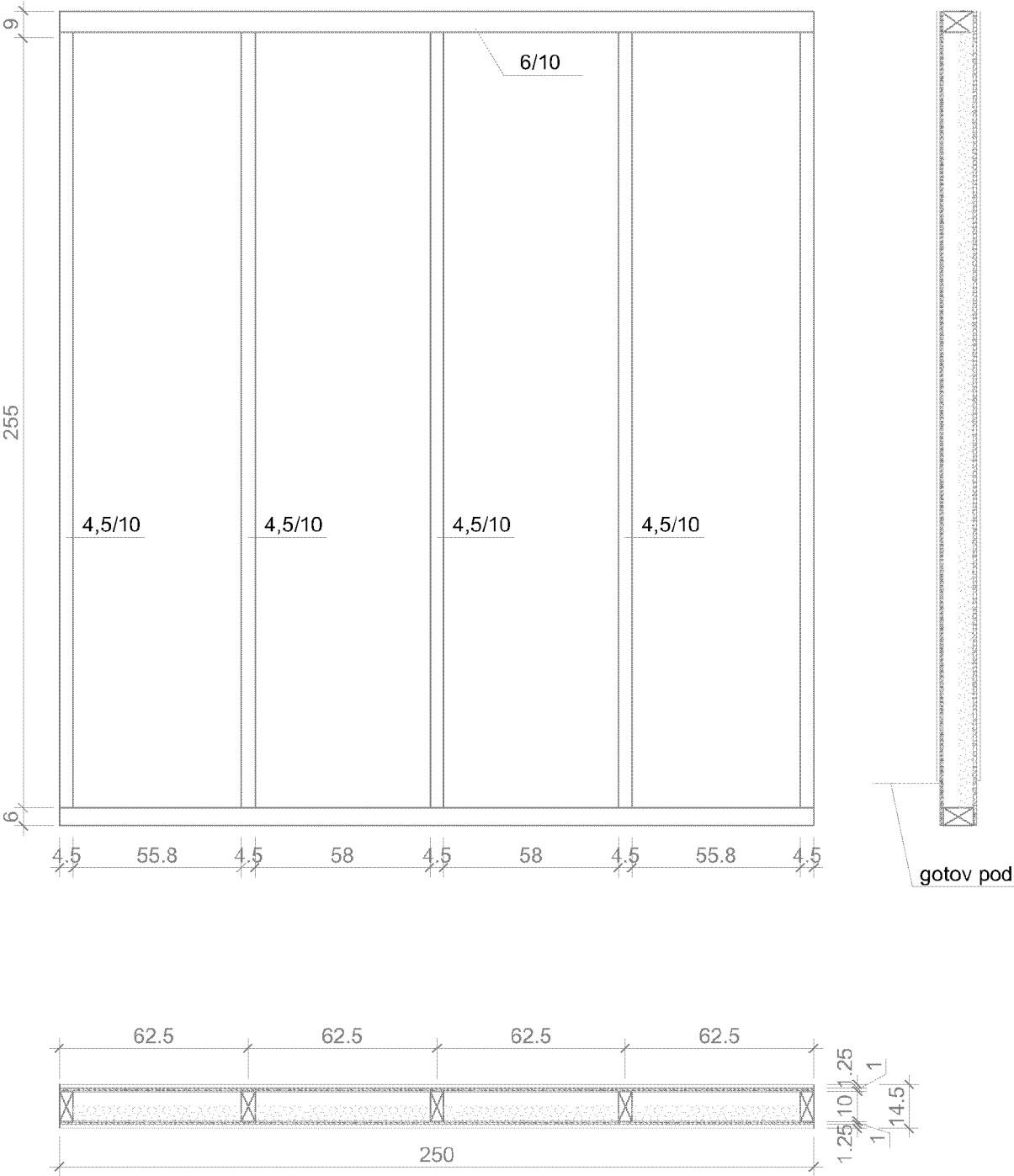
Sockelausbildung - Außenwand mit Wandverankerung
Pedestal detail - external wall with anchorage of the wall



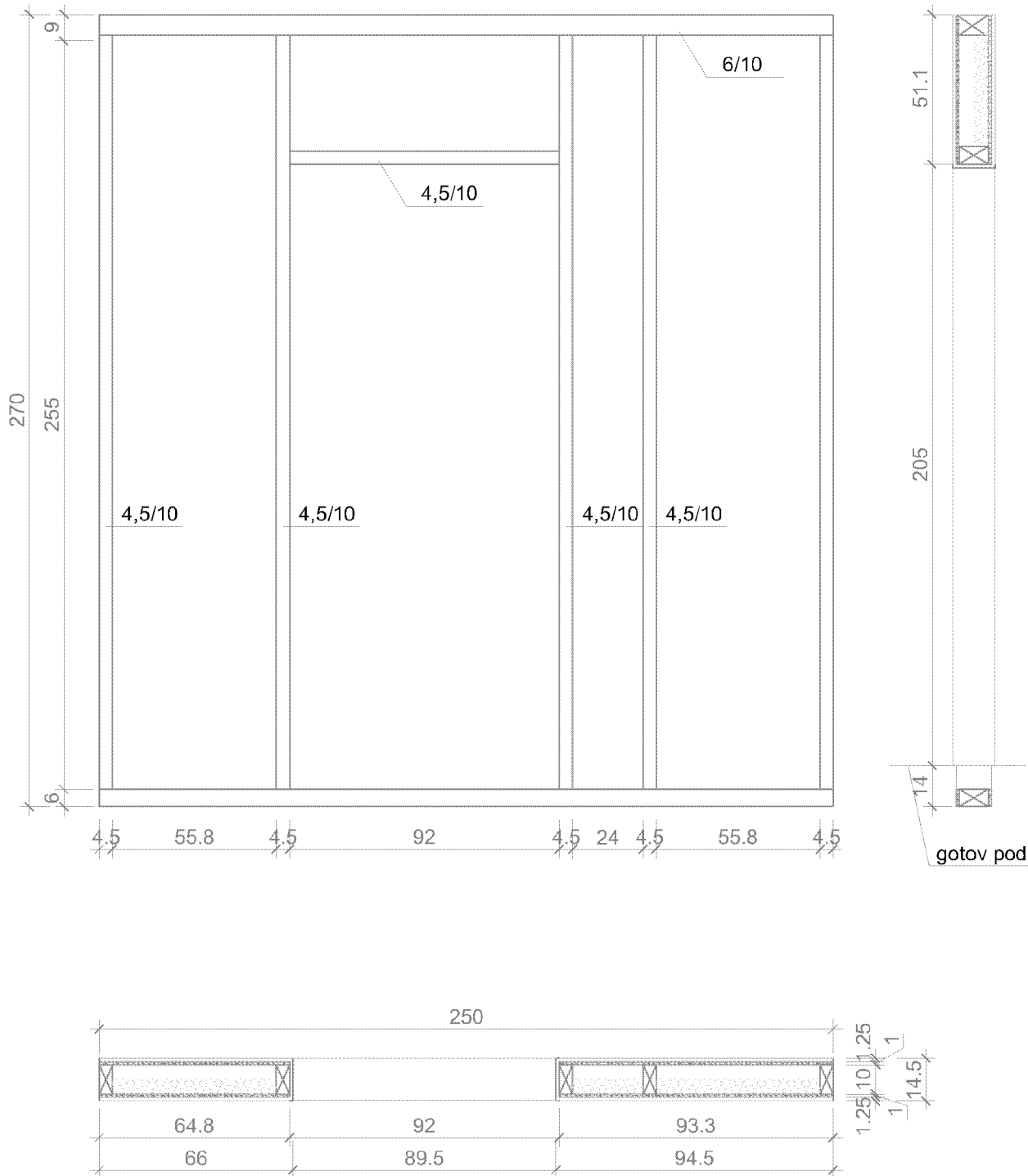
Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

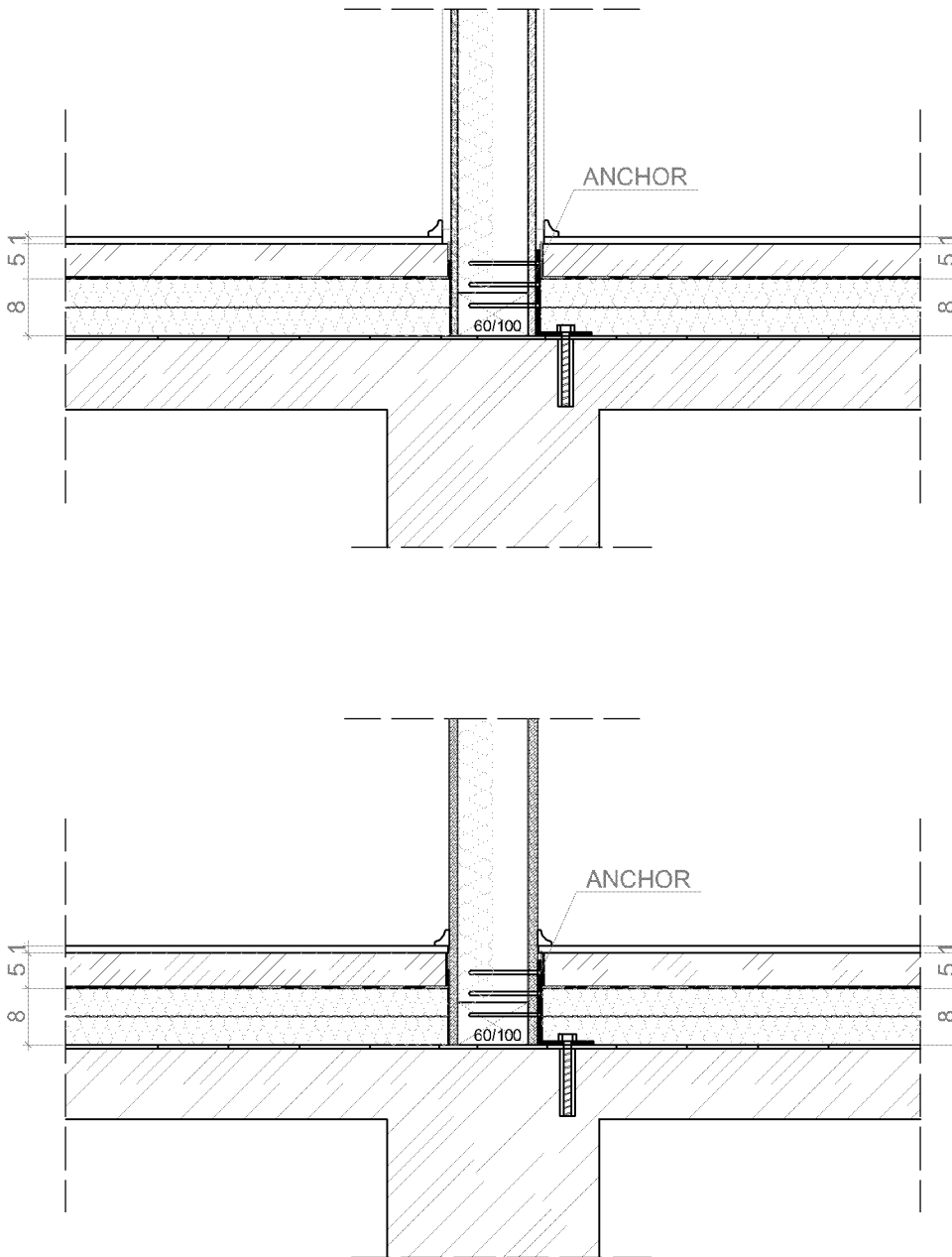
Innenwand-Element (Vertikalschnitt)
Internal wall element (vertical-section)



Innenwand-Element – Öffnung (Vertikalschnitt)
Internal wall element – opening (vertical-section)



Innenwand mit Verankerung
Internal wall with anchorage

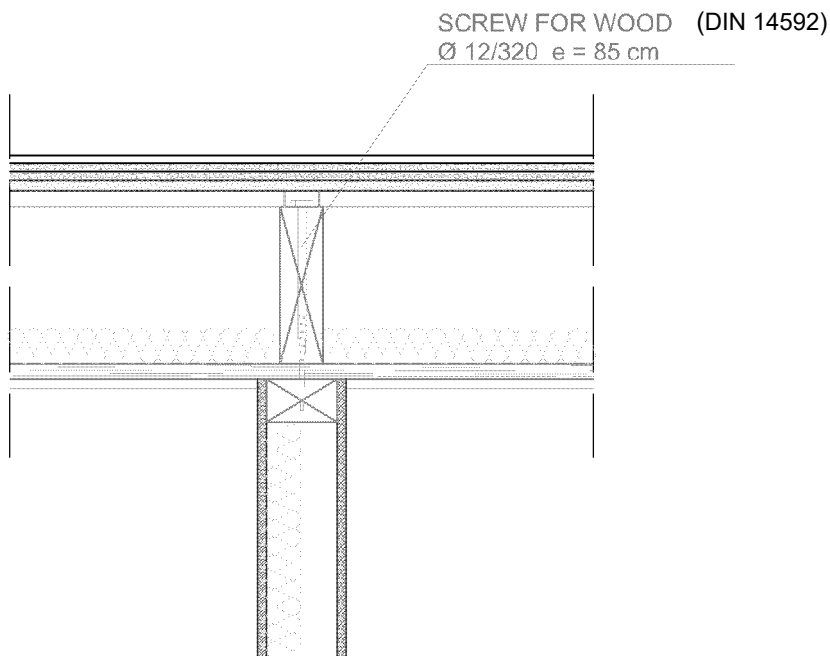
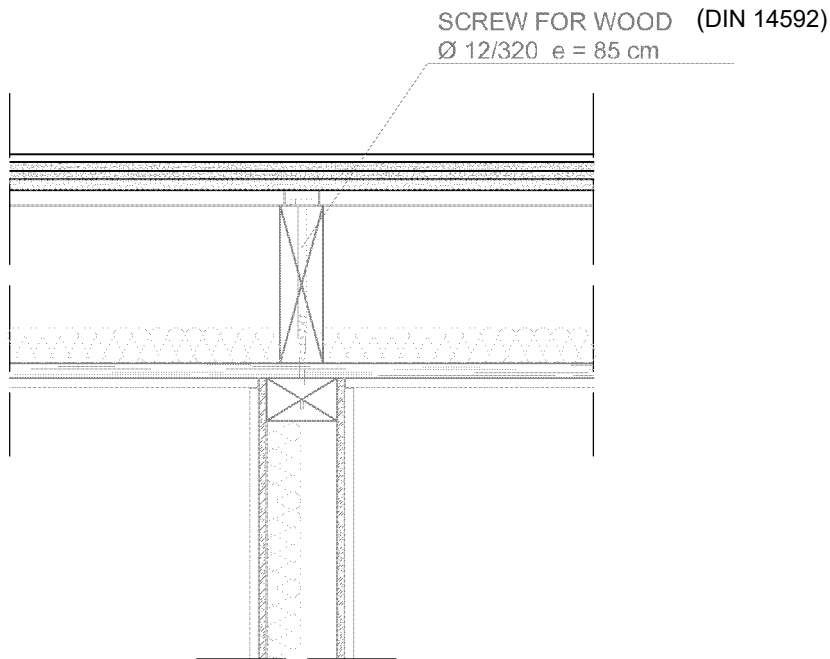


Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

Innenwand – Anschluss Decke

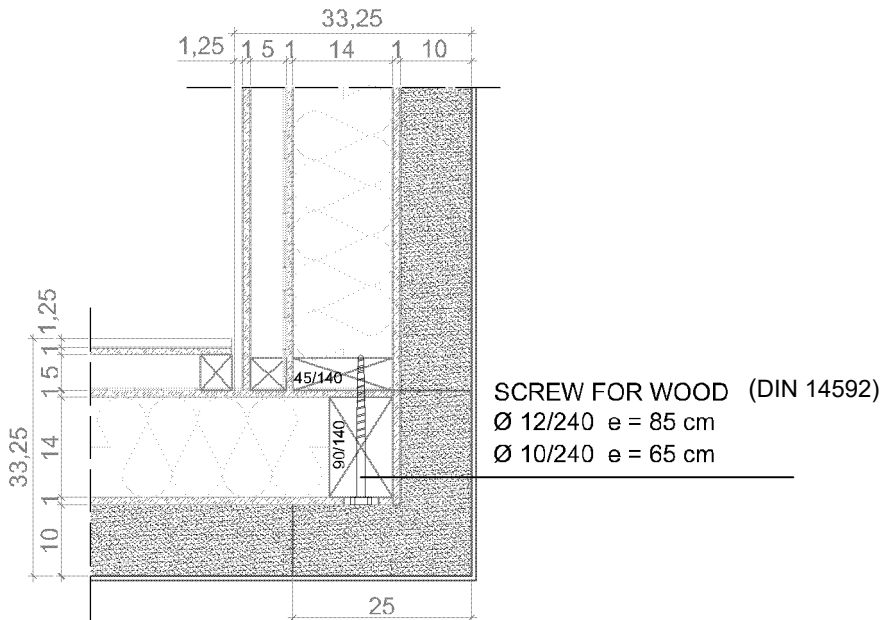
Internal wall – connection to ceiling



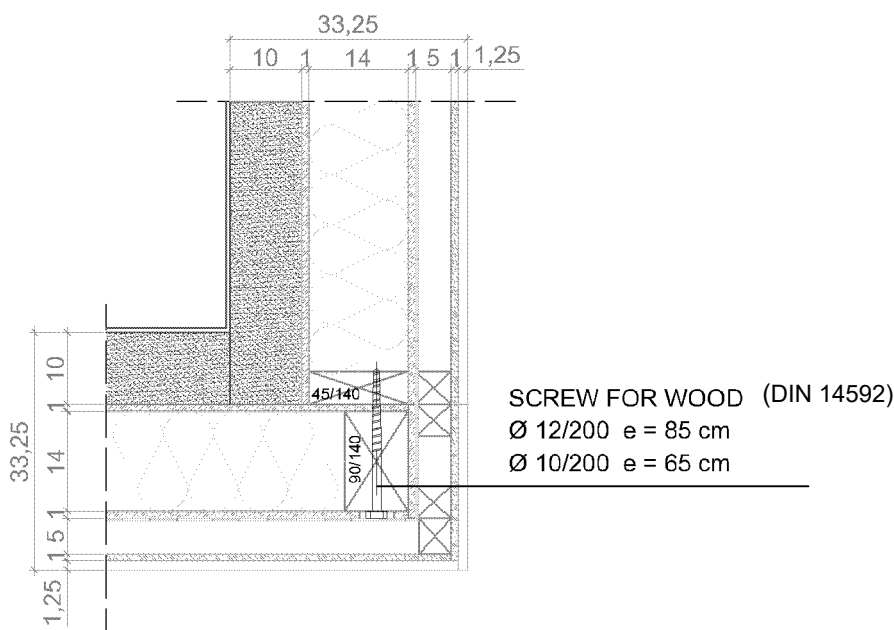
Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

Ecke Außenwand – Außenwand (außen)
Corner external wall - external wall (external)



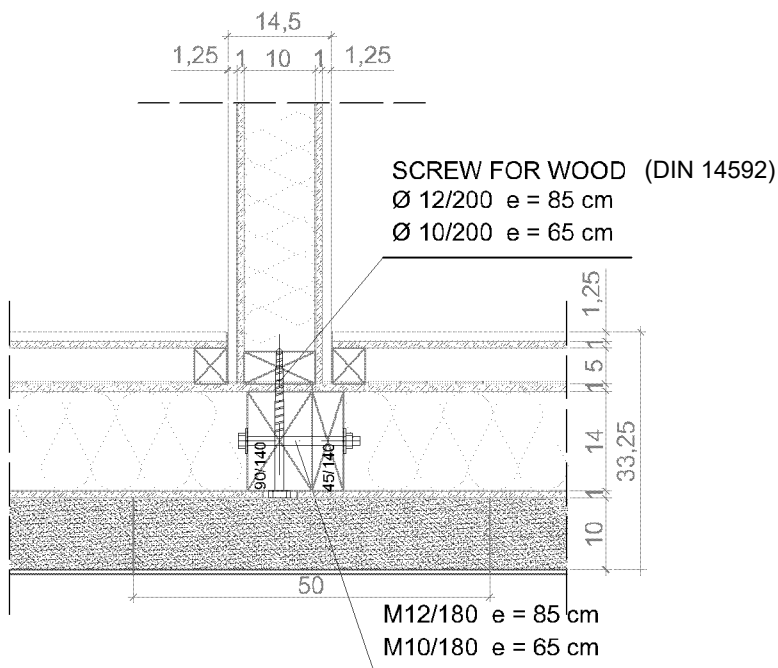
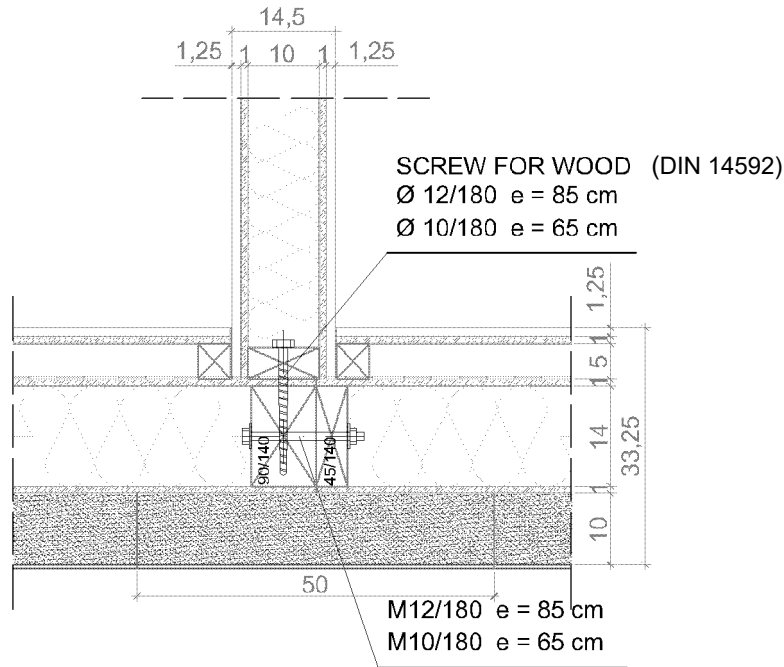
Ecke Außenwand – Außenwand (innen) - Horizontalschnitt
Corner external wall - external wall (internal) – horizontal-section



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

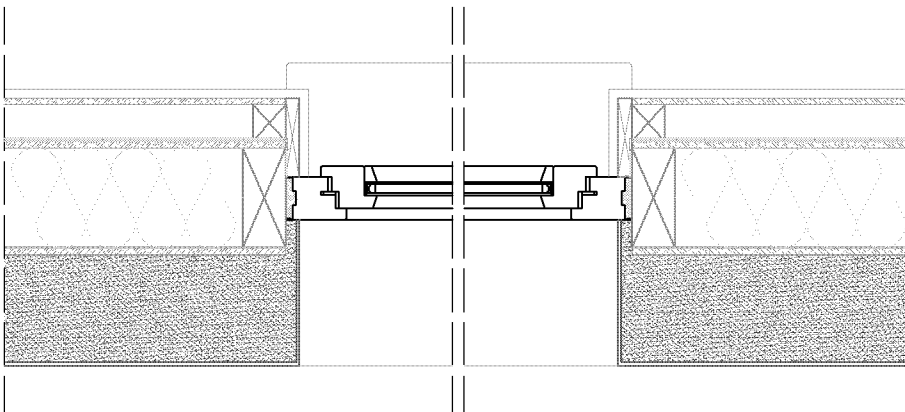
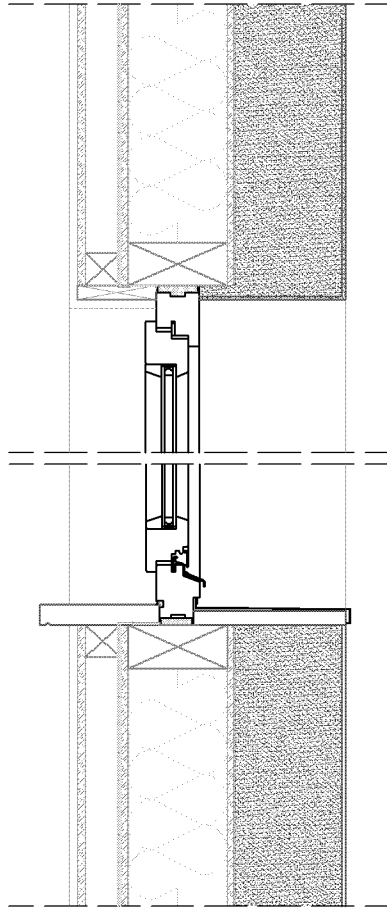
Anschluss Außenwand – Innenwand (Horizontalschnitt)
Connection external wall – internal wall (horizontal-section)



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

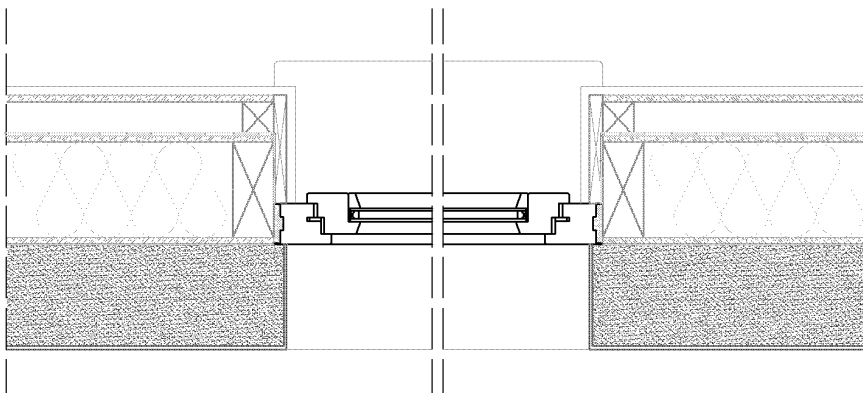
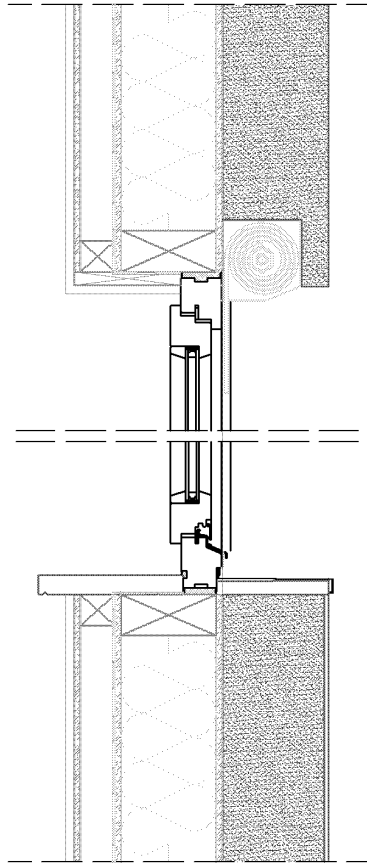
Anschluss Typ 1: Außenwand – Fenster (Vertikal-/Horizontalschnitt)
Connection type 1: external wall – window (vertical/horizontal-section)



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

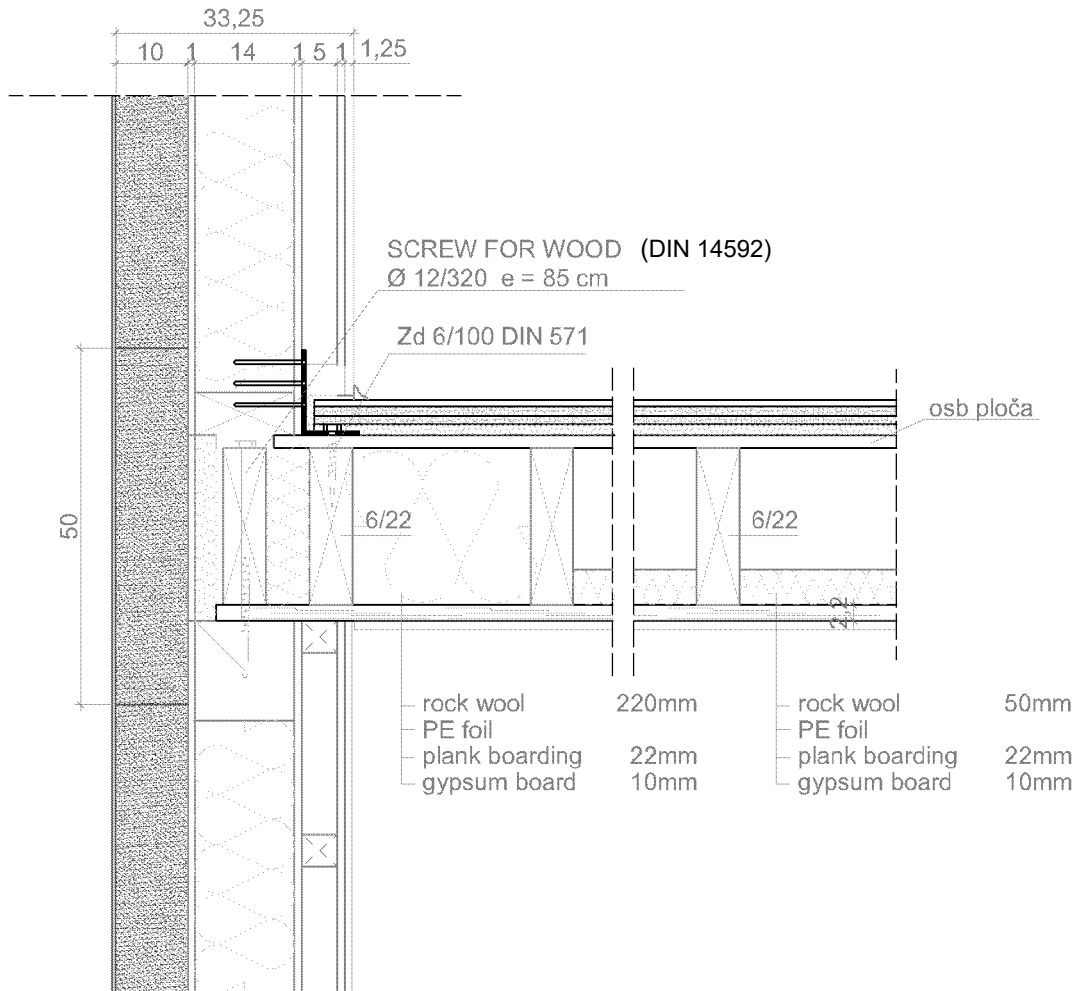
Anschluss Typ 2: Außenwand – Fenster (Vertikal-/Horizontalschnitt)
Connection type 2: external wall – window (vertical/horizontal-section)



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

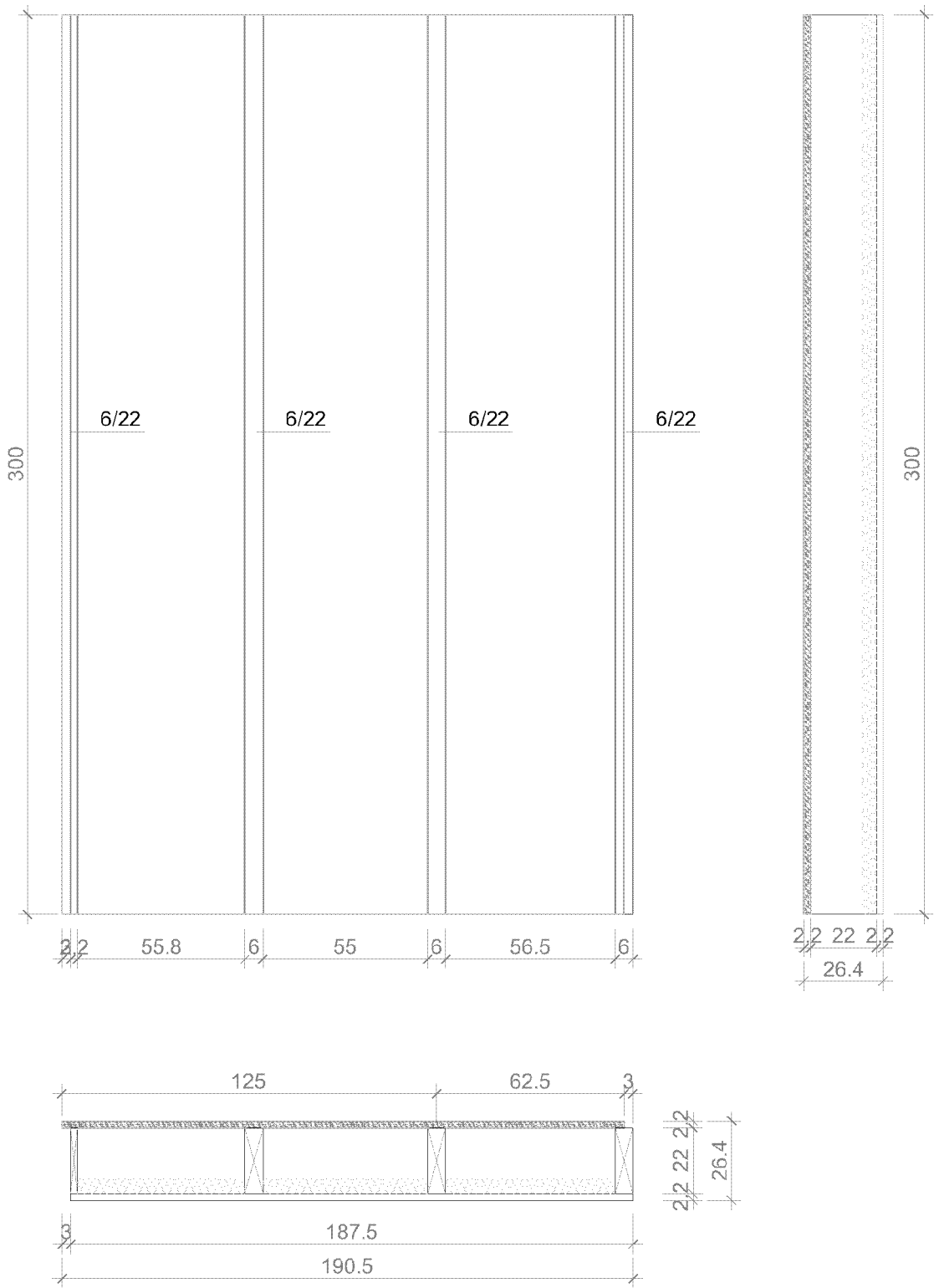
Anschluss Außenwand – Decke
Connection external wall – ceiling



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

Deckenelement
Ceiling element

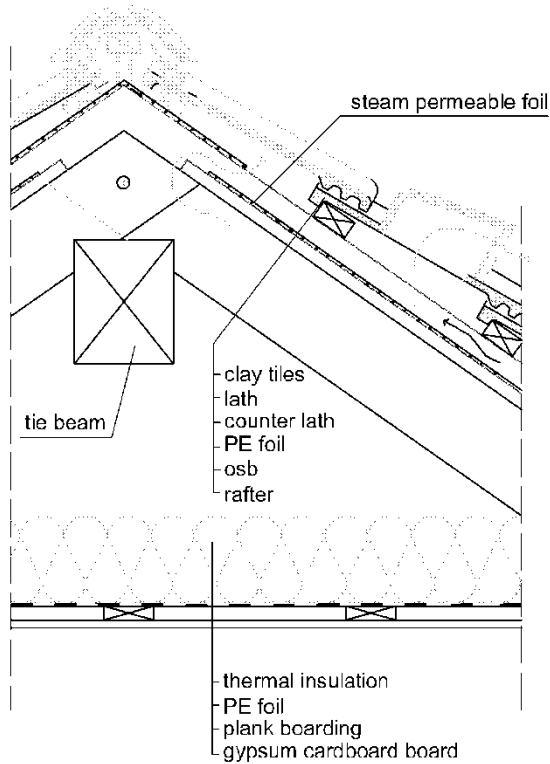


English translation prepared by DIBt

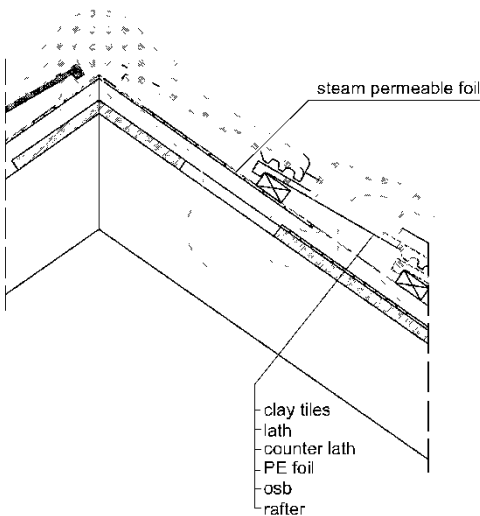
Deckenelement - Öffnung
Ceiling element - opening



Dach – Decke
Roof – ceiling



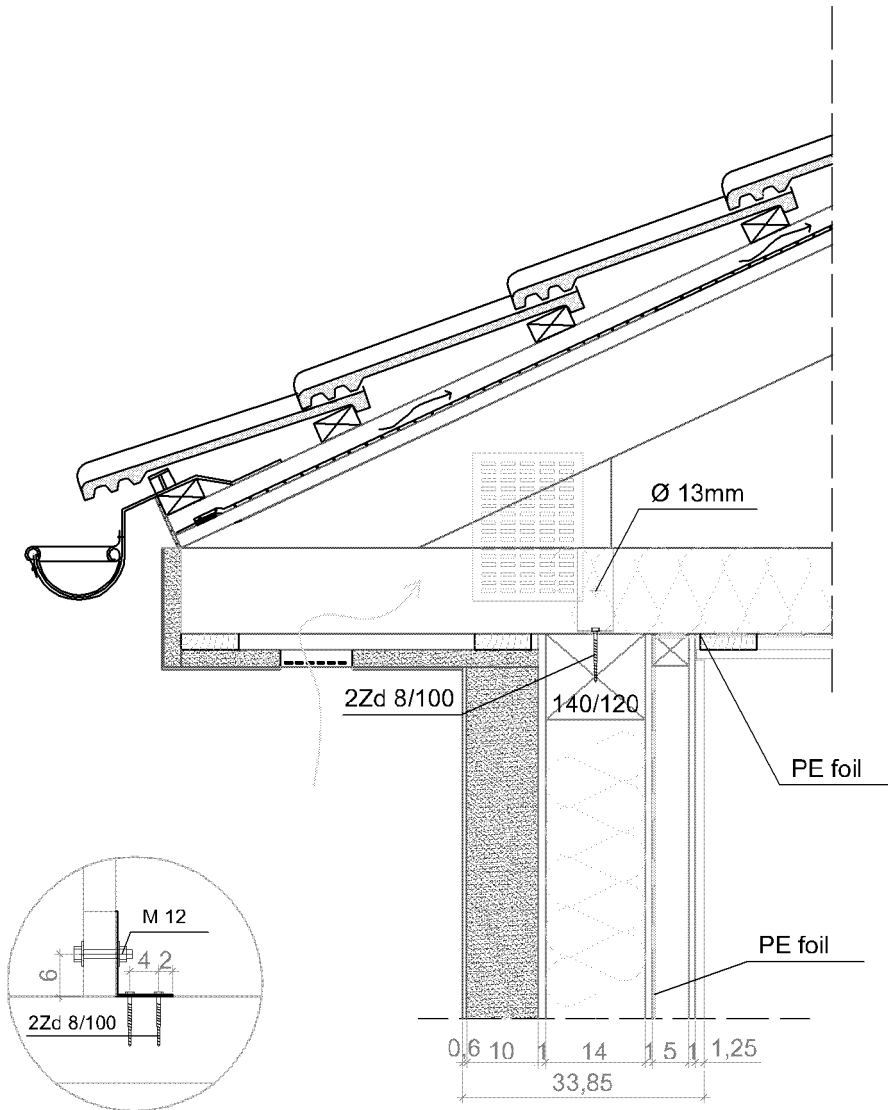
Belüftung bei unbeheiztem Dachboden
Ventilation of non heated attic



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

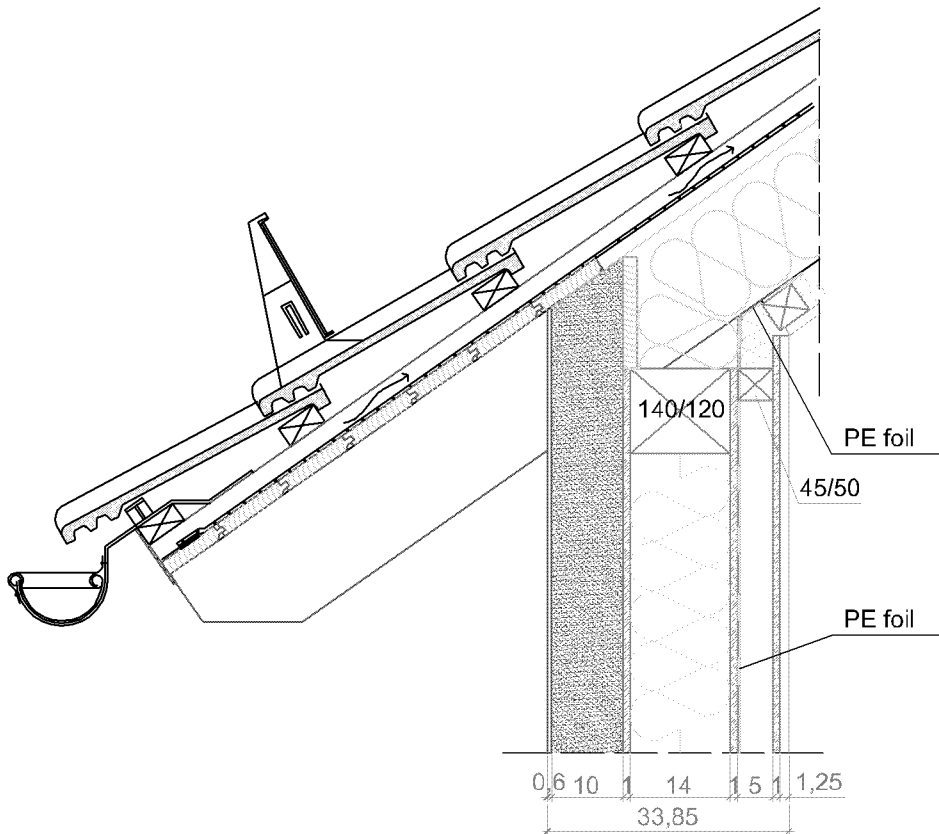
Verbindung Außenwand – Dach (flacher Dachüberhang)
Connection external wall – roof (flat eaves)



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

Verbindung Außenwand – Dach (geneigter Dachüberhang)
Connection external wall – roof (sloped eaves)

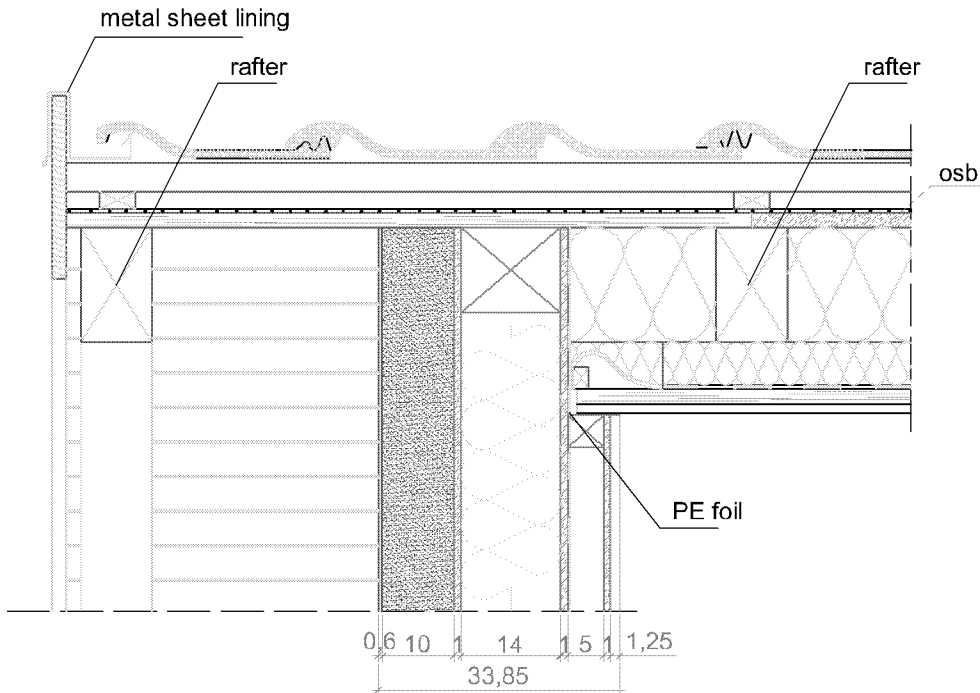


Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

Giebel mit Ortgang - Vertikaler Schnitt

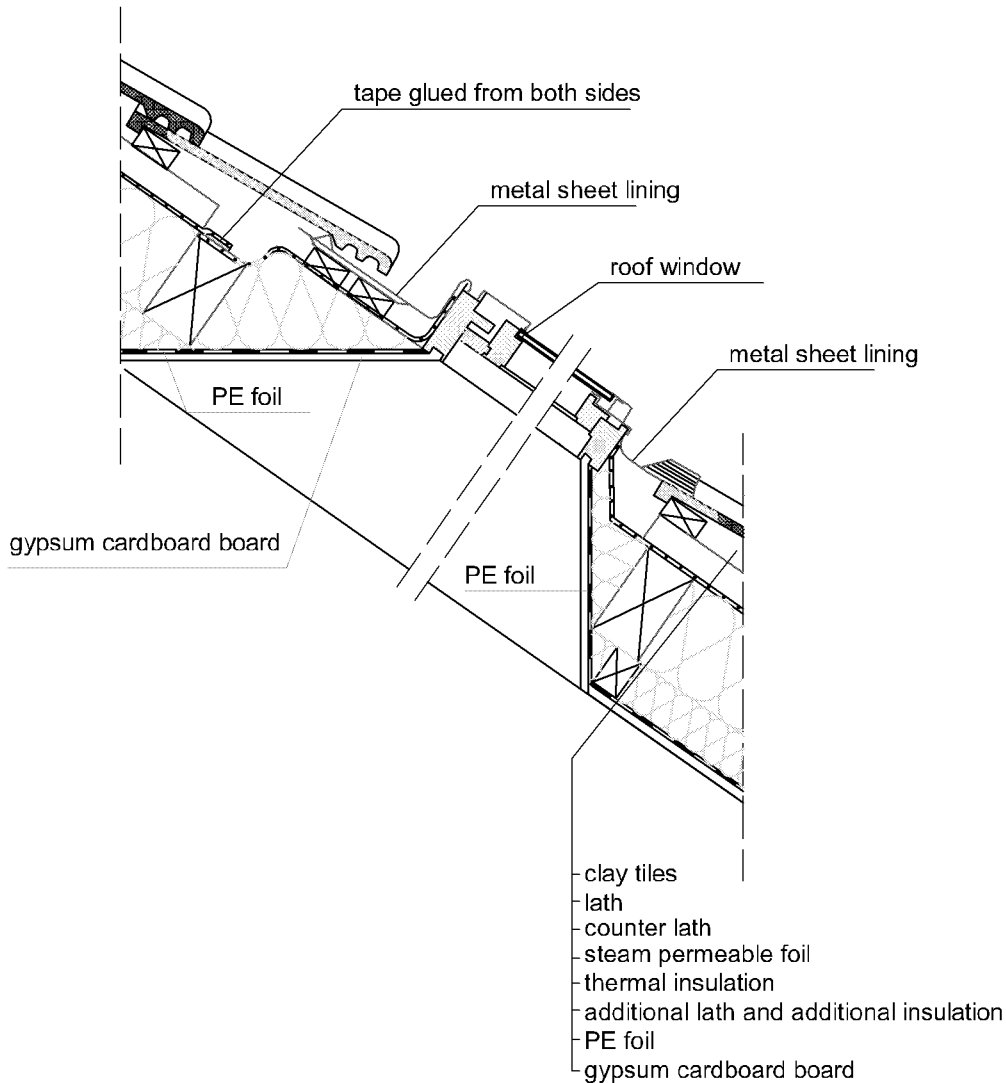
Gable and verge – vertical-section



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

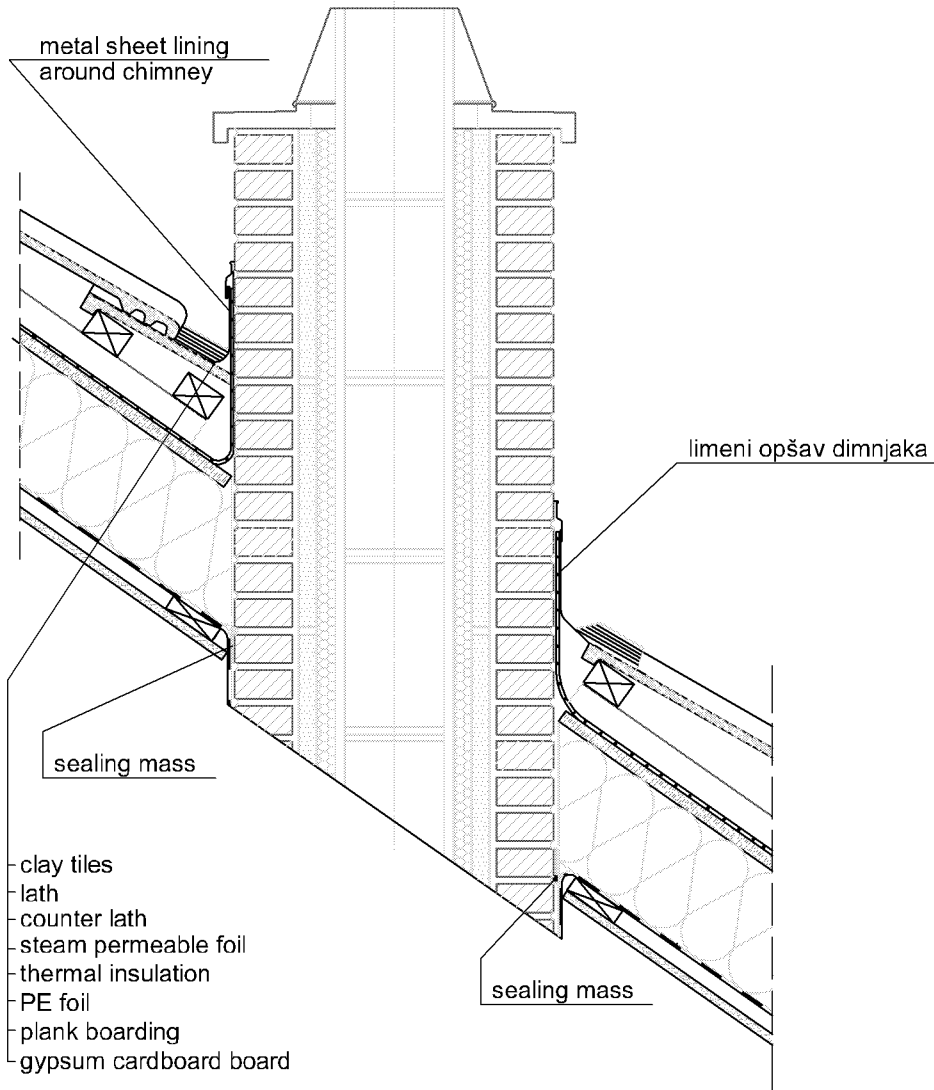
Anschluss Dach – Dachfenster
Connection roof – roof window



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

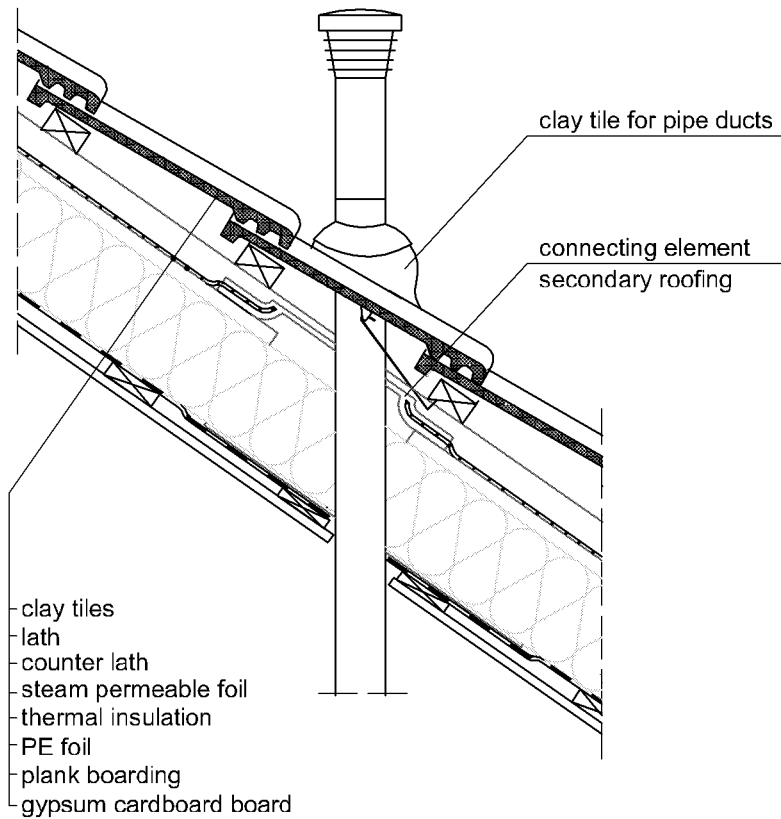
Anschluss Kamin Connection chimney



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

Anschluss Kaminrohr Connection pipe duct



Die tragenden Anschlüsse sind nur prinzipiell dargestellt. Sie sind gemäß den technischen Regeln zu bemessen und gemäß der statischen Berechnung auszuführen.

The loadbearing connections are only shown generally. They shall be designed according to technical regulations and executed according to structural design.

Horizontal racking resistance

