Deutsches Institut für Bautechnik

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European Technical Assessment Body for construction products

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	timpla-Holzmodulbauweise
Product family to which the construction product belongs	Timber building kits
Manufacturer	timpla GmbH Heinrich-Hertz-Straße 10 16225 Eberswalde GERMANY
Manufacturing plant	timpla GmbH Heinrich-Hertz-Straße 10 16225 Eberswalde
This European Technical Assessment contains	58 pages including 6 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Article 95(4) of Regulation (EU) No 2024/3110, on the basis of	EAD 340308-00-0203

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Specific Part

1 Technical description of the product

The company timpla GmbH manufactures timber building kits with the trade name "timpla-Holzmodulbauweise" or "timpla Tragrahmenbauweise".

A building kit according to this European Technical Assessment (in the following called ETA) consists of predesigned and prefabricated two-dimensional building elements (in the following: "elements"), which are mounted from a specific set of structural, cover and insulation components, and of large volumetric structures, in the following referred to as modules.

Elements are constructed in a way that they contribute to the functional tasks of the assembled building (supporting structure, building envelope, air tightness, protection against noise, protection against fire). The two-dimensional elements are distinguished in wall-, floor- and ceiling categories. They are available in different construction types. Annex A.3 shows examples of these elements. Wall elements within modules are available with regard to their function as: inner walls, corridor walls, shaft walls, facing panel, insulating walls and outer walls.

Modules consist of wall elements, a floor element (with or without floor layering) and a ceiling element, which are connected with mechanical fasteners and if needed coupling components. The walls surrounding the modules can be replaced by a column-beam-construction in the way of a timber frame element. This construction is referred to as „timpla-Tragrahmenbauweise“. Modules can be a single room or several rooms within the building. A room can also consist of a string of modules. Examples how modules can be combined within a building are shown in Annex A.5.

Elements and modules are present in various numbers within the building kit depending on an individual planning. The kit is put together at the factory for every project and mounted on site. The inner and outer cover of elements can be assembled in the factory or at the building site. The modules and elements can be complemented by additional materials on site.

Connection details between elements (for example as part of modules) are given in Annex A.4. Connection details of connections between adjacent modules are given in Annex A.6.

The components used within the elements and modules according to this ETA are given in Annex A.2. 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.

The parts of the kit are mounted to each other and to the substructure. The kits are designed to be installed on different kinds of underlying structures, such as concrete slabs, steelworks, pile foundation made of concrete or steel. The connection between the components of the outer walls with the underlying structure is carried out with connectors calculated for this purpose. However, it is not part of this ETA.

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.2 and A.3 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.2
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 23 January 2026 by Deutsches Institut für Bautechnik

Anja Dewitt
Head of Section

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.1.1 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

The underlying structure as well as the connection between the underlying structure and the kit according to this ETA shall be designed and built taking into account the individual circumstances and 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 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 inside the building as agreed upon by the parties involved.
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 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.1.2 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.1.3 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.

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.

[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

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 (EAD) if all relevant parameters match.

Table A.2.1 Components of the kit; material list – loadbearing wood components

Application	Material / component	Specification	Reaction to fire	Product-no.
Joists, studs and beams	Strength graded structural timber with rectangular cross section; strength class according to the structural design	EN 14081-1	D-s2,d0 (2003/593/EC)	3.2.01
	Structural finger jointed solid timber; strength class according to the structural design	EN 15497	D-s2,d0 (2003/593/EC)	3.2.02
	Glued laminated timber; strength class according to the structural design	EN 14080	D-s2,d0 (2005/610/EC)	3.2.03
	Structural laminated veneer lumber LVL; strength according to the structural design	EN 14374	DoP	3.3.01
Planar loadbearing wood components	„CLT – Cross Laminated Timber"	ETA-14/0349	D-s2, d0	3.4.02
	„Binderholz Brettsperrholz BBS“	ETA-06/0009	D-s2, d0	3.4.03
	„Diemme LEGNO CLT“	ETA-11/0218	D-s2, d0	3.4.04
	„HBS Brettsperrholz“	ETA-20/0860	D-s2, d0	3.4.05
	„LOC Element“	ETA-23/0239	D-s2, d0	3.4.06
	„MM-crosslam“	ETA-09/0036	D-s2, d0	3.4.07
	„Hasslacher Cross Laminated Timber“	ETA-12/0281	D-s2, d0	3.4.08 3.4.09
	„Derix X-LAM“	ETA-11/0189	D-s2, d0	3.4.10
	„Theurl CLTPLUS“	ETA-20/0843	D-s2, d0	3.4.11
	„LENO Brettsperrholz“	ETA-10/0241	D-s2, d0	3.4.12
	„KLH CLT“	ETA-06/0138	D-s2, d0	3.4.13
	„Pfeifer CLT Brettsperrholz“	ETA-20/0023	D-s2, d0	3.4.14
	„ED-BSP Elemente“	ETA-12/0327	D-s2-d0	3.4.15
	„Swiss Krono Magnum Board“	ETA-13/0784	D-s2, d0	3.5.02

Table A.2.2 Components of the kit; material list – paneling and claddings

Application	Material / component	Specification	Reaction to fire	Product-no.
Panelling	Oriented Strand Boards (OSB)	EN 13986	D-s2,d0 (2007/348/EC)	6.1.01
	resin-bonded particleboard P5	EN 13986	D-s2,d0 (2007/348/EC)	6.1.02
	solid wood panel SWP	EN 13986	D-s2,d0 (2007/348/EC)	6.1.04
	Cement-bonded particleboards	EN 13986	A2-s1, d0 (2007/348/EC)	6.1.05
	„Diamant X“	ETA-13/0800	A2-s1,d0(B)	6.2.03
	„Diamant SX“	ETA-23/0395	A2-s1,d0(B)	6.2.04
	„vidiwall“ und „vidiwall HI“	ETA-07/0086	A2-s1,d0	6.3.03
	„fermacell Gipsfaserplatten - "fermacell Gipsfaser-Platte", "fermacell Vapor", "fermacell Gipsfaser-Platte greenline"	ETA-03/0050	A2-s1,d0	6.3.04
Cladding	dry-process fibreboard (MDF)	EN 13986	D-s2,d0 (2007/348/EG)	6.1.03
	„Aquapanel Cement Board Outdoor”	ETA-07/0173	A2-s1, d0	6.1.07
	Solid wood panelling and cladding	EN 14915	D-s2,d0 (2006/213/EC)	6.1.08
	Gypsum plasterboard	EN 520	A2-s1,d0(B)	6.2.01
	Gypsum boards with fibrous reinforcement	EN 15283-2	A2-s1,d0	6.3.01
Part of the floor layering	Gypsum board products from reprocessing	EN 14190	DoP	6.4.01 6.4.02
	Gypsum boards with fibrous reinforcement	EN 15283-2	A2-s1, d0	6.4.03
	"fermacell Bodensysteme"	ETA-18/0723	DoP	6.4.04
	fermacell Gipsfaserplatten - "fermacell Gipsfaser-Platte", "fermacell Vapor", "fermacell Gipsfaser-Platte greenline"	ETA-03/0050	A2-s1, d0	6.4.05
	“Fermacell Powerpanel TE”	ETA-22/0549	$A1_{fl}$	6.4.06
Panels for fire performance*	„AESTUVER Brandschutzplatte“	ETA-11/0458	A1	6.5.02
	„AESTUVER T Brandschutzplatte“	ETA-15/0531	A1	6.5.03
* This ETA does not include the evaluation of the resistance to fire performance				

Table A.2.3 Components of the kit; material list – insulation and fillings

Application	Material / component	Specification	Reaction to fire	Product-no.
Insulation	Factory made mineral wool (MW) products	EN 13162	A1	2.1.01 2.1.02
	Factory made wood fibre (WF) products	EN 13171	E	2.2.01
	Factory made expanded polystyrene (EPS) products	EN 13163	E	2.3.01
	Factory made extruded polystyrene foam (XPS) products	EN 13164	E	2.4.01
	Factory made rigid polyurethane foam (PU) products	EN 13165	E	2.5.01
	Thermal insulation products for building equipment and industrial installations - Factory made mineral wool (MW) products	EN 14303	A1	2.6.01
Fillings	In-situ formed expanded clay lightweight aggregate products (LWA)	EN 14063-1	A1	2.7.01
	Lightweight aggregates	EN 13055-1	A1	2.7.01

Table A.2.4 Components of the kit; material list – sheets and barriers, bearings

Application	Material / component	Specification	Reaction to fire	Product-no.
Water vapour barrier	Plastic and rubber vapour control layers	EN 13984	E	1.1.01
Wind barriers	Flexible sheets – underlays for walls	EN 13859-2	E	1.2.01
Combined roof underlay and wind barrier	Flexible sheets – underlays for discontinuous roofing	EN 13859-1	E	1.3.01
Roof covering	Plastic or rubber sheets for roof waterproofing	EN 13956	E	1.4.01
	Reinforced bitumen sheets for roof waterproofing	EN 13707	E	1.4.02
Bearings	Elastomeric bearings	EN 1337-3	E	9.1.01

Table A.2.5 Components of the kit; material list – connectors

Application	Material / component	Specification	Reaction to fire	Product-no.
Dowel-type fasteners in wooden construction	Dowel -type fasteners	EN 14592	A1	4.1.01
	„haubold-Klammern“	ETA-16/0535	A1	4.2.02
	„KVT Bauklammern“	ETA-18/0163	A1	4.2.03
	„BeA / KMR Klammern“	ETA-15/0860 ETA-21/0657 ETA-18/0708	A1	4.2.04
	„Prebena Heftklammern“	ETA-16/0101	A1	4.2.05
	„Bauklammern Typ A-154. B-180 und C-203“	ETA-17/0333	A1	4.2.06
	„Würth Klammern“	ETA-17/0631	A1	4.2.07
	„Beck Heftklammern“	ETA-17/0777	A1	4.2.08
	„CSA und CNA“	ETA-04/0013	A1	4.5.02
	„Würth Schrauben“	ETA-11/019	A1	4.5.03
	„Rotho Blaas Schrauben“	ETA-11/0030	A1	4.5.04
	„T-Fast JW2-STR“ und „T-Fast JW2-STS“	ETA-18/0812	A1	4.5.05
	„LBA“	ETA-22/0002	A1	4.5.06
	„HECO-TOPIX-plus (bzw. HTP bzw. HT-plus), HECO-TOPIX-plus-T (bzw. HTP-T bzw. HT-plus-T) und HECO-TOPIX-plus-CC (bzw. HTP-CC bzw. HT-plus-CC) Schrauben“	ETA-19/0553	A1	4.5.07
Dowel-type fasteners in steel constructions	High-strength structural bolting assemblies for preloading	EN 14399-1	A1	4.3.01
	Non-preloaded structural bolting assemblies	EN 15048-1	A1	
	Befestigungsschrauben „JT“	ETA-10/0200 ETA-13/0177	A1	4.4.03

Table A.2.5 (continued) Components of the kit; material list – connectors

Application	Material / component	Specification	Reaction to fire	Product-no.
Non dowel-type fasteners in wooden construction	Connectors	EN 14545	A1	5.1.01 5.2.01 5.3.01
	“Simpson Strong-Tie Angle Brackets"	ETA-06/0106	A1	5.4.02
	„Simpson Strong-Tie Universal Brackets, Purlin anchors, Joist anchors“	ETA-21/0482	A1	5.4.03
	„Simpson Strong-Tie Hold Downs & Post Bases“	ETA-07/0285	A1	5.4.04
	„Simpson Strong-Tie Miscellaneous Brackets”	ETA-20/1071	A1	5.4.05
	„Rotho Blaas Nino Angle Brackets and WKR Hold Downs”	ETA-22/0089	A1	5.4.06
	„Rotho Blaas WHT Hold Downs”	ETA-23/0813	A1	5.4.07
	„Rotho Blaas WHT Hold Downs and angle brackets”	ETA-11/0086	A1	5.4.08
	„Rotho Blaas TITAN Angle Brackets”	ETA-11/0496	A1	5.4.09
	„Würth hold downs type V Plus Lx90x65x3,0, V Plus Lx90x65x4,0, type HTA Lx60x60x3,0 and HTA Lx80x80x3,0 and Angle Bracket Type V, Type V-MH”	ETA-14/0274	A1	5.4.10
	„Drüeke & Springob Winkelverbinder (Typ 1111, 1112, 1113, 1131, 1133)”	ETA-09/0214	A1	5.4.11
	„Drüeke & Springob verschiedene Winkelverbinder 1134, 1135, 1136, 1137, 1138, 1139, 1210, 1211, 1212, 1213.2, 1214, 1215, 1219, 1220, 1221, 1222, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235"	ETA-09/0216	A1	5.4.12
	„BB Angle Bracket 70, 90 and 105”	ETA-08/0183	A1	5.4.13
	„Gutzeit Angle Brackets Type 89521, 89525, 89525, 89530, 89532, 89533, 89560, 89561, 89562, 89572, 89573, 89574, 89575, 89576, 89577, 89578, 89579, 89580, 89581, 89582, 89583, 89584, 89585, 89586, 89587, 89588, 89589, 89600, 89601, 89602”	ETA-09/0133	A1	5.4.14
	„Gutzeit Angle Brackets Type 89540, 89541, 89550, 89551, 89552, 89553, 890095, 8900135, 8900285” von der Firma Gutzeit Verbindungssysteme GmbH & Co. KG	ETA-09/0134	A1	5.4.15
	„Gutzeit Joist Hangers Type A, B und I (Kombi and Innen)“	ETA-09/0015	A1	5.4.16
	„Gutzeit Hold Downs type 89710, 89711, 89712, 89715, 89716, 89717“	ETA-09/0132	A1	5.4.17
Further connectors	Suspension for suspended ceilings	EN 13964	A1	5.5.01
	Metal framing components for gypsum plaster- board systems	EN 14195	A1	7.2.01

Table A.2.6 Components of the kit; material list – Render

Application	Material / component	Specification	Reaction to fire	Product-no.
Render	external renders and internal plasters based on organic binders	DIN EN 15824	A1	7.3.01
	Rendering and plastering mortar	DIN EN 998-1	A1	7.4.01

Table A.2.7 Components of the kit; material list – building services

Application	Material / component	Specification	Reaction to fire
Openings for fire resistance*	Brandschutzklappen für Heizungs-, Lüftungs- und Klimaanlagen	EN 15650	-
	„Brandschutzhülse Hilti CFS-SL GA“	ETA 20/1234	E
	„Hilti Firestop Block CFS-BL P“	ETA 18/1024	E
	„Hilti Firestop Plug CFS-PL“	ETA 13/0125	E
	„Hilti Firestop Bandage CFS-B“	ETA 20/0993	E
	„Hilti Firestop Cable Collar CFS-CC“	ETA 13/0704	E
	„Hilti Firestop Collar Endless CFS-C EL“	ETA 14/0085	E
	„Hilti Firestop Intumescent Sealant CFS-FIL“	ETA 21/0256	E
	„Hilti Firestop Acrylic Sealant CFS-S ACR“	ETA 10/0389	D
	„Hilti Firestop Acrylic Sealant CFS-S SIL“	ETA 10/0291	B -s2,d1
	„Hilti Firestop Foam CFS-F FX“	ETA 10/0109	E
	„Würth Ablationsbeschichtung I“	ETA 17/0105	E
	„Würth System RK I / RK I light”	ETA 15/0515	E
	„Würth System E2 RK1 Kabelschott”	ETA-13/1017	E
	„Würth Kabel-Röhre Typ KR und Typ KT“	ETA-13/0695	E
	„Sytem PYROPLUG Block“	ETA-15/0803	E
	„LS 90 / RS 90“	ETA-17-0449	E
	„Dosenschott DS90, 74mm“, „Dosenschott DS 90, 120mm“, „Deckenschott DS, 74mm“ und „Deckenschott DS90, 120mm“	ETA-14/0159	E
	„Gerätedose Kaiser HWD 68+“, „Geräte-Verbindungsdose HWD 68+“, „Gerätedose O-range Protect³“ und „Geräte-Verbindungsdose O-range Protect³“	ETA-22-0129 ETA-24/1081	E
	„Gerätedose HWD 68“ und „Geräte-Verbindungsdose HWD 68"	ETA-18-0418	E
	„f-tronic Brandschutzdosen BS2000, BS2700, BS3500, BS3700, BS2000TC, BS2700TC, BS3500TC, BS3700TC & Deckel BS112“	ETA-18/0628	E

* This ETA does not include the evaluation of the resistance to fire performance

Deutsches Institut für Bautechnik DIBt

Annex A.3 Examples of two-dimensional elements in "timpla Holzmodulbauweise"

Table of contents

A.3.1 General

This Annex shows exemplary Layups of elements of the kit. The design of the element layers and elements (dimensions, choice of materials) is done individually for every project.
All elements may include components needed for building services. Wall elements may in addition include doors, windows and revision openings. The execution may include suspended ceilings, tiles, wallpapers or floor coverings.

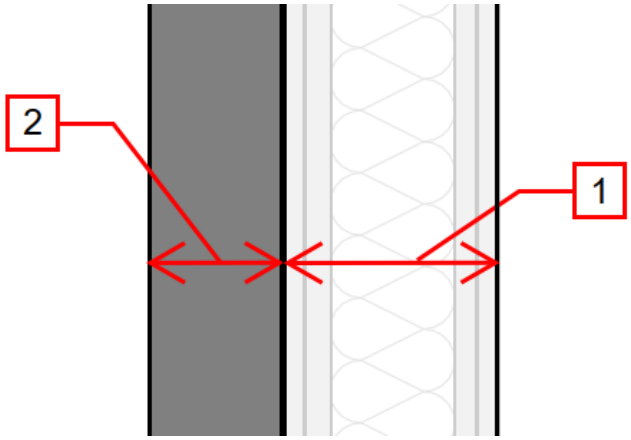
The two-dimensional elements shown here can be assembled to three-dimensional modules freely in the factory. Modules always consist of a floor, a ceiling and surrounding walls. The walls can be replaced by a column-beam-construction.

Alle connections designed as load bearing are done with mechanical fasteners as listed in Annex A.2.

A.3.2. Element types

A.3.2.1 Element type 1.1 – “Separating wall”

Construction drawing (Vertical section, Sketch)

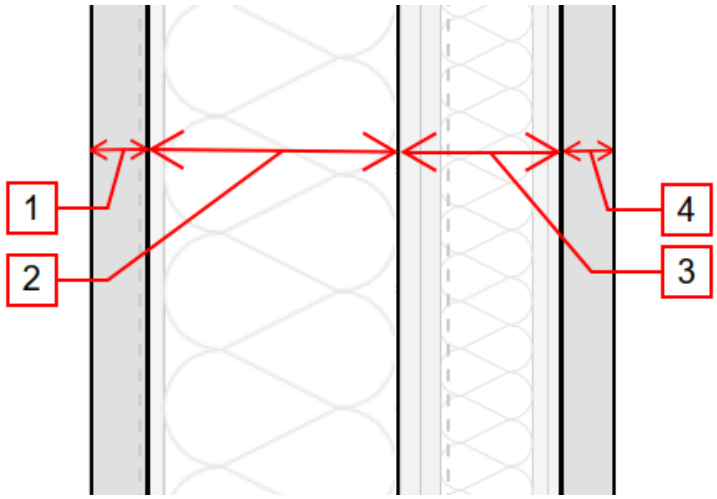


Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Module wall (WM)	„01.a“ or „01.b“
2	Facing framework (WV), optional	„02“

A.3.2.2a Element type 1.2a – „Exterior wall“

Construction drawing (Vertical section, Sketch)

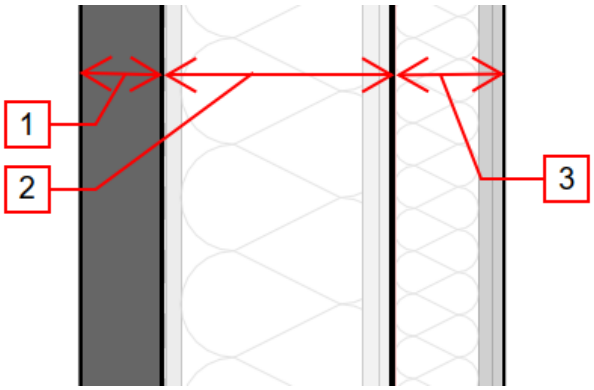


Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Façade (WF), optional	„05“
2	Insulation layer (WD), optional	„04“
3	Module wall (WM)	„01.a“ or „01.b“
4	Facing framework (WV), optional	„02“

A.3.2.2b Element type 1.2b – „Exterior wall, one-layered“

Construction drawing (Vertical section, Sketch)

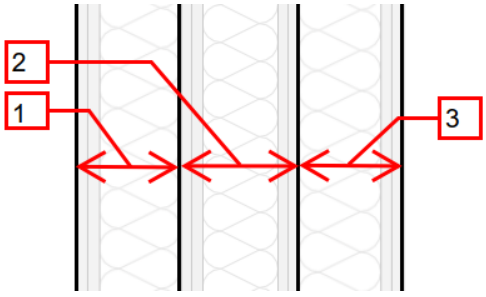


Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Façade (WF), optional	„05“
2	Insulation and load-bearing layer (WZ)	„03“
3	Facing framework (WV), optional	„02“

A.3.2.3 Element type 1.3 – „Interior wall“

Construction drawing (Vertical section, Sketch)

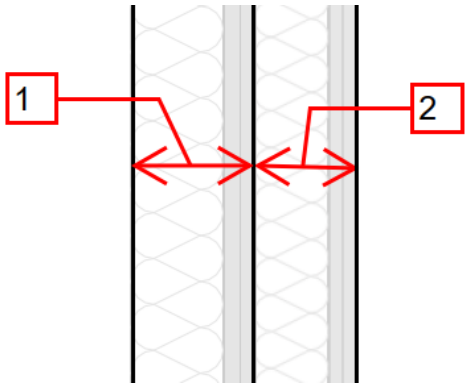


Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Facing framework (WV), optional	„02.a“ or „02.b“
2	Interior wall construction (WI)	„08“
3	Facing framework (WV), optional	„02“

A.3.2.4 Element type 1.4 – „shaft wall“

Construction drawing (Vertical section, Sketch)

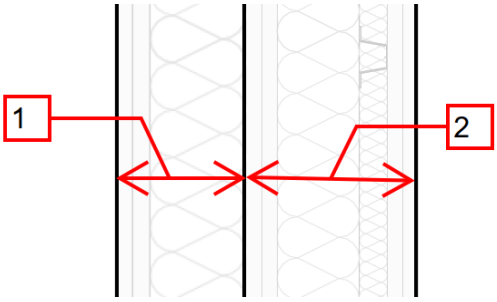


Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Shaft wall construction (WS)	„07a“ or „07b“
2	Facing framework (WV), optional	„02“

A.3.2.5 Element type 1.5 – „Corridor wall“

Construction drawing (Vertical section, Sketch)

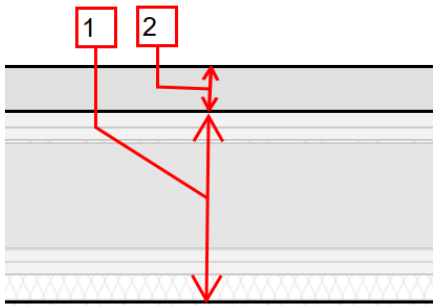


Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Facing framework (WV), optional	„02“
2	Floor wall construction (WK)	„06“

A.3.2.6 Element type 1.6 – „Module floor“

Construction drawing (Vertical section, Sketch)

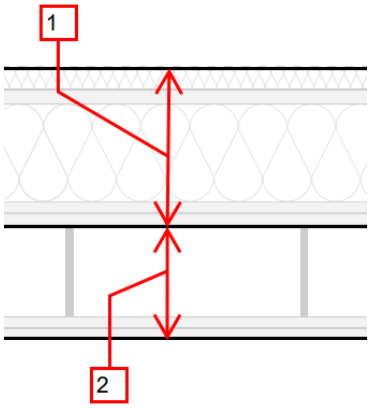


Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Module floor (BO)	„10a“ or „10b“
2	Floor layering, optional	„11.a“ or „11.b“

A.3.2.7 Element type 1.7 – „Module ceiling“

Construction drawing (Vertical section, Sketch)



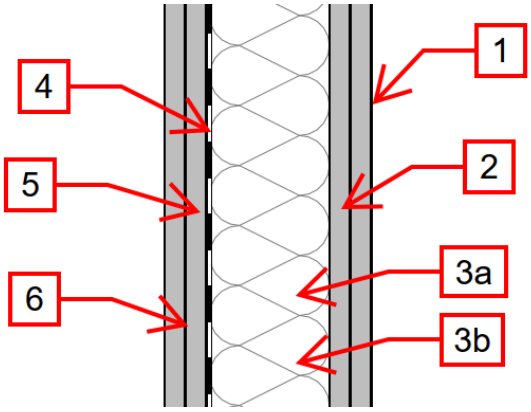
Legend:

Layer-No.	Description / Name of layer	Possible element layers (see Annex A.3.3)
1	Module ceiling (DE)	„09.a“ or „09.b“
2	Suspended ceiling (AD), optional	„12“

A.3.3. Element layers

A.3.3.01a Element layer 01.a – Module wall „WM in timber frame construction“

Construction drawing (Vertical section, Sketch)

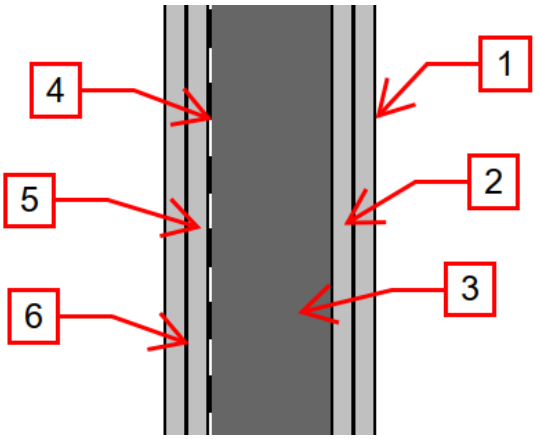


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer(optional)	all of Tab. A.2.2
2	Panelling, 1. layer	all of Tab. A.2.2
3a	Framework made of studs, threshold and plate	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
3b	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
4	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“
5	Panelling, 1. layer (optional)	all of Tab. A.2.2
6	Panelling, 2. layer(optional)	all of Tab. A.2.2

A.3.3.01b Element layer 01.b – Module wall „WM in solid wood construction“

Construction drawing (Vertical section, Sketch)

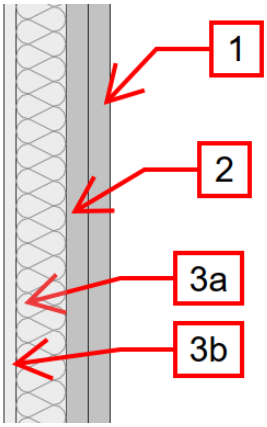


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer(optional)	all of Tab. A.2.2
2	Panelling, 1. layer (optional)	all of Tab. A.2.2
3	Planar loadbearing wood components	„3.4.02“ – „3.4.15“, „3.5.02“
4	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“
5	Panelling, 1. layer (optional)	all of Tab. A.2.2
6	Panelling, 2. layer(optional)	all of Tab. A.2.2

A.3.3.02 Element layer 02.b – facing layer „WV in timber frame construction“

Construction drawing (Vertical section, Sketch)

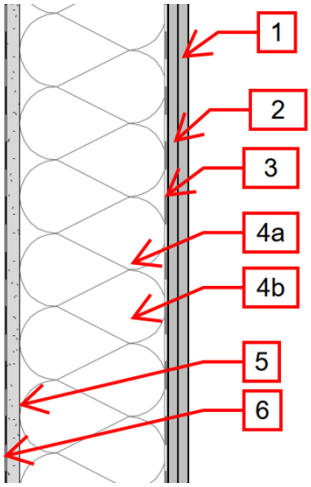


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer(optional)	all of Tab. A.2.2
2	Panelling, 1. layer	all of Tab. A.2.2
3a	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
3b	Framework made of studs, threshold and plate	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
4	Panelling, 1. layer	all of Tab. A.2.2
5	Panelling, 2. layer(optional)	all of Tab. A.2.2

A.3.3.03 Element layer 03 – Exterior wall „WZ“

Construction drawing (Vertical section, Sketch)

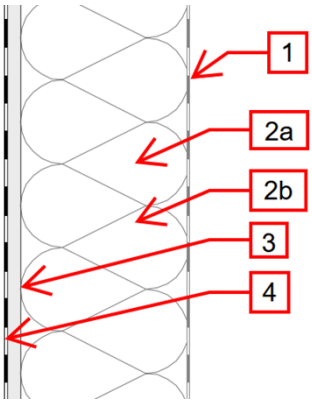


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer(optional)	all of Tab. A.2.2
2	Panelling, 1. layer	all of Tab. A.2.2
3	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“
4a	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
4b	Framework made of studs, threshold and plate	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
5	Panelling, 1. layer	all of Tab. A.2.2
6	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“

A.3.3.04 Element layer 04 – Insulation wall „WD“

Construction drawing (Vertical section, Sketch)

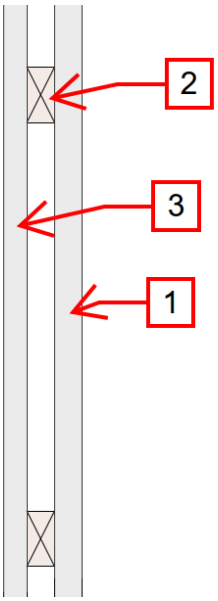


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“
2a	Framework made of studs, threshold and plate	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
2b	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
3	Panelling	all of Tab. A.2.2
4	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“

A.3.3.05 Element layer 05 – Façade „WF (back ventilated or ventilated)“

Construction drawing (Vertical section, Sketch)

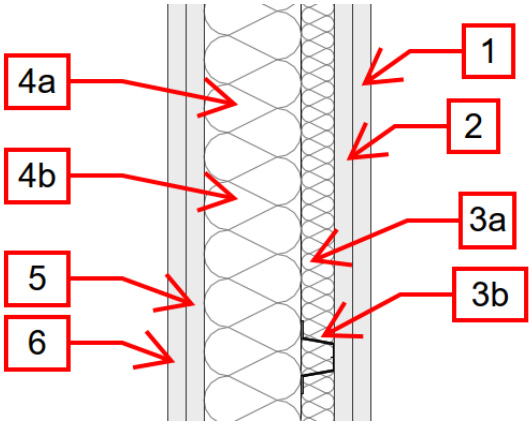


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Battens, vertical	„3.2.01“, „3.2.02“
2	Battens, horizontal (optional)	„3.2.01“, „3.2.02“
3	Façade	„6.1.05“, „3.2.01“

A.3.3.06 Element layer 06 – Floor wall „WK“

Construction drawing (Vertical section, Sketch)

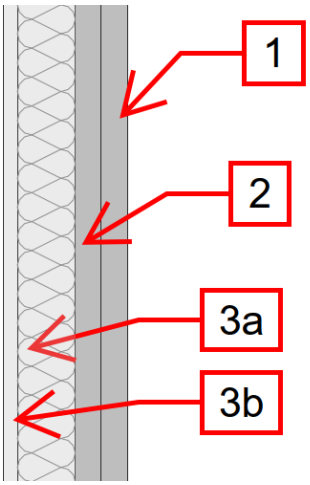


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer	all of Tab. A.2.2
2	Panelling, 1. layer	all of Tab. A.2.2
3a	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
3b	Substructure with spring rail	„7.2.01“
4a	Framework made of studs, threshold and plate	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
4b	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
5	Panelling, 1. layer	all of Tab. A.2.2
6	Panelling, 2. layer	all of Tab. A.2.2

A.3.3.07 Element layer 07 – shaft wall „WS in timber frame construction“

Construction drawing (Vertical section, Sketch)

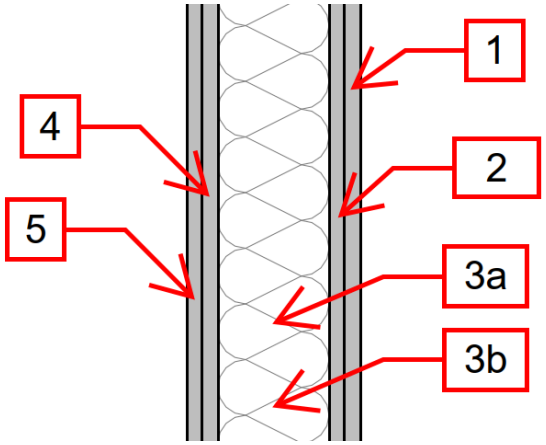


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer(optional)	all of Tab. A.2.2
2	Panelling, 1. layer	all of Tab. A.2.2
3a	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
3b	Framework made of studs, threshold and plate	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“

A.3.3.08 Element layer 08 – interior wall „WI“

Construction drawing (Vertical section, Sketch)

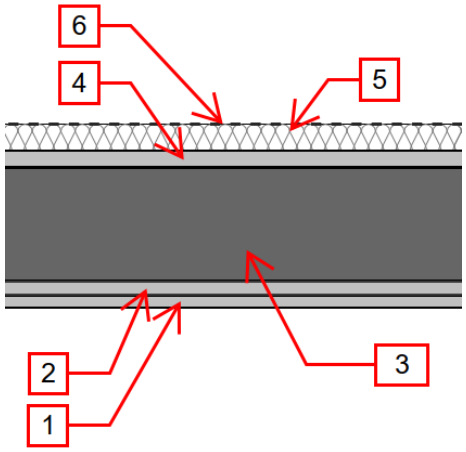


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer(optional)	all of Tab. A.2.2
2	Panelling, 1. layer	all of Tab. A.2.2
3a	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
3b	Framework made of studs, threshold and plate	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
4	Panelling, 1. layer	all of Tab. A.2.2
5	Panelling, 2. layer(optional)	all of Tab. A.2.2

A.3.3.09a Module ceiling „DE in solid wood construction “

Construction drawing (Vertical section, Sketch)

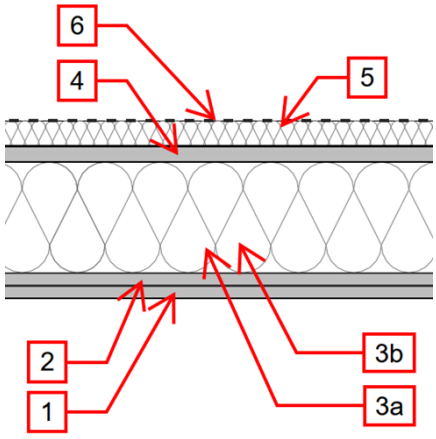


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. layer(optional)	all of Tab. A.2.2
2	Panelling, 1. layer (optional)	all of Tab. A.2.2
3	Planar loadbearing wood components	„3.4.02“ – „3.4.15“, „3.5.02“
4	Panelling (optional)	all of Tab. A.2.2
5	Insulation (optional)	„2.1.01“, „2.1.02“ or „2.2.01“
6	Sheet/barrier(optional)	„1.1.01“, „1.2.01“, „1.3.01“, „1.4.01“ or „1.4.02“

A.3.3.09b Element layer 09.b – Module ceiling „DE in timber frame construction“

Construction drawing (Vertical section, Sketch)

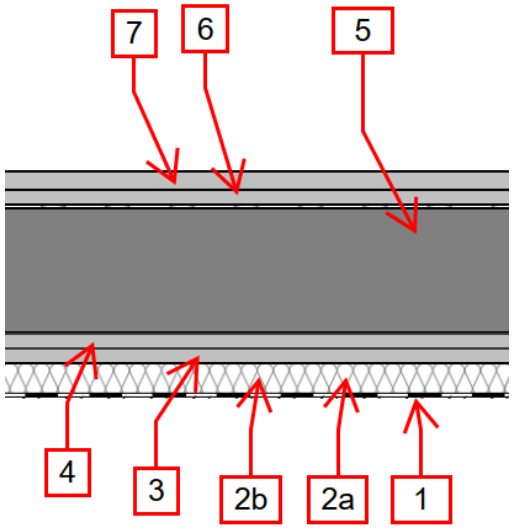


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Panelling, 2. Layer (optional)	all of Tab. A.2.2
2	Panelling, 1. layer	all of Tab. A.2.2
3a	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
3b	Timber frame layer with blocking or with edge beams at the supports	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
4	Panelling (optional)	all of Tab. A.2.2
5	Insulation (optional)	„2.1.01“, „2.1.02“ or „2.2.01“
6	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“

A.3.3.10a Element layer 10.a – Module floor „BO in solid wood construction“

Construction drawing (Vertical section, Sketch)

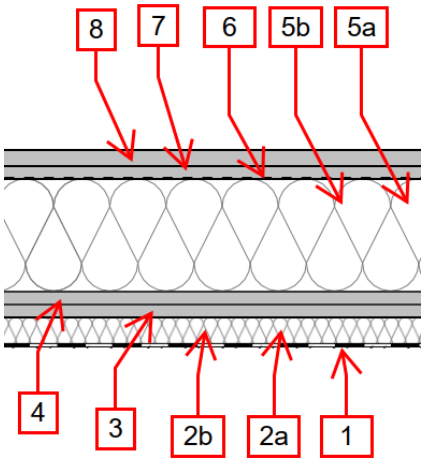


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“
2a	Insulation (optional)	„2.1.01“, „2.1.02“ or „2.2.01“
2b	Timber members for distancing (optional)	„3.2.01“, „3.2.02“
3	Panelling, 2. layer (optional)	all of Tab. A.2.2
4	Panelling, 1. layer (optional)	all of Tab. A.2.2
5	Planar loadbearing wood components	„3.4.02“ – „3.4.15“, „3.5.02“
6	Panelling, 1. layer (optional)	all of Tab. A.2.2
7	Panelling, 2. layer (optional)	all of Tab. A.2.2

A.3.3.10b Element layer 10.b – Module floor „BO in timber frame construction“

Construction drawing (Vertical section, Sketch)

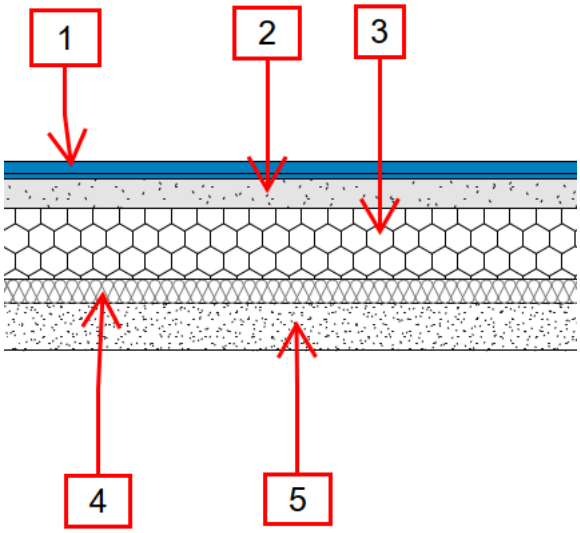


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“
2a	Insulation (optional)	„2.1.01“, „2.1.02“ or „2.2.01“
2b	Timber members for distancing (optional)	„3.2.01“, „3.2.02“
3	Panelling, 1. layer (optional)	all of Tab. A.2.2
4	Panelling, 2. layer (optional)	all of Tab. A.2.2
5a	Timber frame layer with blocking or with edge beams at the supports	„3.2.01“, „3.2.02“, „3.2.03“, „3.3.01“
5b	Timber frame insulation	„2.1.01“, „2.1.02“ or „2.2.01“
6	Sheet/barrier(optional)	„1.1.01“, „1.2.01“ or „1.3.01“
7	Panelling, 1. layer (optional)	all of Tab. A.2.2
8	Panelling, 2. layer (optional)	all of Tab. A.2.2

A.3.3.11a Element layer 11.a – Floor layering „BU, Variant 1 with underfloor heating“

Construction drawing (Vertical section, Sketch)

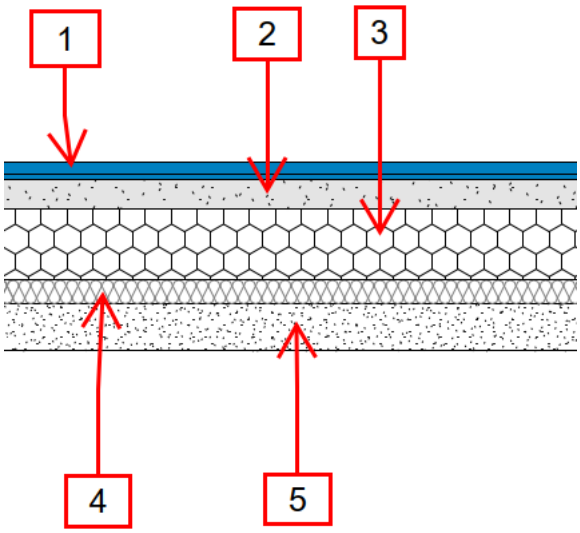


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Floor layering (optional)	
2	Dry screed	„6.4.02“ bis „6.4.06“
3	Height adjustment (optional)	Pressure resistant insulations in Tab. A.2.3
4	Impact sound insulation	„2.1.01“, „2.1.02“, „2.2.01“, „2.3.01“
5	Filling	"2.7.01"

A.3.3.11b Element layer 11.b – Floor layering „BU, Variant 2 without underfloor heating“

Construction drawing (Vertical section, Sketch)

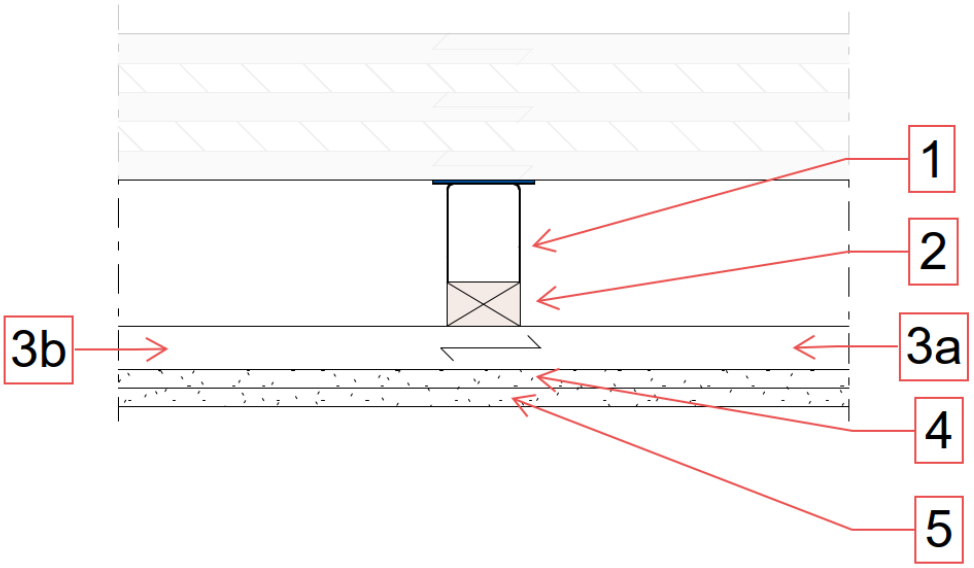


Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1	Floor layering (optional)	
2	Dry screed	„6.4.02“ bis „6.4.06“
3	Height adjustment (optional)	Pressure resistant insulations in Tab. A.2.3
4	Impact sound insulation	„2.1.01“, „2.1.02“, „2.2.01“, „2.3.01“
5	Filling	"2.7.01"

A.3.3.12 Element layer 12 – Suspension ceiling „AD"

Construction drawing (Vertical section, Sketch)



Legend:

Layer-No.	Description	Possible materials/products (product-no. see Annex A.2)
1a	Suspension with connectors (screws)	„5.5.02"
2	Cross batten (optional)	„3.2.01", „3.2.02"
3a	Support batten	„3.2.01", „3.2.02"
3b	Insulation between battens (optional)	„2.1.01", „2.1.02" or „2.2.01"
4	Panelling, 1. layer	all of Tab. A.2.2
5	Panelling, 2. layer (optional)	all of Tab. A.2.2

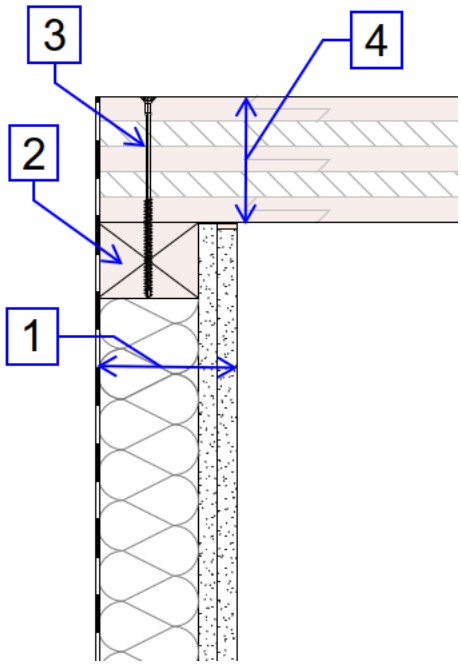
Annex A.4 – Connections between elements within a module

A.4.1 General

The elements in Annex A.3 can be mounted to three-dimensional modules freely in the factory. In the following examples and construction details are given regarding the connection of the elements.

A.4.2 – Connection between Separating wall and Ceiling of the module

Construction drawing (Vertical section, Sketch)

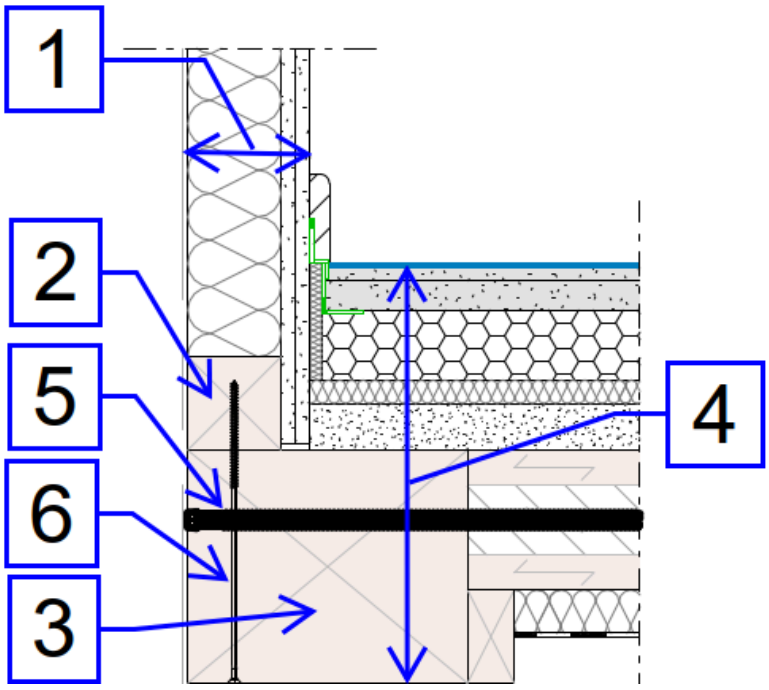


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.1 (see Annex A.3)
2	Top plate of the timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
3	Connection with screws between ceiling of the module (4) and timber frame wall (1)	Product-no. „4.5.02“ or „4.5.03“ or „4.5.04“ or „4.5.05“ or „4.5.07“ (see Annex A.2)
4	Ceiling of the module	Element type 1.7 (see Annex A.3)

A.4.3 – Connection Separating wall and floor of the module

Construction drawing (Vertical section, Sketch)

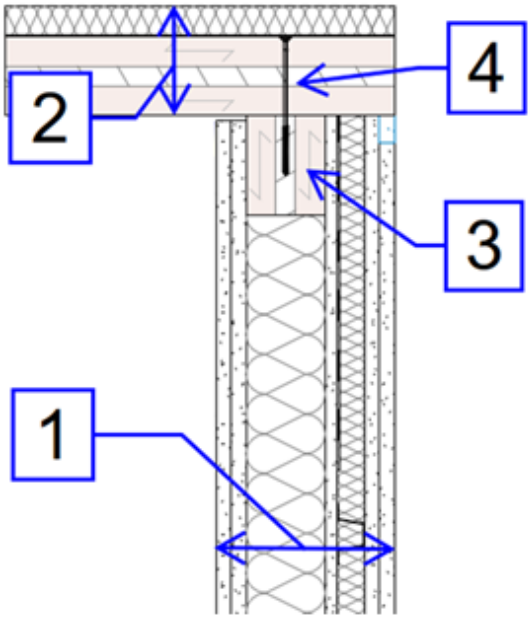


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.1 (see Annex A.3)
2	Threshold of the timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
3	Edge beam	
4	Floor of the module	Element type1.6 (see Annex A.3)
5	Connection with screws between edge beam (3) and floor of the module (4)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
6	Connection with screws between threshold (2) and edge beam (3)	

A.4.4 – Connection Corridor wall and Ceiling of the module

Construction drawing (Vertical section, Sketch)

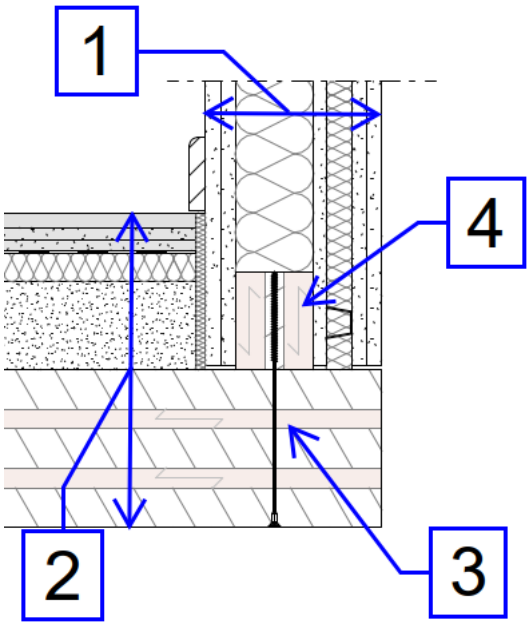


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.5 (see Annex A.3)
2	Top plate of the timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
3	Connection with screws between Ceiling of the module (2) and timber frame wall (1)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
4	Ceiling of the module	Element type 1.7 (see Annex A.3)

A.4.5 – Connection Corridor wall an Floor of the module

Construction drawing (Vertical section, Sketch)

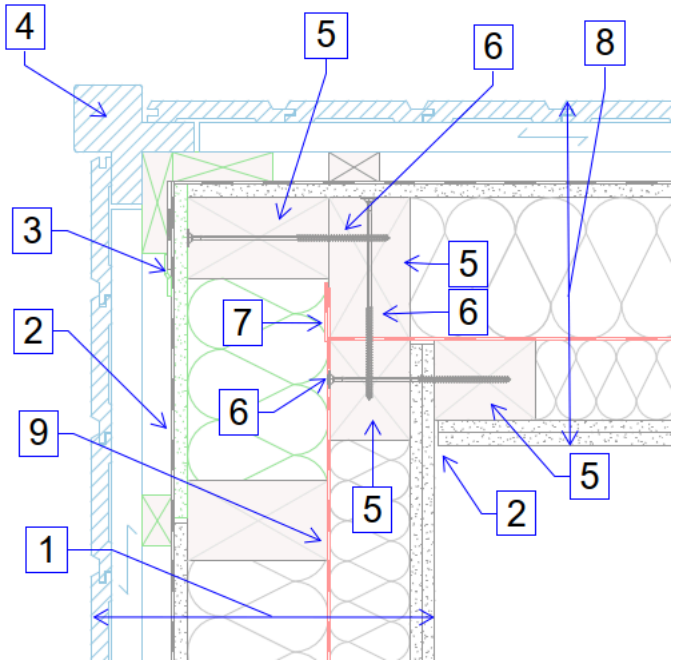


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.3 (see Annex A.3)
2	Floor of the module	Element type 1.6 (see Annex A.3)
3	Connection with screws between timber frame wall (1) and floor of the module (2)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
4	Threshold of the timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)

A.4.5 – Connection Exterior wall and Exterior wall

Construction drawing (Horizontal section, Sketch)

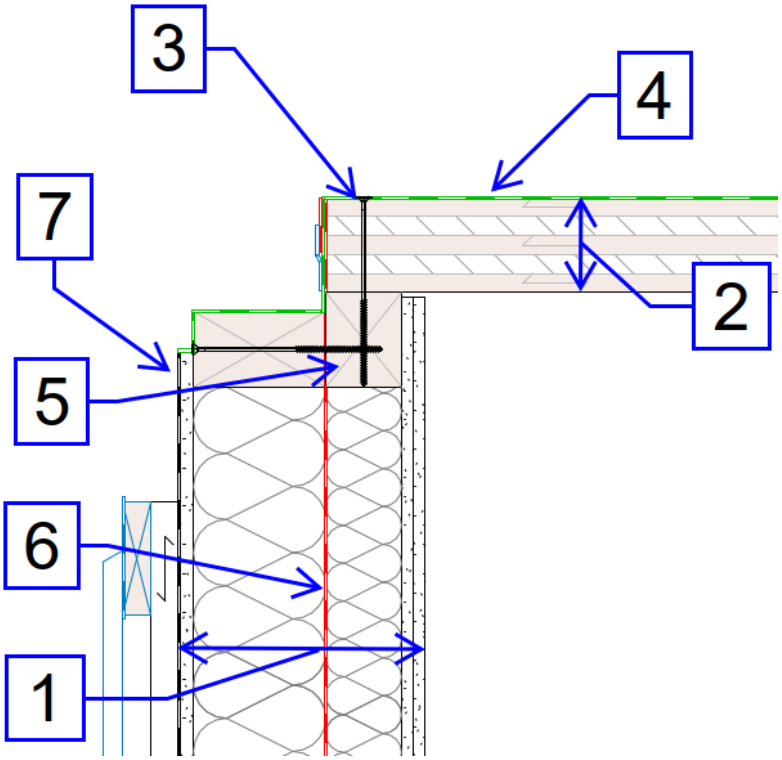


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.2a und 1.2b (see Annex A.3)
2	Wind barrier	Product-no. „1.2.01“
3	Tape for Wind barrier	Product-no. „1.2.01“
4	Edge profile formwork	Product-no. „3.2.01“ or „3.2.02“
5	(Edge)-studs oft he timber frame walls (1) und (8)	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
6	Connection with screws between timber frame wall (1) and timber frame wall (8)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
7	Water vapour barrier	Product-no. „1.1.01“
8	Timber frame wall	Element type 1.2a und 1.2b (see Annex A.3)
9	Water vapour barrier	Product-no. „1.1.01“

A.4.6 – Connection Exterior wall and Ceiling of the module

Construction drawing (Vertical section, Sketch)

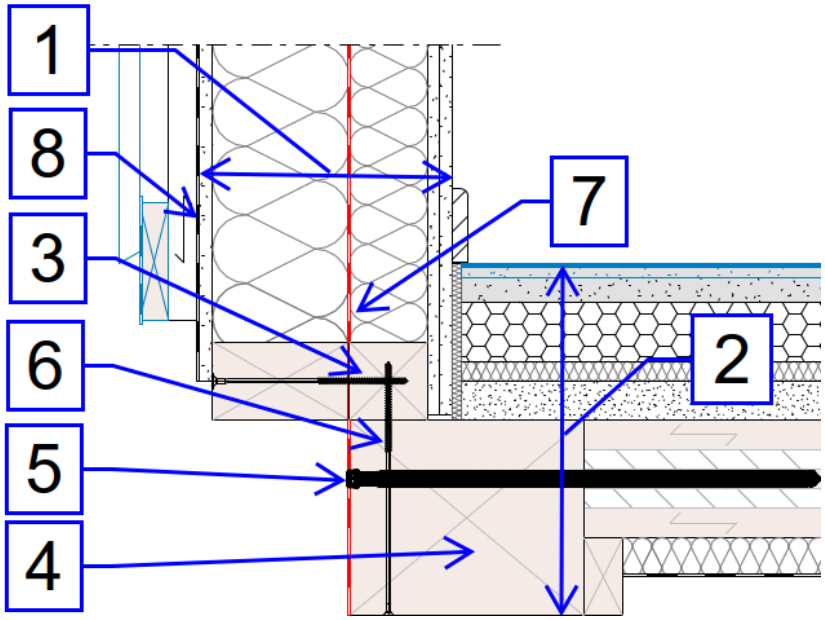


Legend

No.	Description	as in
1	Exterior wall	Element type 1.2a or 1.2b (see Annex A.3)
2	Ceiling of the module	Element type 1.7 (see Annex A.3)
3	Connection with screws between Exterior wall (1) and Ceiling of the module (2)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
4	Abdichtung Bauphase	
5	Top plate of the Exterior wall (1)	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
6	Water vapour barrier	Product-no. „1.1.01“
7	Wind barrier	Product-no. „1.2.01“ or „1.3.01“

A.4.7 – Connection Exterior wall an Floor of the module

Construction drawing (Vertical section, Sketch)

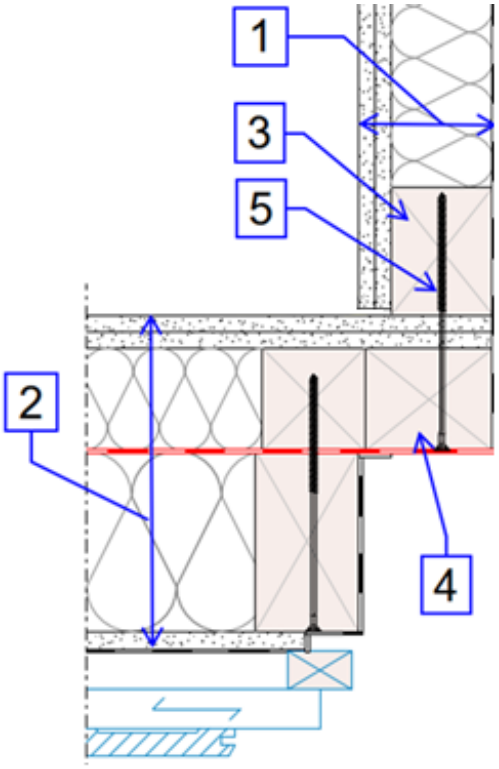


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.2a und 1.2b (see Annex A.3)
2	Floor of the module	Element type 1.6 (see Annex A.3)
3	Threshold of the timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
4	Edge beam of the floor of the modules	
5	Connection with screws between Timber frame wall (1) and Floor of the module (2)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
6	Connection with screws between Timber frame wall (1) and Floor of the module (2)	
7	Water vapour barrier	Product-no. „1.1.01“
8	Wind barrier	Product-no. „1.1.01“

A.4.8 – Connection Separating wall an Exterior wall

Construction drawing (Horizontal section, Sketch)

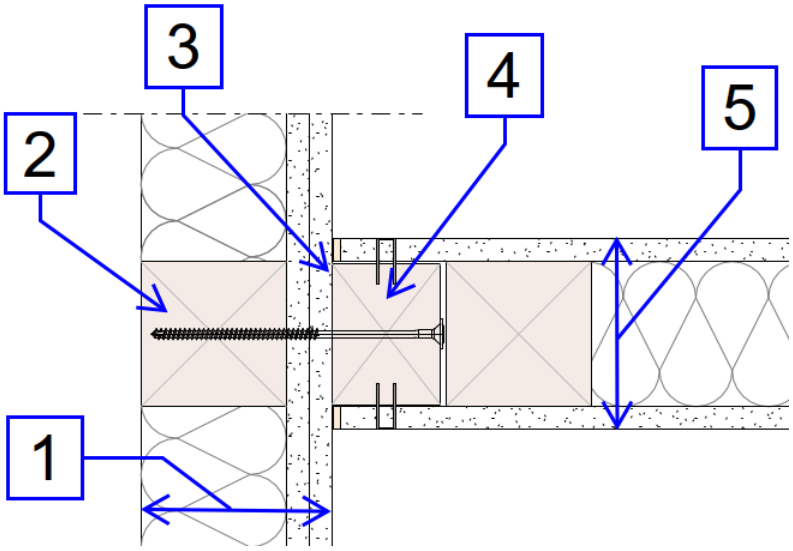


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.1 (see Annex A.3)
2	Timber frame wall	Element type 1.2a or 1.2b (see Annex A.3)
3	Stud of the Timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
4	Stud of the Timber frame wall	
5	Connection with screws between Timber frame wall (1) and Timber frame wall (2)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)

A.4.9 – Connection Interior wall and Separating wall

Construction drawing (Horizontal section, Sketch)

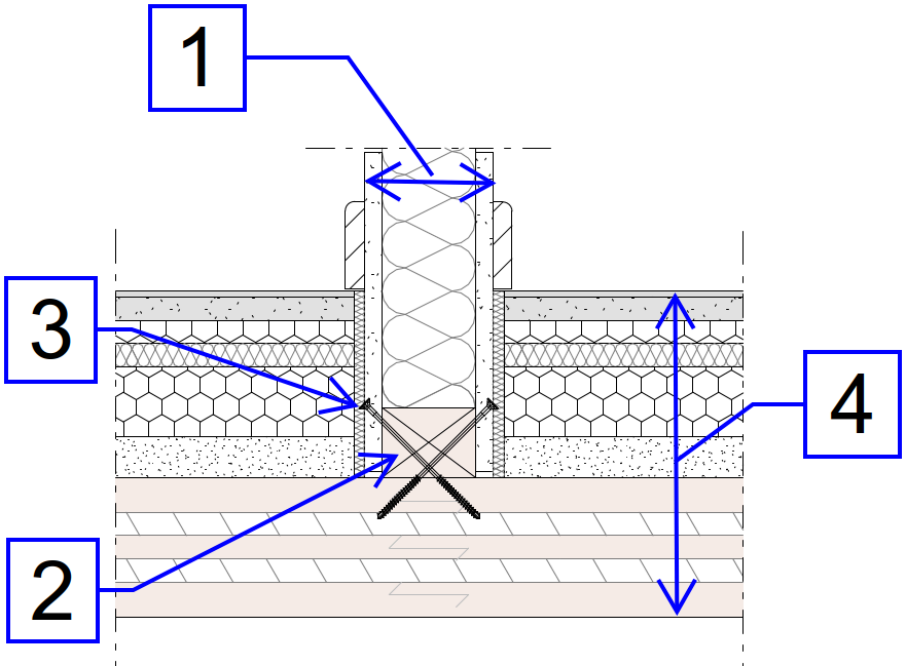


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.1, 1.2a or 1.2b (see Annex A.3)
2	Stud of the Timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
3	Tracing wood of the Timber frame wall	
4	Connection with screws between Timber frame wall (1) and Timber frame wall (5)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
5	Timber frame wall	Element type 1.3 (see Annex A.3)

A.4.10 – Connection Interior wall and Floor of the module

Construction drawing (Vertical section, Sketch)

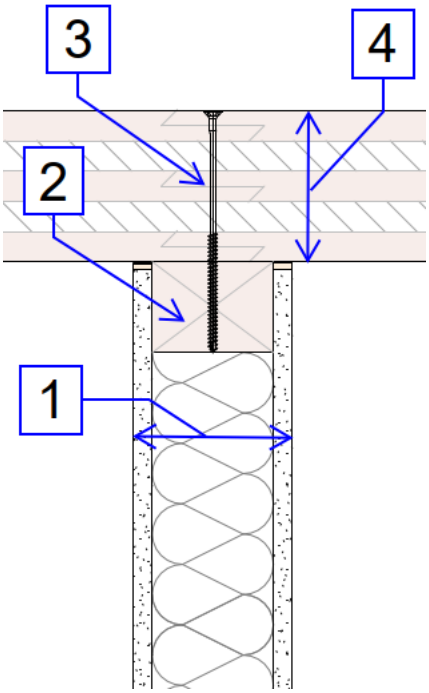


Legend

No.	Description	as in
1	Timber frame wall	Element type 1.3 (see Annex A.3)
2	Top plate of the Timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
3	Connection with screws between Timber frame wall (1) and Floor of the module (4)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
4	Floor of the module	Element type 1.6 (see Annex A.3)

A.4.11 – Connection Interior wall and Ceiling of the module

Construction drawing (Horizontal section, Sketch)



Legend

No.	Description	as in
1	Timber frame wall	Element type 1.3 (see Annex A.3)
2	Top plate der Timber frame wall	Product-no. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ or „3.3.02“ or „3.3.03“ or „3.3.04“ (see Annex A.2)
3	Connection with screws between Ceiling of the module (4) and Timber frame wall (1)	Product-no. „4.5.03“ or „4.5.04“ (see Annex A.2)
4	Ceiling of the module	Element type 1.7 (see Annex A.3)

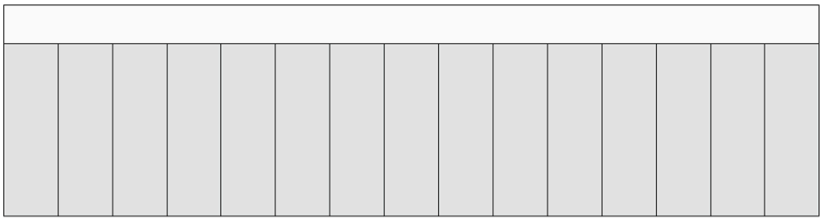
Annex A.5 Possibilities of combining modules within a building

The modules are arranged on the building site according to the architectural design of the building. Various arrangements can be realised, some are shown below.

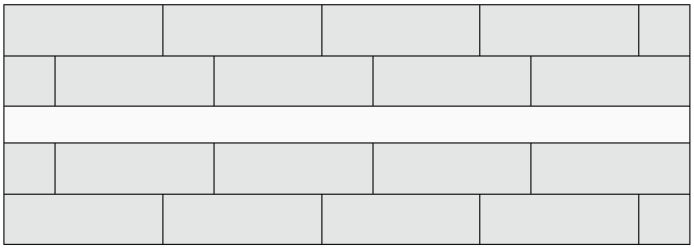
Modules are combined horizontally, to produce the utilisation units needed. Either one utilisation unit is made of one module or several modules form a utilisation unit.
Vertically the modules are combined in a way that the loadbearing and stiffening parts and shafts for building services are stacked on top of each other.

Horizontal combinations (Example):

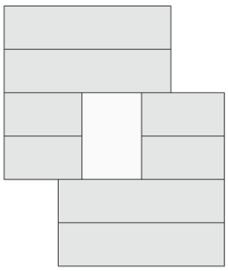
Pergola



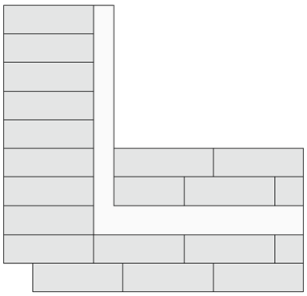
Middle corridor



Point-building / Mult-family home with access in the middle



Edge solution



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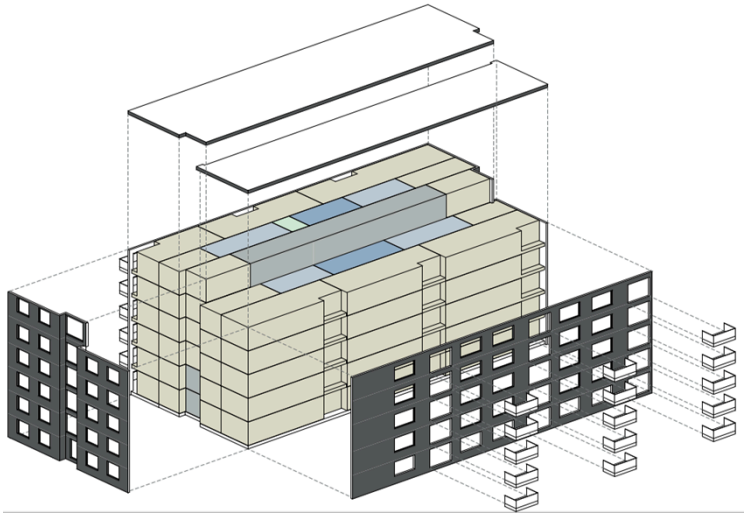
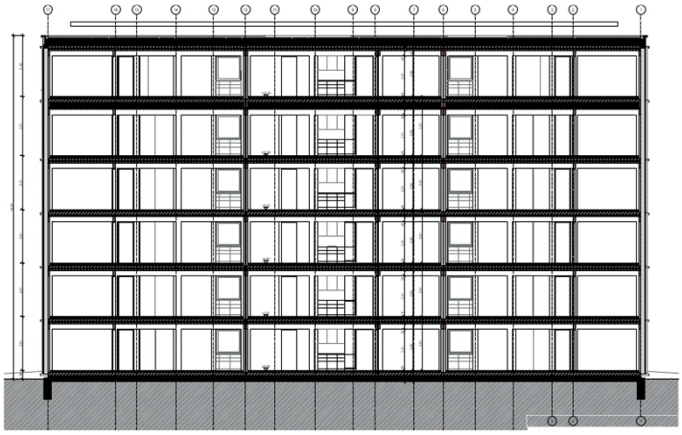
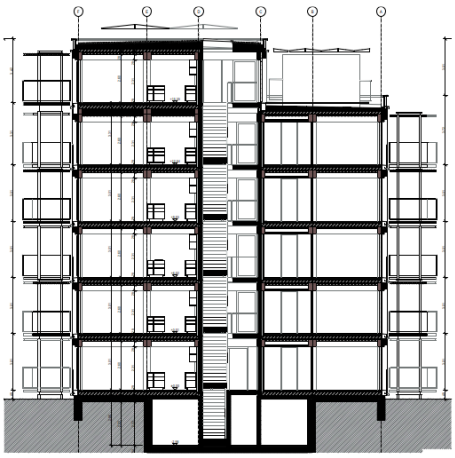
Vertical combinations (Example):



3D-Isometrie



Section



Cross Section

Annex A.6: Connections between modules

A.6.1 General

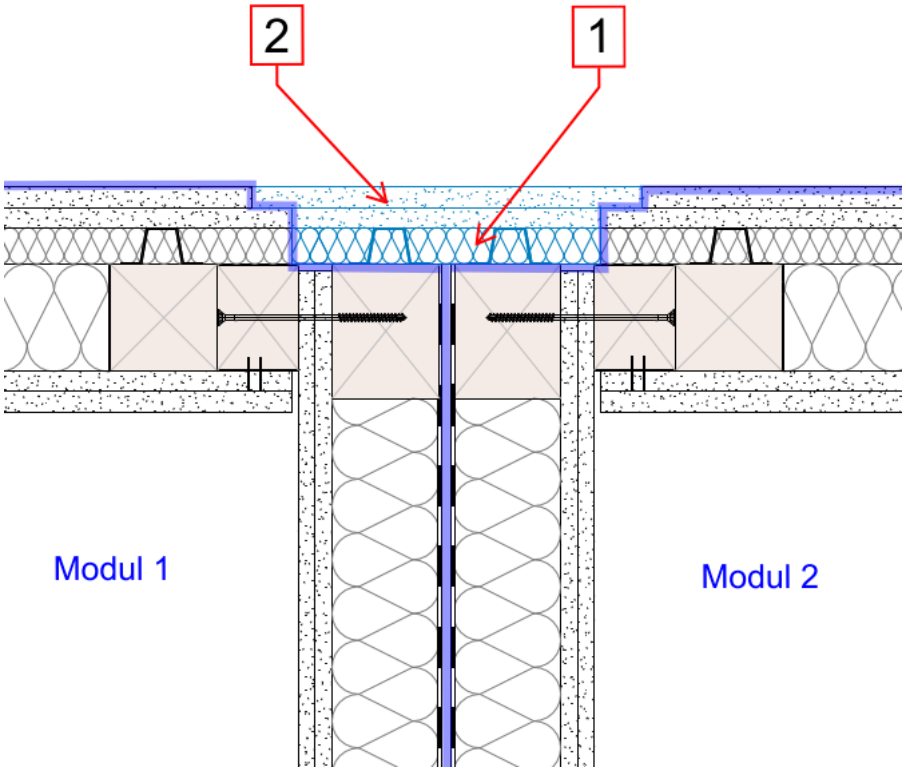
Modules according to this ETA can mounted together individually for each building project.
The connection between these modules has to cover requirements from different areas like

- Loadbearing capacity and deformations
- Air tightness
- Heat retention
- Safety in case of fire
- Protection against noise
- Building services

Below the connection between modules is shown in details and examples of constructions

A.6.2 – vertical joint between corridor walls (WK) of adjacent modules

Construction drawing (Horizontal section, Sketch)

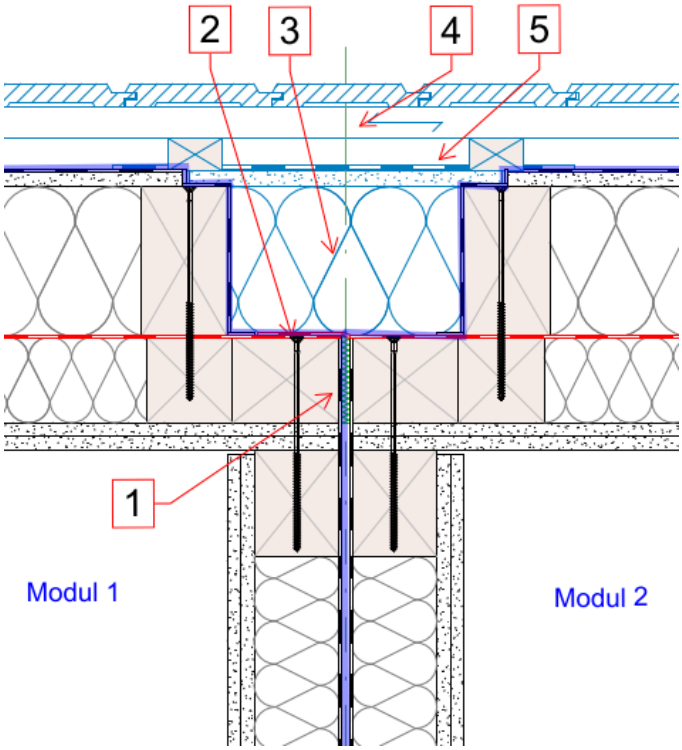


Legend

No.	Description	as in
1	Vertical gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)
2	Sealing of the panelling	Products according to table A.2.2 (see Annex A.2)

A.6.3 – vertical joint between exterior walls (WA) of adjacent modules

Construction drawing (Horizontal section, Sketch)

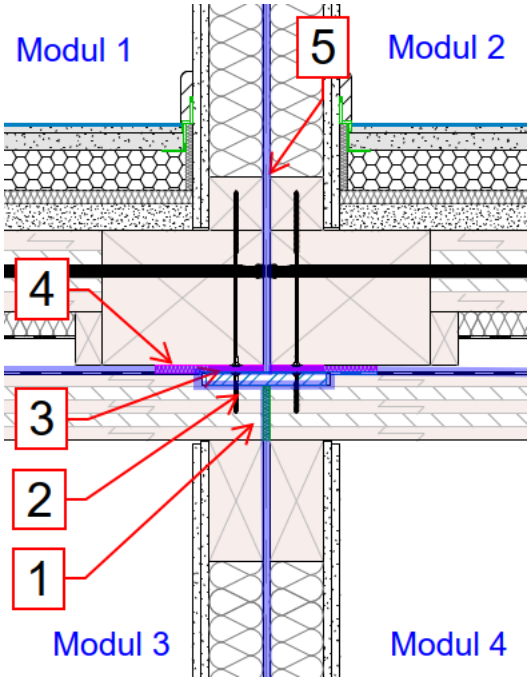


Legend

No.	Description	as in
1	Vertical gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)
2	Taping of the airtight layer	Product-No. „1.1.01“ (see Annex A.2)
3	Vertical gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)
4	Sealing of the formwork	Product-No. „3.2.01“ or „3.2.02“ (see Annex A.2)
5	Sealing of the wind barrier	Product-No. „1.2.01“

A.6.4 – Joint between four modules (with separating wall)

Construction drawing (Vertical section, Sketch)

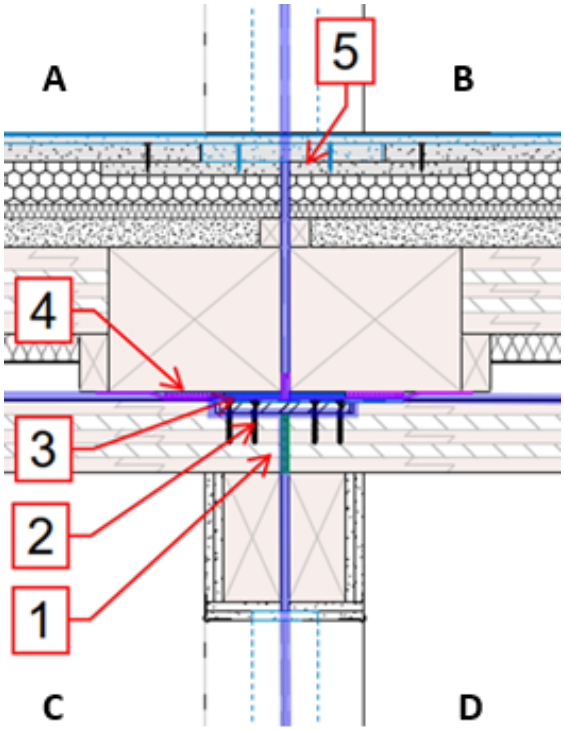


Legend

No.	Description	as in
1	Vertical gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)
2	Coupling board, screwed or nailed	Product-No. „6.1.01“ or „6.1.04“ (see Annex A.2)
3	Elastomeric bearing	Product-No. „9.1.01“ (see Annex A.2)
4	Horizontal gap, filled with mineral wool	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)
5	Vertical gap, filled with mineral wool	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)

A.6.5 – Joint between four modules (without separating wall)

Construction drawing (Vertical section, Sketch)

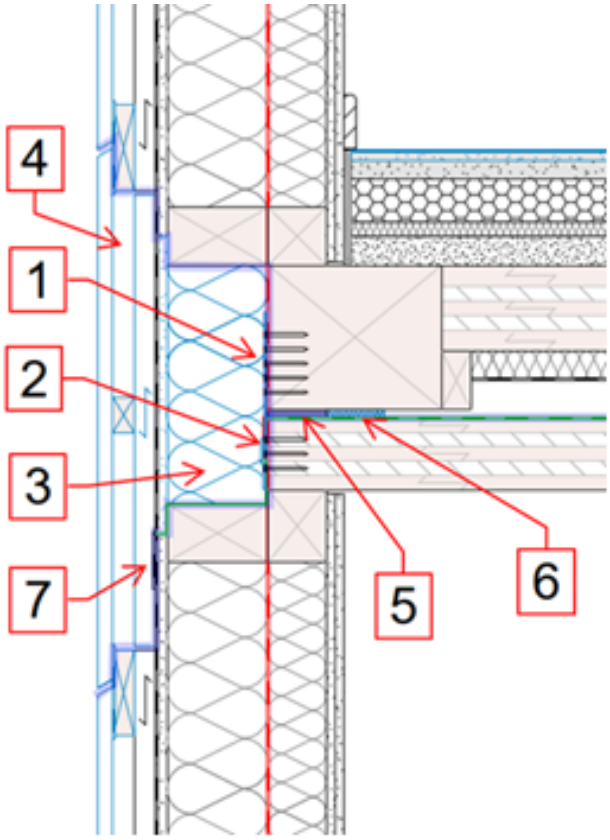


Legend

No.	Description	as in
1	Horizontal gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)
2	Coupling board, screwed or nailed	Product-No. „6.1.01“ or „6.1.04“ (see Annex A.2)
3	Elastomeric bearing	Product-No. „9.1.01“ (see Annex A.2)
4	Horizontal gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see Annex A.2)
5	Floor layering (optional)	

A.6.6 – Horizontal joints in exterior walls between stacked modules

Construction drawing (Vertical section, Sketch)

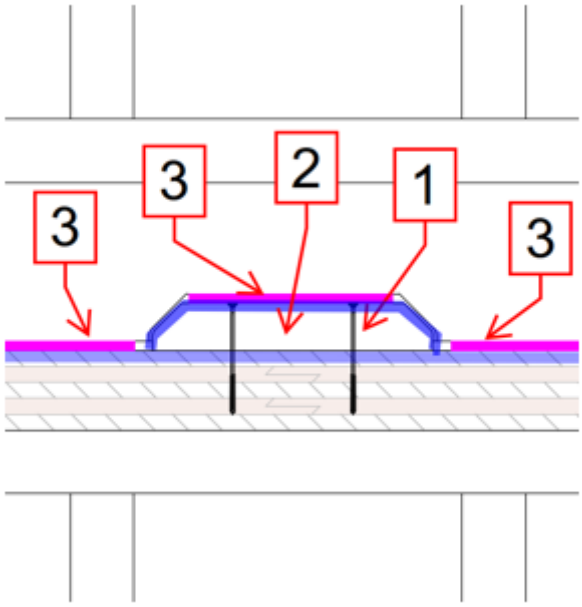


Legend

No.	Description	as in
1	Connectors	Dowel-type and non dowel-type fasteners in wooden construction, (see Annex A.2, table A.2.5)
2	Taping of the airtight layer	Product-No. „1.1.01“ (see Annex A.2)
3	Horizontal gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see AnnexA.2)
4	Sealing of the formwork	Product-No. „3.2.01“ or „3.2.02“
5	Elastomeric bearing	Product-No. „9.1.01“ (see AnnexA.2)
6	Horizontal gap, filled with inflammable insulation	Product-No. „2.1.01“ or „2.1.02“ (see AnnexA.2)
7	Sealing of the wind barrier	Product-No. „1.2.01“

A.6.7 – Horizontal joints to transmit shear forces between stacked modules

Construction drawing (Vertical section, Sketch)



Legend

No.	Description	as in
1	Screw joint shear nose	Product-No. „4.5.03“ or „4.5.04“ (see Annex A.2)
2	Shear nose for shear loads	Product-No. „3.2.01“ or „3.2.02“ or „3.2.03“ or „3.3.01“ (see Annex A.2)
3	Elastomeric bearing	Product-No. „9.1.01“ (see Annex A.2)