Deutsches Institut für Bautechnik

Member of EOTA
www.eota.eu

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment

ETA-24/0186 of 29 October 2024

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	Structural panels and modules
Product family to which the construction product belongs	Timber building kits
Manufacturer	Andrewex Construction Sp. z o.o. ul. Sosnowa 14 87-165 CIERPICE POLEN
Manufacturing plant	Andrewex Construction Sp. z o.o. ul. Sosnowa 14 87-165 CIERPICE POLEN
This European Technical Assessment contains	29 pages including 8 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

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This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No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 Andrewex Construction Sp. z o.o. manufactures timber building kits with the trade name "Structural panels and modules".

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. Windows and exterior doors are generally part of the kit.

The main load-bearing structures are timber frames with planking. The prefabricated building components and the related components as well as construction details are shown in Annex A.

The kits covered by this ETA consist of two-dimensional elements or volumetric units (modules) comprising walls, floors and roof structures. The components of the kit are listed in Annex A.

Prefabricated two-dimensional elements (wall panel, floor panel, ceiling panel – example see Fig. 1) consist of a specified set of structural, cladding and insulation components for installation based on an individual design on a construction site together with other prefabricated two-dimensional elements to form a building or structure.

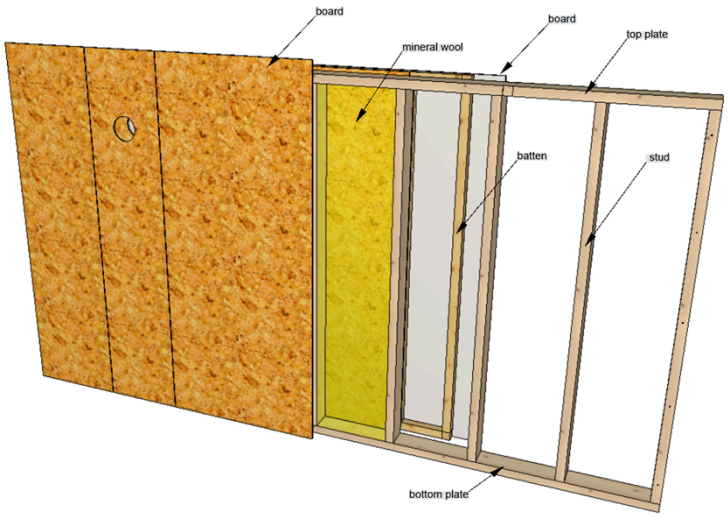


Fig.1 Example of prefabricated panel construction showing internal components

Internal/external covering of two-dimensional elements can be installed at the prefabrication plant or at the construction site.

Prefabricated three-dimensional elements (volumetric units, modules) are assembled at the factory from two-dimensional elements, supplemented with additional materials at the construction site. A single module can be equipped with joinery assembled at the prefabrication plant or on site. It may be a single room, it may contain several rooms within it; several modules may form a single room. The components of the module are connected by mechanical fasteners. The minimum required contents of a given module are wall, floor and ceiling elements connected by the required fasteners to form a unit. Thermal insulation is always a component of the kit, while joinery is optional.

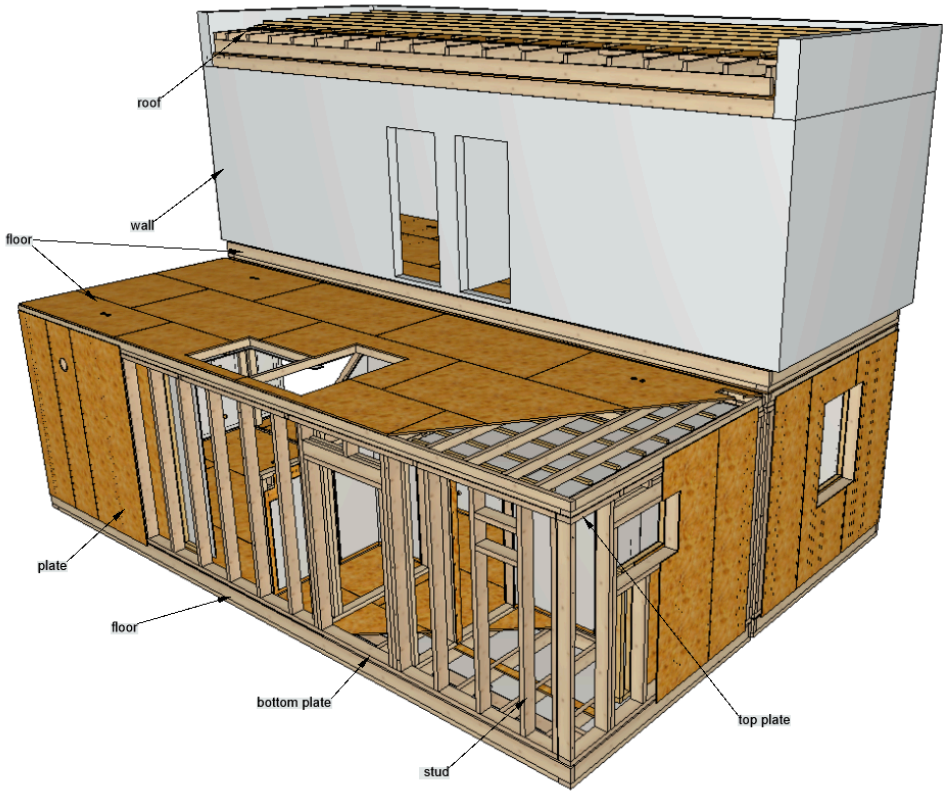


Fig. 2 Example set of panels forming volumetric modules showing internal components

Mainly the two-dimensional elements (panels) and the three-dimensional units (modules) consist of a set of structural elements, which, in accordance with the conditions defined in a given project, perform a load-bearing and spatially stabilizing function; i.e., light timber framing of timber beams (structural solid timber, glued laminated timber) and structural board elements (OSB, cement-bonded boards, and others).

Some additional load-bearing components (e.g. joists or steel girders for concentrated loads) which, according to its structural analysis are required for the respective construction works, will usually be built-in building components. However, the priority is to use wooden beams.

The building components are prefabricated and delivered to the building site as complete elements. Some layers of the kit, like the gypsum board of wall and roof elements can be mounted on site. The parts of the kit are mounted to each other and to the substructure. The substructure of the building is not part of this European Technical Assessment (in the following called ETA).

The kits are designed to be installed on various types of substructures, such as concrete slab, steel substructure, steel or concrete piles. The anchorage of the external wall building components to the substructure is performed with structural designed fasteners but it is not part of the kit.

The exterior wall cladding (slate, straps, clinker, etc.), the internal linings (e.g.: tiles, murals, plaster, seals) of internal building components, roofing materials, floor linings, stairs, service installations and other building components which are needed for a complete building are not part of this ETA.

No recycled wood is used for this kit.

2 Specification of the intended use in accordance with the applicable European Assessment Document

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

- residential buildings (single-, multistory, terraced houses, semi and multi-family houses)
- commercial buildings (hotel complexes, office buildings, industrial buildings)
- extensions and heightening of 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 the two-dimensional elements and volumetric units of at least 50 years, provided that the conditions to utilization, care and maintenance laid down in Annex A.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.

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.

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 determined (NPD)
Compression resistance - log walls	No performance determined (NPD)
Settling of construction of log	No performance determined (NPD)
Corrosion protection of metal fasteners	No performance determined (NPD)

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 are 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 the components is given in Annex A
Resistance to fire	No performance determined (NPD)
External fire performance of roof covering	No performance determined (NPD)

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[1] considering relevant design climatic conditions.
Watertightness	Provided the kit is properly manufactured and assembled the building envelope is resistant to penetrating water and snow. In case of ranges of application with extreme weather conditions the intended use shall be assessed in every individual case.
Durability class/ use class	Durability class/ use class see Annex A.
Content, emission and/or release of dangerous substances	No performance determined (NPD)

3.4 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Impact resistance	For buildings of categories I to III according to EAD 210005-00-0505, Table 2: Due to technical experience the impact resistance is considered sufficient. A complete wall construction with a wood-based panel or a gypsum board having thickness of at least 10 mm is sufficiently shock-proof. For all other buildings: NPD

3.5 Protection against noise (BWR 5)

Essential characteristic	Performance
Airborne sound insulation of walls, floors and roof structures	No performance determined (NPD)
Impact sound insulation of floors	No performance determined (NPD)
Sound absorption	No performance determined (NPD)

[1] 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

3.6 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal resistance	No performance determined (NPD)
Air permeability	When the kit has been properly manufactured and assembled the building envelope is sufficiently airtight.
Thermal inertia	No performance determined (NPD)

3.7 Sustainable use of natural resources (BWR 7)

No performance determined (NPD)

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

In accordance with EAD No. 340308-00-0203, the applicable European legal act is: Decision 99/455/EC of the Commission[2].

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 with Deutsches Institut für Bautechnik.

Issued in Berlin on 29 October 2024 by Deutsches Institut für Bautechnik

Anja Dewitt
Head of Department

beglaubigt:
Warns

[2] Official Journal of the European Communities L 178/56-57 of 14.07.1999

Annex A: Description of the parts of the kit and their intended use

Annex A.1 Specification of the technical description

Substructure

The kit can be used for separate building works or be placed as an addition of another storey on an existing building. Connections must be made between the substructure and the wooden elements in accordance with the construction details provided by the manufacturer. Tolerances for the finished substructure should be in accordance with the table below:

Table A.1 Tolerances of the substructure

Dimensions	Tolerance
Main dimensions in the plane	-5 mm, + 10 mm
Location of walls	+/-10 mm
Diagonals, length < 5 m	+/-5 mm
Diagonals, length > 5 m	+/-10 mm
Location of supports	+/-10 mm
Support structure level	-5 mm, + 0 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. The substructure shall be designed and built following the applicable building regulations.

Execution of construction works

The manufacturer provides an assembly schedule containing the following aspects:

- assembling instruction 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 final building structure shall comply with the building regulations in force. The procedures stipulated in the respective member state to confirm compliance with the building regulations shall also be observed by the relevant building supervision authority. The European Technical Assessment (ETA) for the kit does not change this process in any way.
The provisions for health protection and occupational safety shall be observed. 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 structural design shall comply with the applicable building regulations (regulations concerning construction works).
The factory production of the building components normally 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 might be arranged in any way inside the building. Exterior walls can get external insulation systems according to European technical assessments which are than part of the kit.
The evidence against lift of, of the wall building components with the substructure shall be provided.

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 might be arranged in any way inside the building. Exterior walls can get external insulation systems according to European Technical Assessments which are then part of the kit.

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 each delivery is accompanied by appropriate information on the use of the building kit, including general guidelines based on this European Technical Assessment (ETA), as well as detailed installation instructions and construction details. In the context of the expected service life, regular maintenance is required, which the manufacturer should describe in documents provided in writing. These documents should include information on the type of maintenance and its frequency.

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 350[1] respective Table 1 is used as construction wood.

Table A.2 Classes of natural durability against destructive fungi

Wood Types	Classes of natural durability
Spruce and fir	4
Pine and larch	3-4

Only technically dried timber with a moisture content up to 20 % is used. The building components are not treated with chemical wood preservatives.

Table A.3 Classification of building components according to EN 335[2]

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
Thresholds (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.

[1] EN 350:2016 Durability of wood and wood-based products - Natural durability of solid wood- Part 2: Guide to the natural durability and treatability of selected wood species of importance in Europe

[2] EN 335:2013 Durability of wood and wood-based products - Use classes: definitions, application to solid wood and wood-based products

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, fulfils the requirements of EN 1995-1-1[3] under consideration of the corrosivity category according to EN ISO 12944-2[4].

[3] EN 1995-1-1:2004 + AC:2006 + 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 A.2 List of components

The components of the kit are listed in the following table. Components and materials are defined as belonging to a general category or are listed under a trade name. A component with a specific trade name may only be substituted by another product following the same harmonized specification (standard, EAD) if all relevant parameters match.

Table A.4 Components of the kit; material list

Application	Material / component	Specification	Reaction to fire
Structural components			
Joists, studs and other structural timber components	Strength graded structural timber with rectangular cross section; strength class according to the structural design	EN 14081-1	D-s2,d0 (2007/348/EC)
	Structural finger jointed solid timber; strength class according to the structural design	EN 15497	D-s2,d0 (2003/593/EC)
	Glued laminated timber; strength class according to the structural design	EN 14080	D-s2,d0 (2005/610/EC)
	Steico joist; strength according to the structural design	ETA-20/0995	D-s2,d0
	Structural laminated veneer lumber LVL; strength according to the structural design	EN 14374	DoP
Sheathing and lining			
Subfloor sheathing	Oriented strand board OSB/3	EN 13986	D-s2,d0 (2007/348/EC)
	Resin-bonded particleboard P5	EN 13986	D-s2,d0 (2007/348/EC)
	Cement-bonded particleboards	EN 13986	B-s1,d0 (2007/348/EC)
Roof sheathing	Cement-bonded particleboards	EN 13986	
	Self-supporting metal sheet for roofing	EN 14782	DoP
	Clay roofing tiles and fittings	EN 1304	DoP
Floor underlay	Softboard SB	EN 13986	E (2007/348/EC)
	Gypsum fibre board	EN 15283-2	DoP
	Screed material and floor screeds	EN 13813	$A1_{fl}$
	mineral wool (MW)	EN 13162	A1 (2003/424/EC)
Internal and external wall sheathing	Gypsum plasterboard Siniat Defentex	ETA-19/0690	A1
	Gypsum plasterboard Rigips Riduro	ETA-16/0657	A2-s1,d0
	Gypsum fibre board Rigips Rigidur H	ETA-08/0147	A2-s1,d0
	Gypsum fibre board Fermacell	ETA-03/0050	A2-s1,d0
	Gypsum plaster board Twarda	ETA-14/0221	A2-s1,d0
	Oriented strand board OSB/3	EN 13986	D-s2,d0 (2007/348/EC)
	Resin-bonded particleboard P5	EN 13986	D-s2,d0 (2007/348/EC)
	Plywood type EN 636-2 or EN 636-3	EN 13986	t < 9mm: E; t ≥ 9 mm: D-s2,d0 (2007/348/EC)

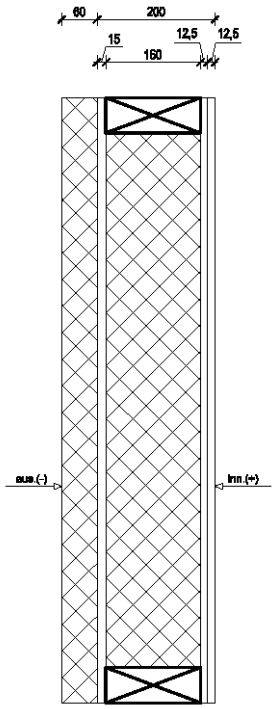
Table A.4 continued: Components of the kit; material list

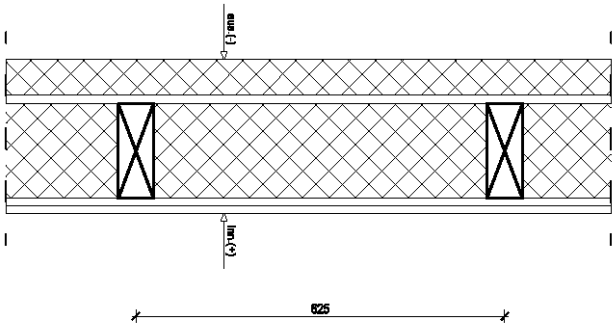
Application	Material / component	Specification	Reaction to fire
Internal lining	Gypsum plasterboard	EN 520	D-s2,d0 (2006/673/EC)
	Gypsum fibre board	EN 15283-2	DoP
Claddings			
External timber cladding	Solid wood cladding, consisting of machined profiles without tongue and groove, class A acc. to EN 15146	EN 14915	D-s2,d0 (2006/213/EC)
External board cladding	Fibre-cement flat sheets	EN 12467	A1 (96/603/EC)
	Gypsum fibre board Rigips Rigidur H	ETA-08/0147	A2-s1,d0
	Cement-bonded particleboards	EN 13986	B-s1,d0
Thermal insulation			
Insulation between studs, joists and trusses	mineral wool (MW)	EN 13162	A1 (2003/424/EC)
ETICS			
ETICS with EPS	StoTherm Basic EPS	ETA-17/0705	B-s2,d0
ETICS with mineral wool	StoTherm Classic 5 MW/MW-L	ETA-09/0288	A2-s1,d0
ETICS with wooden fibre	StoTherm Wood 2	ETA-09/0304	B-s1,d0
Membranes and barriers			
Water vapour barrier	Plastic or rubber vapour control layer	EN 13984	DoP
Wind barriers	Flexible sheets – underlays for walls	EN 13859-2	DoP
Combined roof underlay and wind barrier	Flexible sheets – underlays for discontinuous roofing	EN 13859-1	DoP
Roof covering	Plastic or rubber sheets for roof waterproofing	EN 13956	DoP
	Reinforced bitumen sheets for roof waterproofing	EN 13707	DoP
Wet room system	SCHÖNOX AB Watertight covering kit	ETA-12/0027	E
	Sopro FDF 525 and 527 watertight covering kit	ETA-13/0155	E
Fastener products			
Nails, staples and screws	Dowel -type fasteners; Type and dimensions for load bearing applications in accordance with the structural design	EN 14592	-
Three dimensional connectors	timber-to-timber joist hangers Simpson Strong-Tie	ETA-17/0554	A1
		ETA-07/0285	A1
		ETA-06/0270	A1

Deutsches Institut für Bautechnik DIBt

Annex A.3 Wall elements

Wall element 1: EW-WF – External wall ETICS WF (ETICS with wooden fibre or mineral wool)



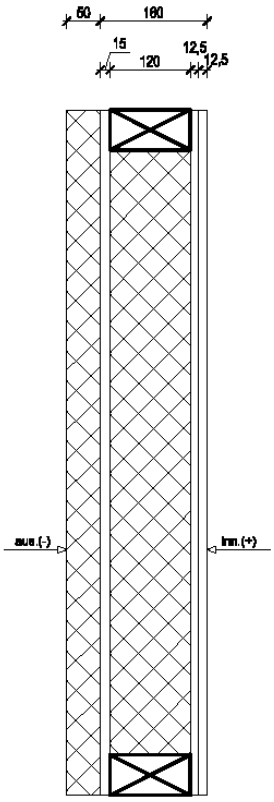


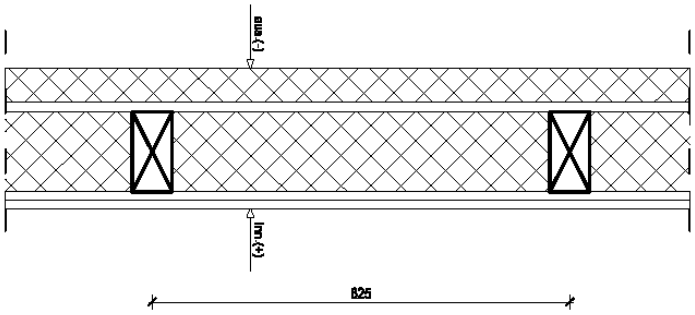
Construction build-up:		
(from outside inwards)		
No.	**Construction product**	**Dimensions [mm]**
1	ETICS acc. to ETA-09/0304 or ETA-09/0288	67
2	Gypsum fibre board	15
3	Vertical framing: 60 mm structural timber, strength class at least C18	≥ 160
4	Insulation: Mineral wool density ρ_{mean} ≥ 50 kg/m³	
5a	Gypsum plasterboard type DF or	2 x 12,5
5b	Gypsum fibre board, ρ_{mean} ≥ 800 kg/m³	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	Vertical framing: structural timber	staples	2x1,5/50 mm	max. 150 mm
Vertical framing: structural timber	Threshold: structural timber	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Wall element 2: EW EPS – External wall ETICS EPS



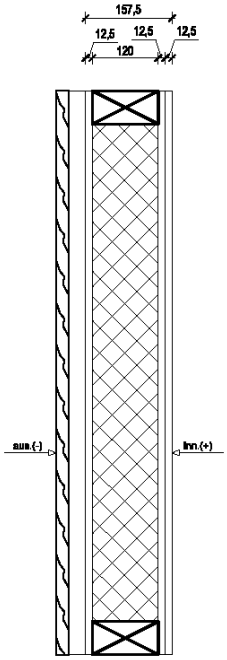


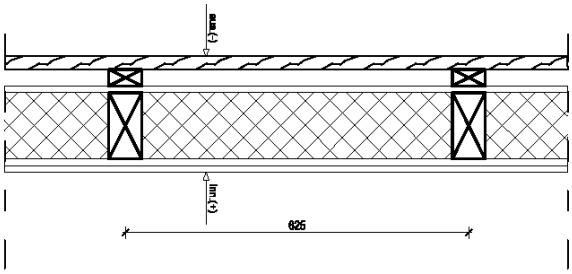
Construction build-up:		
(from outside inwards)		
No.	**Construction product**	**Dimensions [mm]**
1	ETICS acc. to ETA-17/0705	54
2	Gypsum fibre board	15
3	Vertical framing: 60 mm structural timber, strength class at least C18	≥ 120
4	Insulation: Mineral wool density ρ_{mean} ≥ 16 kg/m³	
5a	Gypsum plasterboard type DF or	2 x 12,5
5b	Gypsum fibre board, ρ_{mean} ≥ 800 kg/m³	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	Vertical framing: structural timber	staples	2x1,5/50 mm	max. 150 mm
Vertical framing: structural timber	Threshold: structural timber	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Wall element 3: EW-FV – External wall Façade ventilated



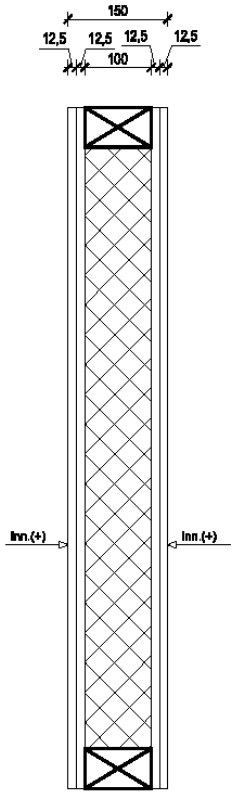


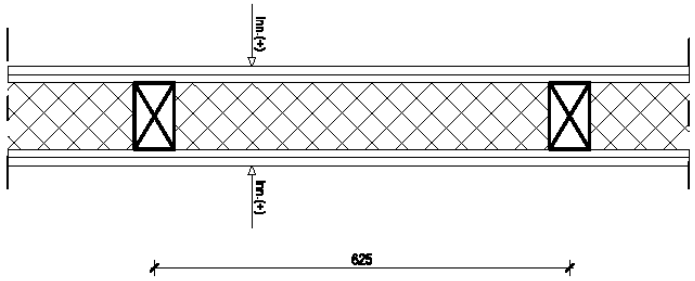
Construction build-up:		
(from outside inwards)		
No.	**Construction product**	**Dimensions [mm]**
1	Larch wood exterior wall cladding acc. to EN 14915	24
2	Battens 50 mm or 80 mm, ventilation depending on requirements	-
3	Gypsum fibre board	12,5
4	Vertical framing: 60 mm structural timber, strength class at least C18	≥ 120
5	Insulation: Mineral wool density ρ_{mean} ≥ 16 kg/m³	
6a	Gypsum plasterboard type DF or	2 x 12,5
6b	Gypsum fibre board, ρ_{mean} ≥ 800 kg/m³	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	Vertical framing: structural timber	staples	2x1,5/50 mm	max. 150 mm
Battens	Vertical framing: structural timber	nails	3,1/90 mm	min. 1 nail / joint
Larch wood exterior wall cladding	Battens	nail-screw	2,7/55 mm	min. 1 nail / joint
Vertical framing: structural timber	Threshold: structural timber	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Wall element 4: IW – Internal wall



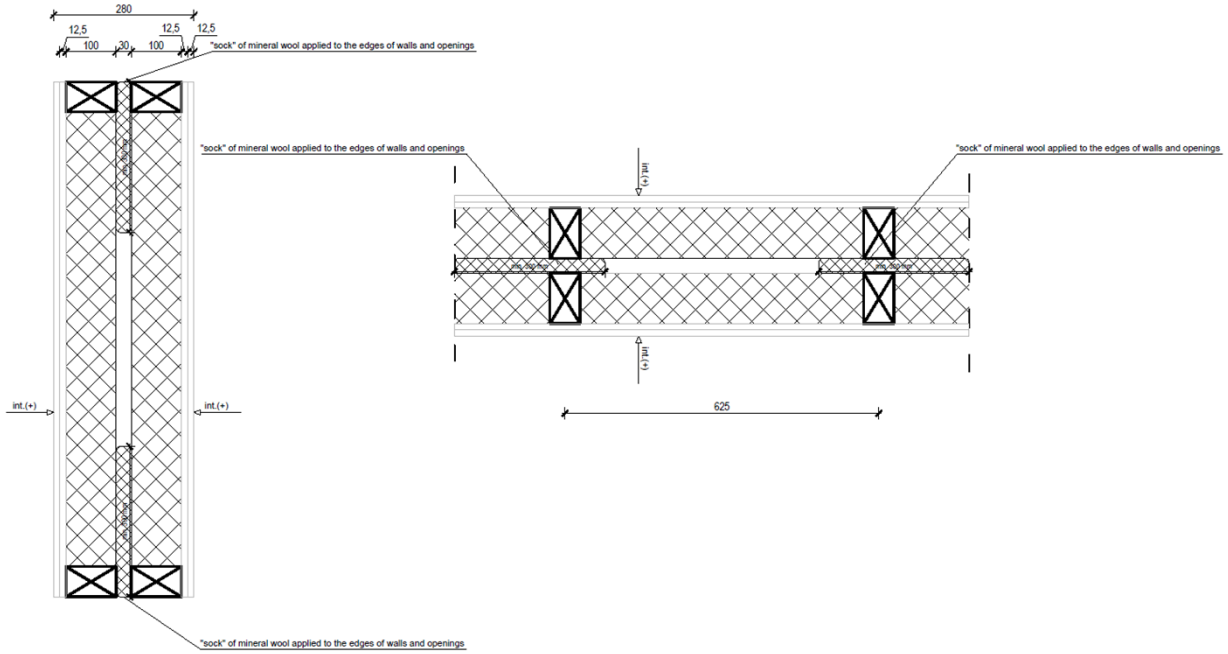


Construction build-up:		
(from left to right)		
No.	**Construction product**	**Dimensions [mm]**
1a	Gypsum plasterboard type DF or	2 x 12,5
1b	Gypsum fibre board, ρ_{mean} ≥ 800 kg/m³	
2	Vertical framing: 60 mm structural timber, strength class at least C18	≥ 100
3	Insulation: Mineral wool, density ρ_{mean} ≥ 16 kg/m³	
4a	Gypsum plasterboard type DF or	2 x 12,5
4b	Gypsum fibre board, ρ_{mean} ≥ 800 kg/m³	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	Vertical framing: structural timber	screws	3,9/35 mm	250 mm
Vertical framing: structural timber	Threshold: structural timber	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Wall element 5: SW – Separating wall



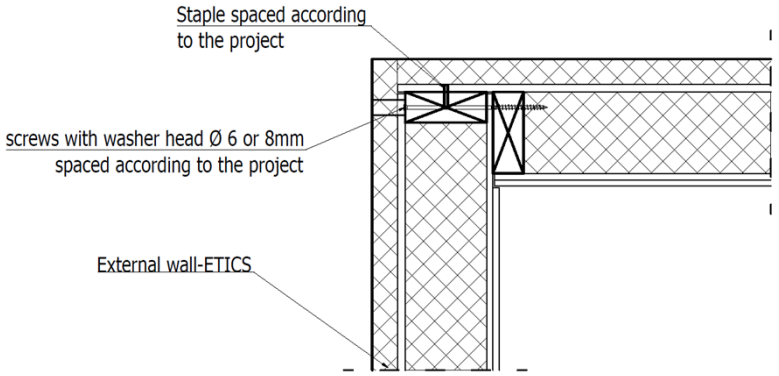
Construction build-up:		
(from left to right)		
No.	**Construction product**	**Dimensions [mm]**
1a	Gypsum plasterboard type DF or	2 x 12,5
1b	Gypsum fibre board, ρ_{mean} ≥ 800 kg/m³	
2	Vertical framing: 60 mm structural timber, strength class at least C18	≥ 100
3	Insulation: Mineral wool, density ρ_{mean} ≥ 16 kg/m³	
4	Gap filled with mineral wool on the edges	30
5	Vertical framing: 60 mm structural timber, strength class at least C18	≥ 100
6	Insulation: Mineral wool, density ρ_{mean} ≥ 16 kg/m³	
7a	Gypsum plasterboard type DF or	2 x 12,5
7b	Gypsum fibre board, ρ_{mean} ≥ 800 kg/m³	

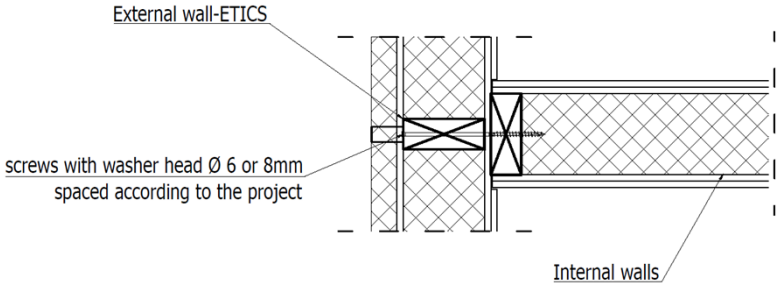
Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	Vertical framing: structural timber	screws	3,9/35 mm	250 mm
Vertical framing: structural timber	Vertical framing: structural timber	unconnected		
Vertical framing: structural timber	Threshold: structural timber	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

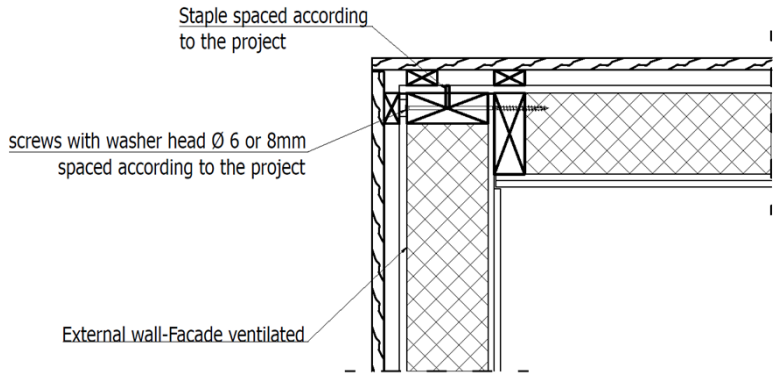
Annex A.4 Examples of connections between walls*

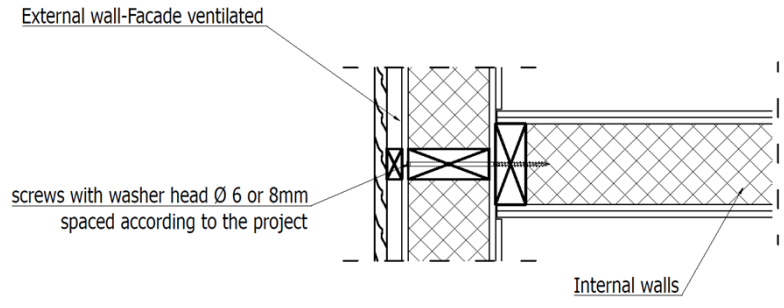
External walls – ETICS EPS/WF



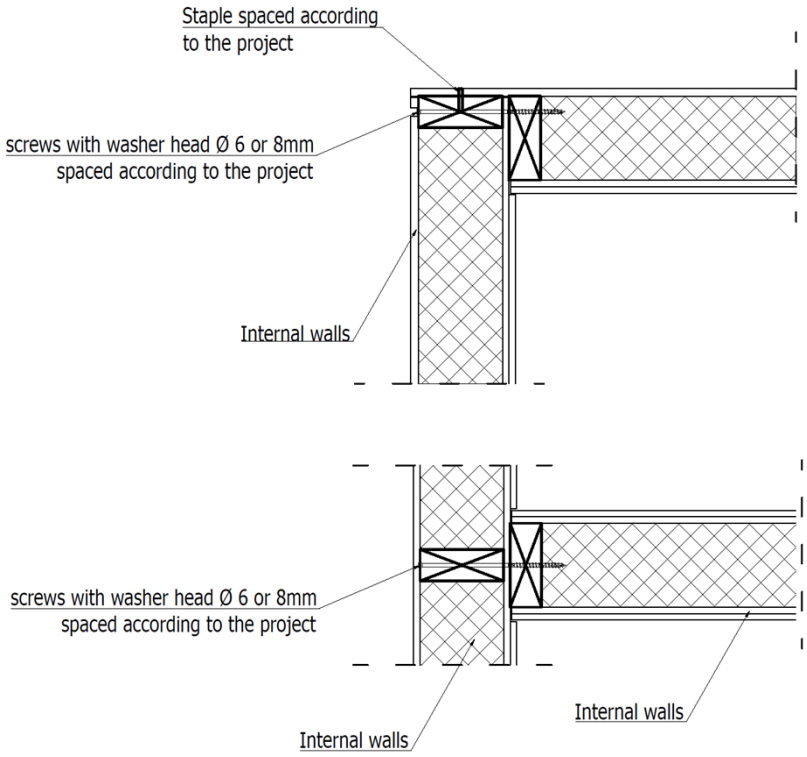


External walls – Façade ventilated





Internal walls

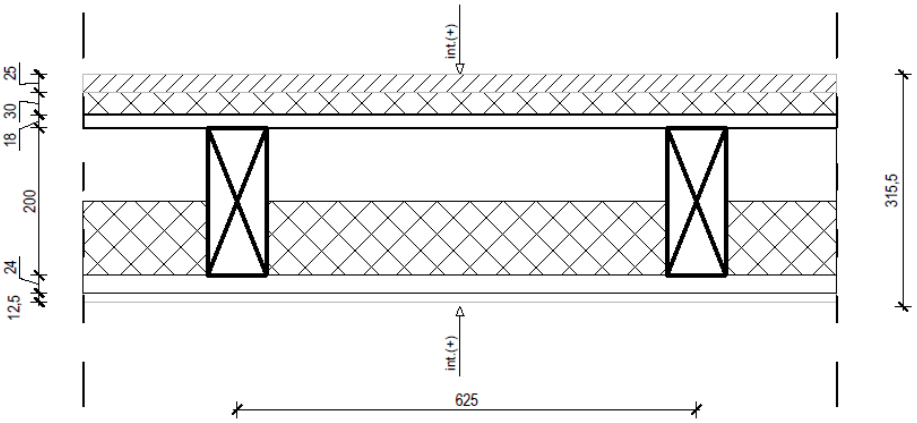


* the dimensions of the elements and the types and dimensions of the connectors used depend on the design situation.

Deutsches Institut für Bautechnik DIBt

Annex A.5 Floor and roof elements

Floor element 1: IFd – intermediate floor

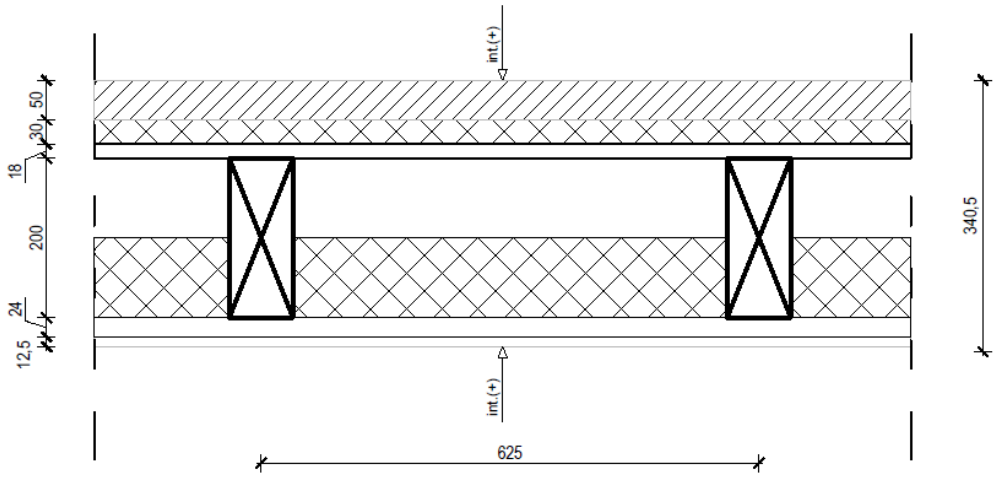


Construction build-up:		
(from top to bottom)		
No.	**Construction product**	**Dimensions [mm]**
1	Dry screed	25
2	Sound absorption layer, mineral wool	30
3	OSB/3	18
4	joists: 80 mm structural timber, e = 625 mm	200
5	Insulation: Mineral wool, density $\rho_{mean} \geq 16$ kg/m³	100
6	Battens: structural timber 40 mm	24
7a	Gypsum plasterboard type DF or	12,5
7b	Gypsum fibre board	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	structural timber battens	staples	2x1,5/50 mm	max. 150 mm
structural timber battens	structural timber joists	nails	3,1/90 mm	min. 1 nail / joint
OSB/3	structural timber joists	nails	2,8/64 mm	max. 150 mm
structural timber joists	Underlying framework / walls	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Floor element 2: IFw – intermediate floor

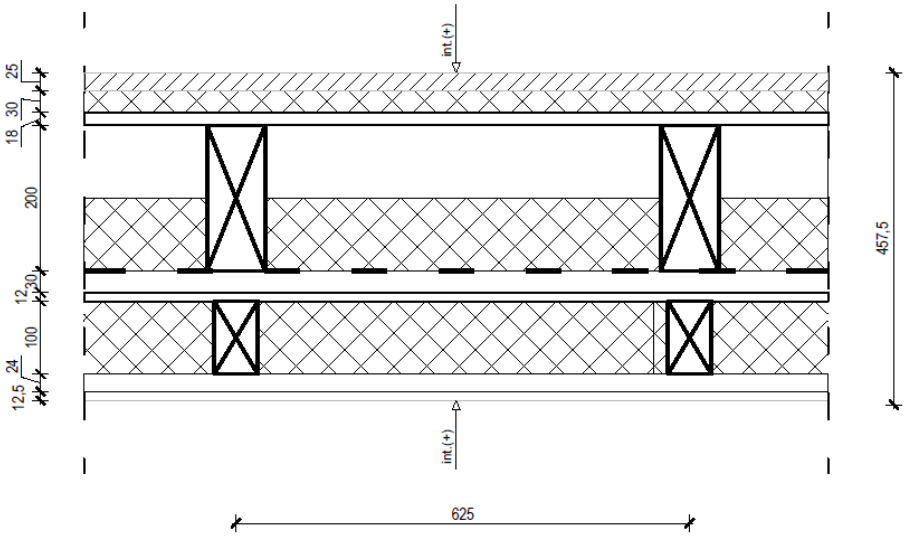


Construction build-up:		
(from top to bottom)		
No.	**Construction product**	**Dimensions [mm]**
1	Anhydrite screed or cement screed	50
2	Sound absorption layer, mineral wool	30
3	OSB/3	18
4	joists: 80 mm structural timber, e = 625 mm	200
5	Insulation: Mineral wool, density $\rho_{mean} \geq 16$ kg/m³	100
6	Battens: structural timber 40 mm	24
7a	Gypsum plasterboard type DF or	12,5
7b	Gypsum fibre board	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	structural timber battens	staples	2x1,5/50 mm	max. 150 mm
structural timber battens	structural timber joists	nails	3,1/90 mm	min. 1 nail / joint
OSB/3	structural timber joists	nails	2,8/64 mm	max. 150 mm
structural timber joists	Underlying framework / walls	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Floor element 3: IFd_mod – intermediate floor separating modules

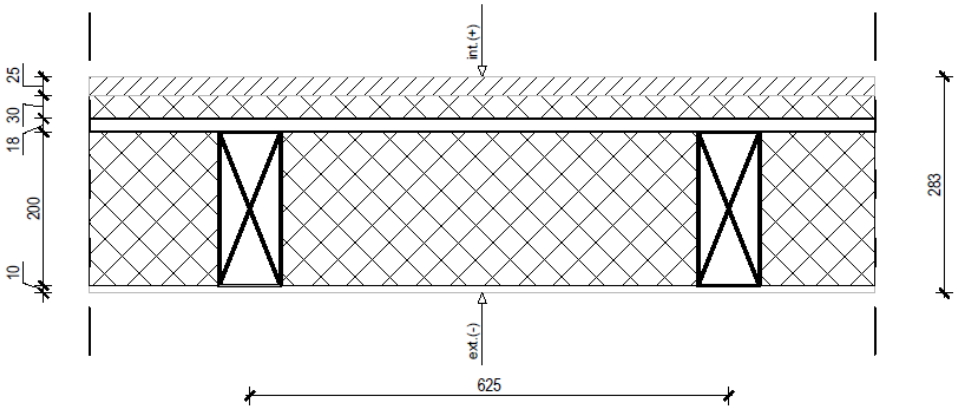


Construction build-up:		
(from top to bottom)		
No.	**Construction product**	**Dimensions [mm]**
1	Dry screed	25
2	Sound absorption layer, mineral wool	30
3	OSB/3	18
4	joists: 80 mm structural timber, e = 625 mm	200
5	Insulation: Mineral wool, density $\rho_{mean} \geq 16$ kg/m³	100
6	Gap	30
7	joists: 60 mm structural timber, e = 625 mm	100
8	Insulation: Mineral wool, density $\rho_{mean} \geq 16$ kg/m³	100
9	Battens: structural timber 40 mm	24
10a	Gypsum plasterboard type DF or	12,5
10b	Gypsum fibre board	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	structural timber battens	staples	2x1,5/50 mm	max. 150 mm
structural timber battens	structural timber joists 60 mm	nails	3,1/90 mm	min. 1 nail / joint
OSB/3	structural timber joists 60 mm	nails	2,8/64 mm	max. 150 mm
structural timber joists 60 mm	structural timber joists 80 mm	Not connected		
OSB/3	structural timber joists 80 mm	nails	2,8/64 mm	max. 150 mm
structural timber joists	Underlying framework / walls	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Floor element 4: GF – ground floor

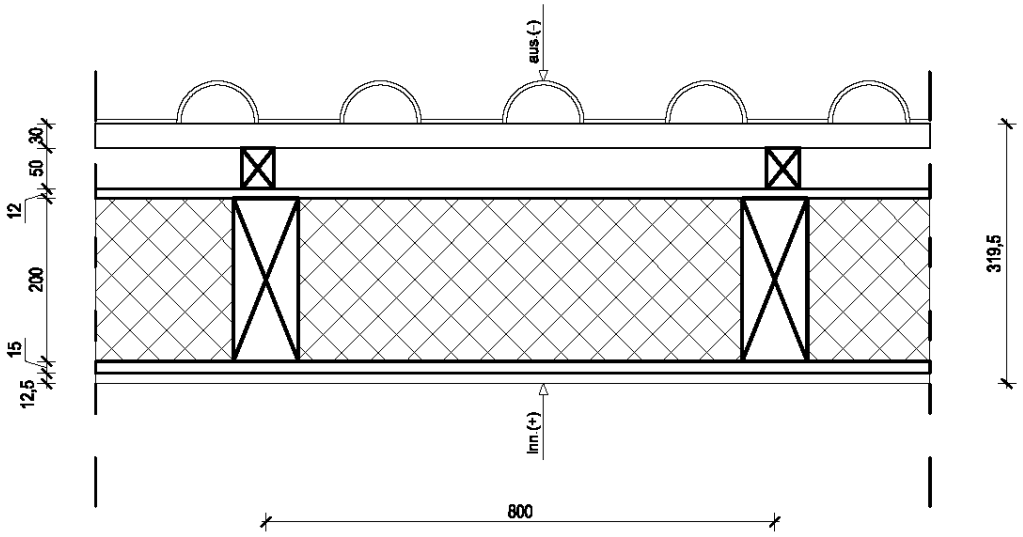


Construction build-up:		
(from top to bottom)		
No.	**Construction product**	**Dimensions [mm]**
1	Dry screed	25
2	Sound absorption layer, mineral wool	30
3	OSB/3	18
4	joists: 80 mm structural timber, e = 625 mm	200
5	Insulation: Mineral wool, density $\rho_{mean} \geq 16$ kg/m³	200
6	Fibre-cement flat sheets or Cement-bonded particleboards	10

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Fibre-cement flat sheets or Cement-bonded particleboards	structural timber joists	staples	2x1,5/50 mm	max. 150 mm
OSB/3	structural timber joists	nails	2,8/64 mm	max. 150 mm
structural timber joists	Underlying framework / walls	nails	3,8/130 mm	min. 2 nails / joint

Deutsches Institut für Bautechnik DIBt

Roof element 1: PR – pitched roof

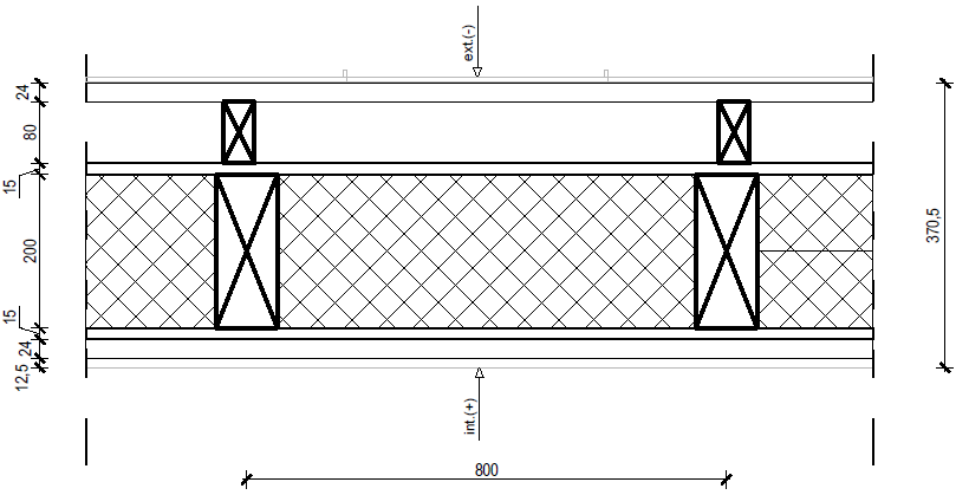


Construction build-up:		
(from top to bottom)		
No.	**Construction product**	**Dimensions [mm]**
1	Concrete roof tile or tiled roof	-
2	Battens: 50 mm structural timber	30
3	Counter battens: 50 mm structural timber	50
4	OSB/3	12
5	rafters: 80 mm structural timber, e = 800 mm	200
6	Insulation: Mineral wool	200
7	OSB/3	15
8a	Gypsum plasterboard type DF or	12,5
8b	Gypsum fibre board	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	structural timber battens	staples	2x1,5/50 mm	max. 150 mm
OSB/3	structural timber	nails	2,8/64 mm	max. 150 mm
structural timber counter battens	structural timber rafters	nails	3,1/90 mm	min. 1 nail / joint
structural timber battens	structural timber counter battens	nails	3,1/90 mm	min. 1 nail / joint
structural timber rafters	Underlying framework / walls	nails	3,1/90 mm	min. 1 nail / joint

Deutsches Institut für Bautechnik DIBt

Roof element 2: FR – flat roof



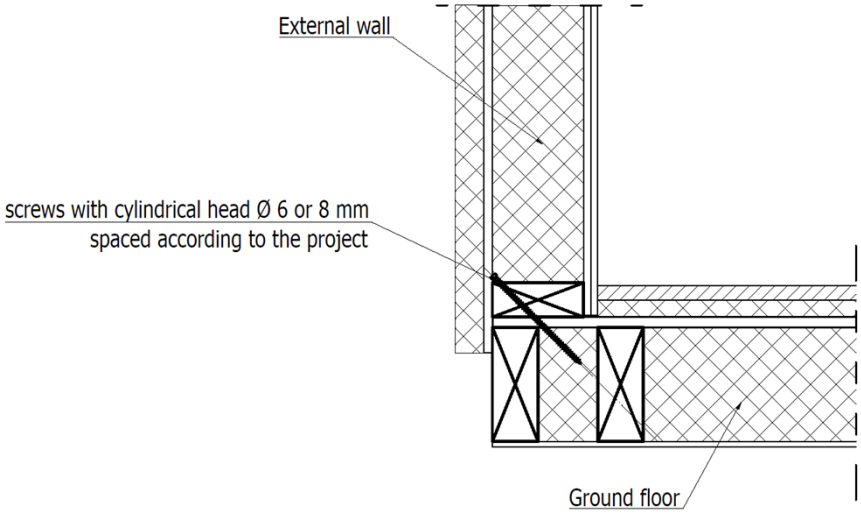
Construction build-up:		
(from top to bottom)		
No.	**Construction product**	**Dimensions [mm]**
1a	Plastic or rubber sheets for roof waterproofing	-
1b	Sheet metal roofing	
2	120 mm boards, closed cladding without spacing	24
3	Counter battens 60 mm, structural timber (ventilation)	80
4	OSB/3	15
5	rafters: 80 mm structural timber, e = 800 mm	200
6	Insulation: Mineral wool density $\rho_{mean} \geq 16$ kg/m³	200
7	OSB/3	15
8	Wood battens (24/40), a = 400 mm	24
9a	Gypsum plasterboard type DF or	12,5
9b	Gypsum fibre board	

Fixing devices				
Connection between		Type	Dimensions Ø / length [mm]	Spacing [mm]
Gypsum plasterboard type DF or Gypsum fibre board	structural timber rafters	staples	2x1,5/50 mm	max. 150 mm
Boards 24 mm	structural timber rafters	nails	2,8/64 mm	max. 150 mm
OSB/3 (lower)	structural timber rafters	nails	2,8/64 mm	max. 150 mm
OSB/3 (upper)	structural timber rafters	nails	2,8/64 mm	max. 150 mm
structural timber counter battens	structural timber rafters	nails	3,1/90 mm	min. 1 nail / joint
structural timber battens	structural timber counter battens	nails	3,1/90 mm	min. 1 nail / joint
structural timber rafters	Underlying framework / walls	nails	3,1/90 mm	min. 1 nail / joint

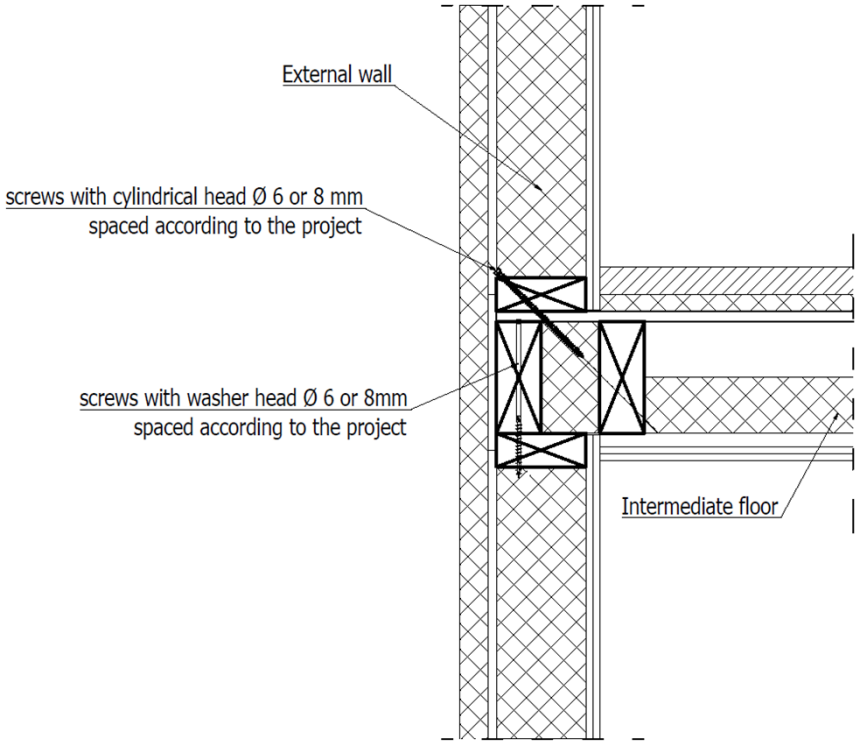
Deutsches Institut für Bautechnik DIBt

Annex A.6 Examples of connections between walls and floors*

External walls with floors



External walls with ceiling

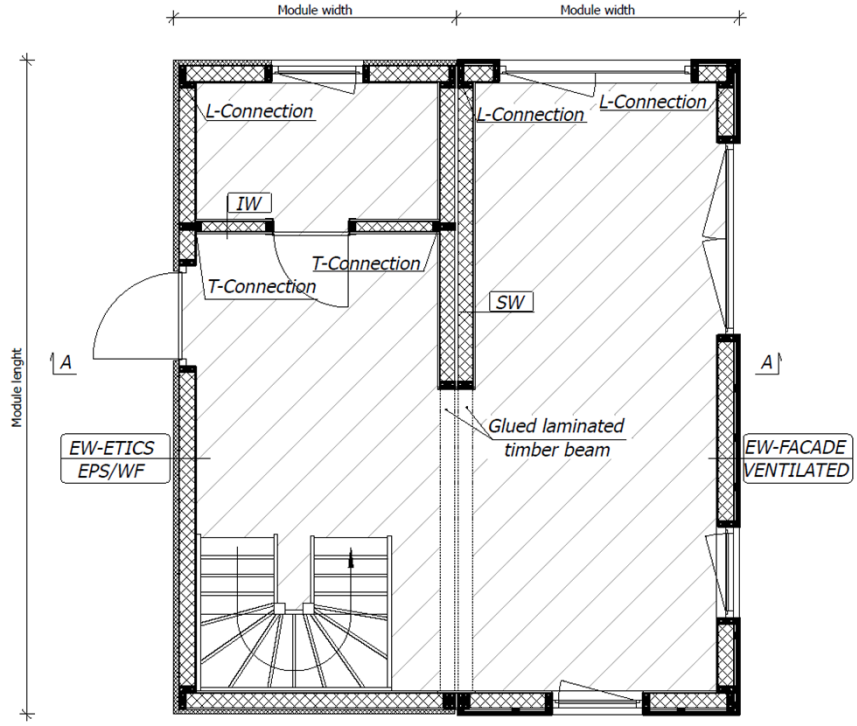


* the dimensions of the elements and the types and dimensions of the connectors used depend on the design situation.

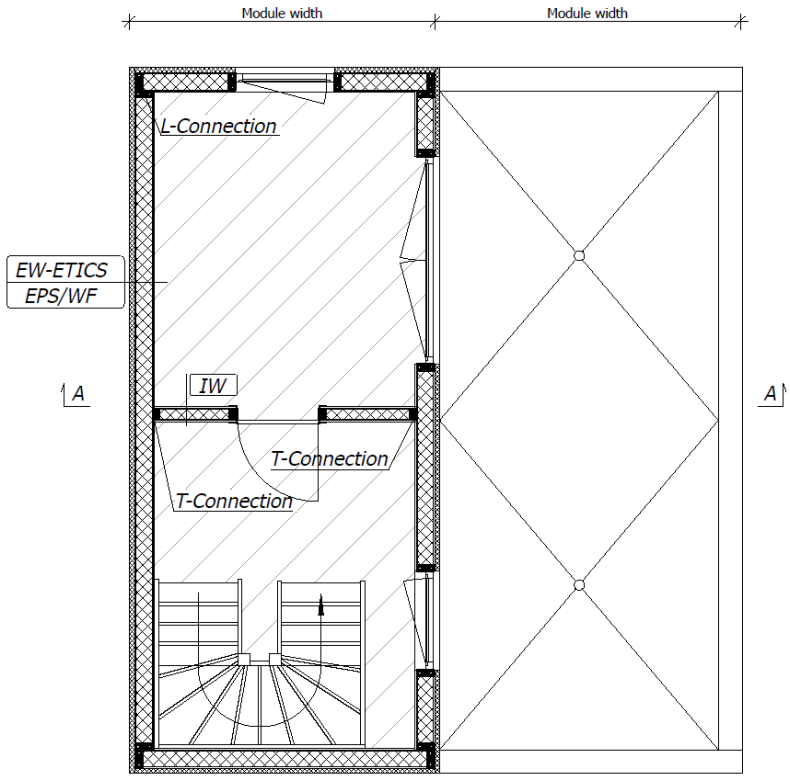
Deutsches Institut für Bautechnik DIBt

Annex A.7 Example of modules and their combinations

Ground floor

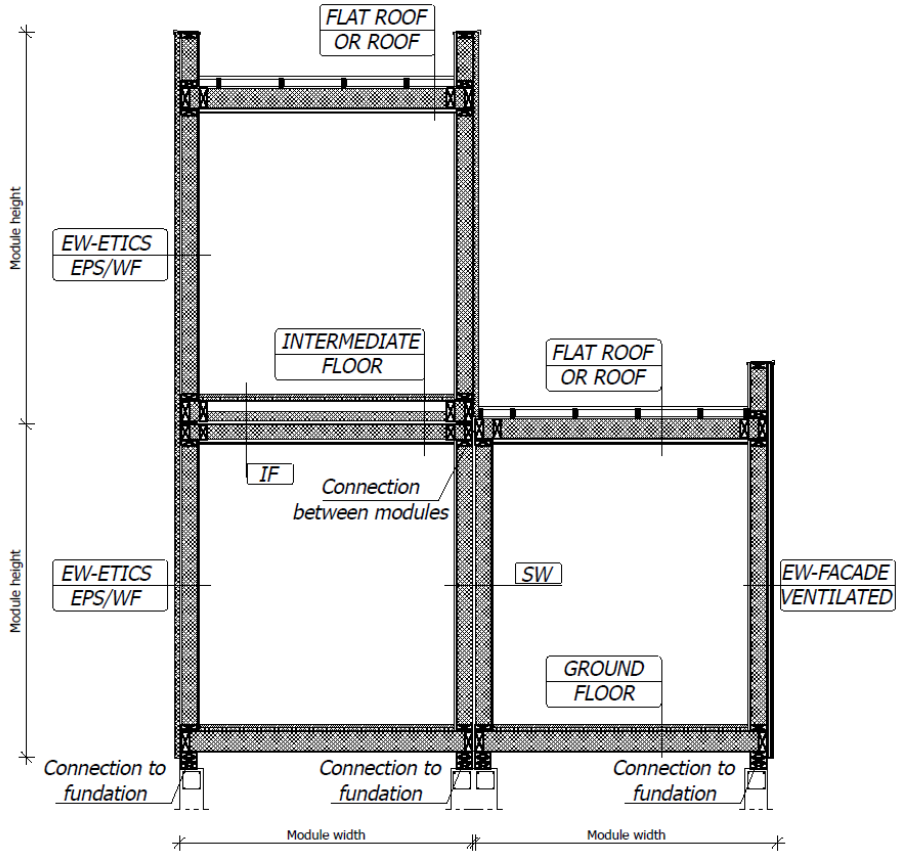


First floor



Deutsches Institut für Bautechnik DIBt

Cross section

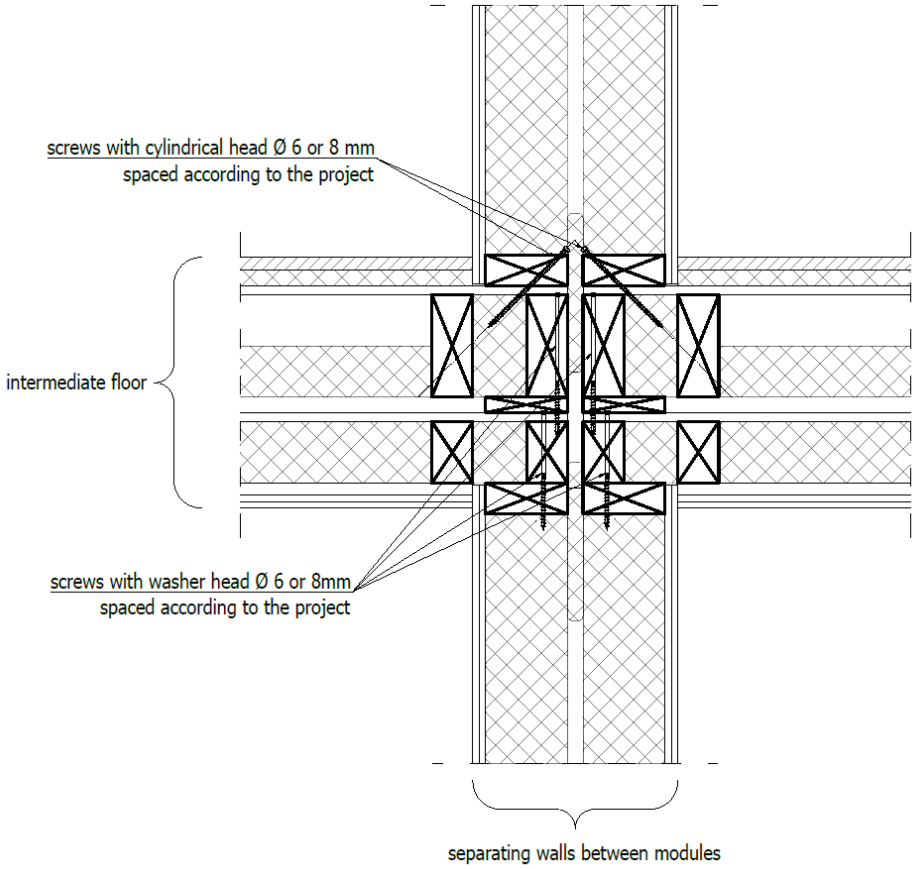


Any type of wall panel can be combined with any type of floor panel and ceiling panel according to the design.

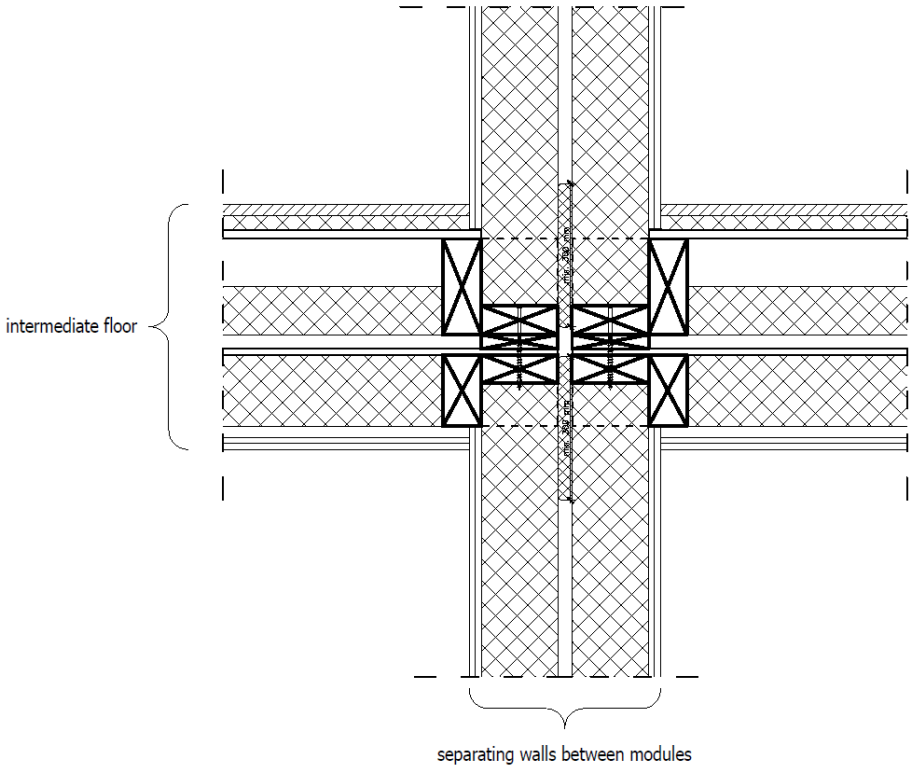
Deutsches Institut für Bautechnik DIBt

Annex A.8 Connection between two modules*

Example 1: platform system



Example 2: balloon system



* the dimensions of the elements and the types and dimensions of the connectors used depend on the design situation.