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EGGER

Construction Catalogue

Timber construction goes into a lot of detail. Just like this catalogue.

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1 Introduction

EGGER Timber Construction

With tested and certified products, EGGER offers convincing system solutions for planners, architects and fabricators in structural timber construction. Committed sales and technical staff support the projects of customers. This Construction Catalogue shows solutions for building components using EGGER products. They fulfil legal requirements stipulated in German building legislations and the technical specifications regarding **fire protection, sound insulations and heat insulation.**

The grading and assignment of structures to the key building regulations are intended to simplify the planning of timber construction projects. The Construction Catalogue is divided into dry screed systems, classified fire protection constructions and construction details. In the case of dry screed systems, the goal is to improve the impact sound insulation. The classified fire protection constructions are divided into walls, ceilings and roofs, which fulfil various fire protection requirements and provide information regarding sound and heat insulation. The simplified diagrams in the chapter on construction details include connection details which support fabricators and planners in their detailed planning.

Further details
Additional information regarding the use of our products is available in the relevant product brochures. Further information regarding timber frame construction is also available in a comprehensive German publication provided by Informationsdienst Holz.
www.informationsdienst-holz.de/publikationen

Timber frame construction

Driven by new findings from research and practice, as well as by the development of new and better materials, modern timber frame construction was able to consistently gain market share over the past 30 years. Already at the start of this development, the construction method set standards for energy-saving construction. They compare well even to today's constructions and current legal requirements. Today, timber frame constructions are increasingly implemented in multi-storey residential building, as well as commercial and administrative structures. Timber frame construction is also very well suited for rehabilitation, heightening or extensions, thanks to the low weight or the short construction time.

The great advantage of timber frame construction as compared to other methods is the optimal and resource-saving use of the materials used. Softwood timber, insulation materials and wood-based panels are used within the construction with their best features in the right location. As such, the frame construction primarily transfers the vertical loads, the wooden panels reinforce the building and the insulation between the frame construction already insures good heat insulation within the support structure, while at the same time saving space.

The **vapour-permeable timber frame construction** leads to fault-tolerant and durable constructions and buildings.

→ The following **EGGER building products** are suitable for timber frame constructions:

- **EGGER OSB 3** according to EN 13986 and EN 300 with CE-marking
- **EGGER OSB 4 TOP** with general building permit Z-9.1.566, according to EN 13986 and EN 300 with CE-marking
- **EGGER DHF** with general building permit Z-9.1.-454, according to EN 13986 and EN 622-5 with CE-marking and as underlay board according to EN 14964
- **EGGER timber** construction wood, kiln-dried, stress graded, EN 14081; solid structural timber; battens, S10, DIN 4074-1, kiln-dried, dry graded

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Design and construction

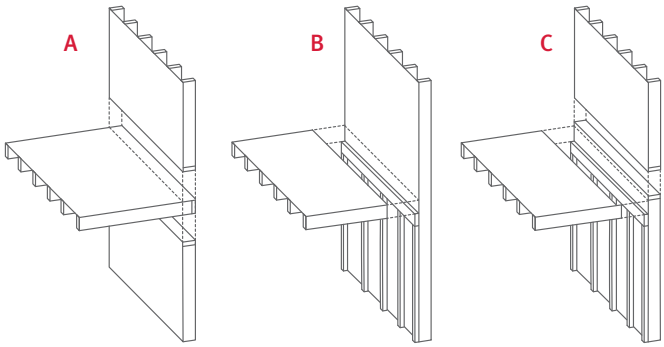
Timber frame construction is primarily economical when design and construction are set on a construction grid that is optimised for timber construction early on in the planning stage. Usual and economical construction grids in timber construction are **stud or beam spacings of 625 mm or 833 mm.** They are based on the usual formats of planking materials. The formats of many insulation materials are also set on this grid. Depending on the building task and the desired degree of prefabrication, three construction methods are defined in timber frame construction.

A In the case of the so-called platform framing, the walls are erected by storey, and the ceilings are placed on the walls by storey.

B In the case of balloon framing, the walls are erected on two or more storeys, and the ceilings are placed subsequently in between. In platform framing, large ceiling elements can also be prefabricated and placed on the lower walls on the construction site.

In contrast, the prefabrication possibilities for ceilings are very limited in the case of balloon framing, given that large-surface ceiling elements can only be placed between walls that cover several storeys.

C The so-called quasi-balloon framing has developed as a combination of construction methods. The outside walls are pushed at the height of the ceiling top. This represents an advantage during the execution of the air-tight level in the area of the wall-ceiling connection. Moreover, the size of the prefabricated wall elements can be reduced. If the building elements are largely prefabricated in the workshop, the construction time can be significantly reduced.



Structural engineering

The typical construction grids in timber construction are also decisive for structural engineering. The frame spacing of wall constructions or the beam and rafter spacing of ceilings and roofs have an impact on:

- The fastening of planking materials
- The horizontal loads for building reinforcement
- The transmission of vertical loads

For reasons of heat insulation, the studs of outside walls are now sized with cross-sections of 60/240 mm², large enough to safely take over vertical loads as well.

For the support of large vertical loads, it is also possible to build in additional timber studs, or even integrated steel parts in the wall cross-section.

For economical timber construction solutions, it is recommended to place load-bearing elements storey by storey on top of each other. As such, vertical and horizontal loads are led into the foundation on short paths. Complicated paths of load distribution are often linked with higher material and calculation efforts.

Wood and humidity protection

The basic principle when building with wood and wood-based materials is to permanently protect the construction from humidity and keep it dry. To this end, permanent protection from outside humidity due to rain and snow or from diffusion and convection processes is necessary. Timber frame construction has various possibilities to create permanent weather protection. Ventilated façades or exterior insulation finishing systems could be used to protect load-bearing structures from precipitations or splash water. A basic measure of weather protection may also include the execution of sufficiently large roof overhangs.

An airtight building envelope and structure that are as vapour-permeable as possible are decisive for strong constructions that pose no humidity problems.

OSB boards can be used to obtain the airtight level. The panel joints and the connections with neighbouring components must be glued with adequate adhesive tape. In the case of very high demands for the airtightness of the building envelope, e.g. passive houses, we recommend the use of OSB 4 TOP boards with proven high airtightness. The airtight version of the building envelope should be verified with the blower door test, in as far as possible during the construction process. This prevents humid ambient air from being transported through convection into the component cross-section. This humid ambient air may lead to unacceptable humidity collection in the structure and the building materials.

Permeable places in the structure can of course never be fully avoided. The largely vapour-permeable timber frame construction allows subsequent drying, in case humidity has reached the structure despite the care applied.

Air tightness
The airtight level of a component does not allow the ambient air, driven by pressure differences, to flow from the inside to the outside via the component cross-section. This so-called convection leads to heat losses, and, in a significantly worse situation, to condensation water in the component cross-section.

Heat insulation

Structural requirements are fulfilled in timber frame construction through the individual functional layers (façades, planking, support and insulation level). In addition to the other tasks included in the structural engineering or fire protection, every layer also fulfils a heat insulation function. In particular, in the case of planking materials it comes down to the correct selection and assignment according to their structural properties.

Good heat insulation is already achieved in timber frame construction with the base construction and the use of wood in combination with insulation between the timber studs.

Additional optimisation of heat insulation can be obtained with an additional insulation on the outside or the inside of the load-bearing timber frame construction. For example, exterior insulation finishing systems or insulated installation systems. In this way, constructions can fulfil without problems the highest energy requirements, such as the passive house standard. This Construction Catalogue is specified as a key indicator for the heat transfer coefficients (U-value) of components. The U-value varies depending on installed thickness and quality of heat insulation.

→ **U-value**
The U-value is the key value for assessing and describing the heat insulation of a component. It is defined as the heat flow [W] arising through a 1 m² component area at a temperature difference of 1 K (Kelvin) between the outside and the inside. The lower the U-value, the better the heat insulation.

In today's usual vapour-permeable timber frame construction, the interior planking also regularly takes over, in addition to the reinforcing function, the function of the vapour barrier and at the same time, of the airtight level. All three functions can primarily be realised in the case of high or very high requirements with OSB 4 TOP. An OSB board is sufficient as vapour barrier on the wall interior if the outside planking is obtained with very vapour-permeable materials, such as DHF boards.
The diffusion flow, which generally occurs in Central Europe during the winter season between the inside and the outside air, is reduced by the OSB board to the extent to which no condensation water occurs on the vapour-permeable outside planking.

The outside planking with wood-based materials, which can also take over load-bearing functions, also constitute the windtightness. Tight panel joints with tongue and groove connection are sufficient for this purpose.

→ **Windtightness**
The windtight level is on the outside of the insulation level. It is intended to prevent insulation materials or components from being penetrated by cold outside air, which negatively affects the heat insulation of the structure.

Sound insulation

Given the multi-layered constructions, very good sound insulation properties can be obtained despite the lightweight timber frame construction. They protect from outside noise and diminish both airborne sound transmission and impact sound transmission inside the building.

In addition to the sound insulation properties of the component, the following principles are key for good sound insulation:

- Avoidance of sound transmission via sound bridges
- Reduction of sound transmission via flanking components
- Avoidance of improperly closed connection joints

For the reduction of the impact sound level of ceilings in multi-storey residential construction, various measures can be taken, such as integrating suspended ceilings, a weighting of the bare ceiling, or a combination of these. Characteristic levels of the sound insulation of components are included in this Construction Catalogue in the form of data regarding the rated airborne sound reduction $R'_{w,R}$ and rated standard impact sound level $L'_{n,w}$.

Airborne sound insulation
The rated airborne sound insulation [R_w in dB] describes the quality of the sound insulation of a component exposed to airborne sound. In the case of an external component, the street noise is reduced by the component to the point to which it is not longer perceived as disturbing inside the building.

Impact sound level
Unlike the airborne sound insulation of a component, which is described with an insulation value, the quality of the impact sound insulation of ceilings is defined by the standard impact sound level [$L_{n,w}$ in dB]. It describes how high the sound level is in the room below the ceiling for a defined impact sound event above the ceiling.

Fire protection

Fire protection planning differentiates between the **fire behaviour of building materials** and the **duration of fire resistance of components**. Wood or wood-based materials are generally flammable materials. However, this does not mean that they cannot be used to realise constructions with high degrees of fire resistance. When needed, wooden components can be combined with non-flammable materials. This principle is also applied in timber frame construction. If the load-bearing structure made of wood and wood-based materials is not sufficient for the fire protection requirement, additional cladding made of plasterboards may be used. These increase the duration of fire resistance further. Moreover, non-flammable insulation materials in the compartments between the timbers may prevent fire and heat transmission through the constructions. As a rule, it is also possible to size constructions made of wood or wood-based materials via charring rates in case of fire or the required fire resistance time.

These measures make it possible to obtain timber frame constructions that resist fire durations of 90 minutes (REI 90, F90-B) and longer. No limitation in the use of timber constructions follows from their duration of fire resistance.

However, there are certain limitations in Germany regarding the use of flammable materials in load-bearing and space-enclosing constructions for certain building classes (e.g., building class 5 ⇢ building height › 13 m; special structures). Nevertheless, timber constructions are admissible in many German Federal regions up until building class 4.

Other European countries, such as Switzerland and Austria, are more liberal when it comes to the use of flammable materials in relation to the introduction of the European classification system for components (REI 30, etc.).

2

2 Dry screed systems

Dry screed systems with EGGER OSB have numerous advantages:

- They are suitable for all substrates, such as solid ceilings, old wooden floors or timber beams
- They represent a dry construction system and prevent the entry of additional building moisture
- They improve sound and heat insulation
- An impact sound improvement of 9 to 25 dB may be achieved
- The dry screed can be accessed immediately and there is no waiting time due to drying intervals
- No special tools are needed for processing
- OSB is an environmentally-friendly and inexpensive building material

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→ **Spacing**

As a rule, beam layers are planned with a spacing a = 625 mm. However, within renovation of buildings there are various spacings, that may even vary inside one room. Given that floating joints parallel to the joist frame are not permitted, standard OSB boards with tongue and groove profile (l = 2,050 to 2,500 mm) may lead to undesirable cut-out quantities.

It is recommended to use, as load-bearing planking on the beam layer, extra-long OSB 4 TOP boards with 2-sided tongue and groove profile in the format

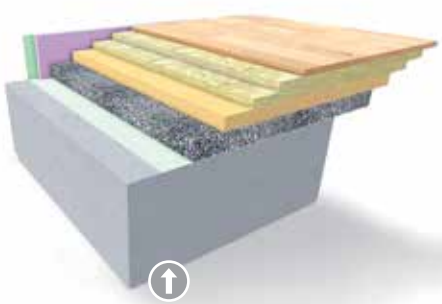
- 6,250 × 675 × 22 mm
- 3,000 × 905 × 30 mm

This bridges more than 5 fields and the necessary cutting back to the supporting beams is significantly lower, making the time between installation and cutting shorter. In the case of a board thickness of 22 mm, the board, with a weight of approx. 50 kg, can also be handled without special lifting equipment.

2.1 Floating dry screeds on timber beam floors

	Installation (from the bottom up)	Dry screed with wood-based materials and mineral wool impact sound insulation	Dry screed with loading for elevated impact sound	Cement screed on impact sound insulation	Asphalt screed on impact sound insulation
	Height dry screed	40 mm	53 mm	78 mm	50 mm
	Surface weight dry screed	approx. 20 kg/m²	approx. 45 – 120 kg/m²	approx. 55 kg/m²	approx. 55 kg/m²
A	**Bare ceiling, load-bearing planking EGGER OSB**	**according to statics**	**according to statics**	**according to statics**	**according to statics**
B	Drip protection	–	if needed	–	–
C	Edge insulation strips to the upper edge of the finished flooring	10 up to 15 mm	10 up to 15 mm	10 up to 15 mm	10 up to 15 mm
D	Mineral fibre impact sound insulation SD50/CS2 (DES sg)	22/20 mm	–	28/25 mm	–
	Loading, e.g. from concrete slabs, glued (3 × 30 × 30 cm) or inserted into the quartz sand (5 mm)	–	35 mm	–	–
	Coir insulation board	–	–	–	25 mm
E	Moisture barrier	–	–	yes	–
	Cover	–	–	–	yes
F	Cement screed	–	–	50 mm	–
	Asphalt screed	–	–	–	25 mm
G	**EGGER OSB Tongue and groove profile**	**≥ 18 mm**	**≥ 18 mm**	**–**	**–**
H	Flooring (except ceramics)	according to preference	according to preference	according to preference	according to preference
	Degree of impact sound improvement $\Delta L_{w,R}$	9 – 12 dB	by surface weight of concrete stones 25 kg/m² – 17 dB 50 kg/m² – 22 dB 75 kg/m² – 26 dB 100 kg/m² – 31 dB	16 dB Informationsdienst Holz, Volume 3, Issue 3, May 1999	15 dB Informationsdienst Holz, Volume 3, Issue 3, May 1999

2.2 Floating dry screeds on concrete floors



	Installation (from the bottom up)	Concrete ceiling – improved sound protection and heat insulation	Concrete ceiling – improved sound protection and heat insulation with wood fibre insulation	Height equalisation of an old concrete ceiling with loose filling	Utility flooring, visible, for high point loads e.g. in commercial facilities
	Height dry screed	40 mm	84 mm	80 mm	92 mm
	Surface weight dry screed	approx. 10 kg/m²	approx. 25 kg/m²	approx. 65 kg/m²	approx. 73 kg/m²
A	Bare ceiling	according to statics	according to statics	according to statics	according to statics
B	Moisture barrier (lead up on the wall, overlap 30 cm)	0.2 mm	0.2 mm	0.2 mm	0.2 mm
C	Edge insulation strips to the upper edge of the finished flooring	10 mm	10 mm	10 mm	10 mm
D	Loose filling e.g., expanded shale m › 45 kg/m²	–	–	30 up to 40 mm	30 up to 40 mm
D	Wood fibre impact sound insulation or mineral fibre impact sound insulation SD50/CP2 (DES sg), s'‹ 10 MN/m³	22/20 mm	–	22/20 mm	22/20 mm
D	Pavalit loose filling	–	40 mm	–	–
D	PAVAPOR (laid with sealed joints)	–	22 mm	–	–
E	**EGGER OSB Tongue and groove profile**	**18 mm**	**22 mm**	**18 mm**	**15 mm**
F	**EGGER OSB Tongue and groove profile** (second layer laid at right angle to each other; glue the surfaces of the boards to each other with PVAc (D3 application with notched trowel) and screw; fill joints and screw holes, sand upper side; then finish for use, use grooved nails or screws with continuous thread)	**–**	**–**	**–**	**15 mm**
G	Flooring (except ceramics)	according to preference	according to preference	according to preference	according to preference
	Degree of impact sound improvement $\Delta L_{n,w}$	25 dB DIN 4109, Supplement 1, Table 17	22 dB Test report of Pavatex GmbH	approx. 24 dB DIN 4109, Supplement 1, Table 17	–

3 Classified fire protection constructions

3.1 Walls

3.1.1 Load-bearing, space-enclosing exterior walls without service duct
3.1.1.1 Ventilated façades
3.1.1.2 Exterior Insulation Finishing Systems (EIFS)
3.1.1.3 Masonry facings
3.1.2 Load-bearing, space-enclosing exterior walls with service duct
3.1.2.1 Ventilated façades
3.1.2.2 Passive house
3.1.3 Load-bearing, space-enclosing interior walls
3.1.3.1 Partition walls with one- or two-layer cladding
3.1.3.2 Partition walls with decoupled stud frame
3.1.4 Space-enclosing building end walls and partition walls
3.1.4.1 Building end walls
3.1.4.2 Building partition walls
3.1.5 Load-bearing, non space-enclosing walls
3.1.6 Non load-bearing, interior partition walls
3.1.6.1 Non load-bearing, interior partition walls with EGGER Ergo Board
3.1.6.2 Non load-bearing, interior partition walls without fire protection requirements

3.2 Ceilings

3.2.1 Timber beam floors with timber joists with underside clad
3.2.1.1 Timber beam floors closed with dry screed
3.2.1.2 Timber beam floors closed with dry screed and ballasting
3.2.1.3 Timber beam floors closed with mastic asphalt / cement screed
3.2.1.4 Decoupled timber beam floors
3.2.2 Exposed timber beam floors in timber construction
3.2.2.1 Exposed beam floors with dry screed
3.2.2.2 Exposed beam floors with dry screed and ballasting

3.3 Roofs

3.3.1 Roofs with full insulation
3.3.2 Roofs with over rafter insulation
3.3.3 Flat roof structures

3.1 Walls

The following applies to all wall installations with EGGER building materials:

- The constructions must be executed at the grid of the timber structure of a = 625 mm.
  For grid spacings a ≤ 625 mm, the data regarding fire protection apply without limitation.
  Data regarding heat insulation and sound protection may need to be verified again where applicable.

- For constructions classified according to EN 13501-2, the following applies:
  Plasterboard 600 kg/m³
  Gypsum fire board 800 kg/m³
  Gypsum fibreboard 1,000 kg/m³

- For cases in which the proof was obtained in cold state according to the new design standards applicable to building materials, alternative proof is needed. According to DIN 4102-4, the following dimensions apply:
  F30-B: Existing tension in the wooden ribs $\delta_D \leq 2.5$ N/mm²
  F60-B: Existing tension in the wooden ribs $\delta_D \leq 1.25$ N/mm²

- The wall elements have a width of › 1.0 m.

- Components classified according to DIN 4102-4 regarding fire behaviour, the insulation used must be a mineral wool, and, according to DIN EN 13162 building material class A, it must have a melting point of T › 1,000 °C and a raw density of at least 30 kg/m³.

- Component U-values were calculated without taking into account the ventilated façade. They may vary depending on the insulation material.

- Instead of the ventilated façade in 3.1.1 and 3.1.3, an approved exterior insulation finishing system may be used, where needed. In that case, it must be verified whether a stronger vapour barrier is needed.

Fits perfectly – floor-to-ceiling formats save time and money.

3.1.1.1 Ventilated façades

	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2					
		REI 30	REI 30	REI 30	REI 45	REI 45	REI 90
A	Gypsum fire board or gypsum fibre board	–	–	–	–	12.5 mm	12.5 mm
B	Plasterboard not effective in fire protection	9.5 mm	–	9.5 mm	–	–	–
	Gypsum fire board	–	12.5 mm	–	–	–	–
	Gypsum fire board or gypsum fibre board	–	–	–	12.5 mm	12.5 mm	12.5 mm
C	**EGGER OSB**	**15 mm**	**9 mm**	**15 mm**	**15 mm**	**15 mm**	**15 mm**
D	Vapour barrier s_d	–	–	2.0 m	–	–	–
E	Cellulose injected insulation Isocell 65 kg/m³	160 mm	160 mm	–	–	–	–
	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or Wood fibre insulation board 45 kg/m³	–	–	160 mm	160 mm	160 mm	160 mm
	Rock wool 30 kg/m³	–	–	–	–	–	–
F	**Stud**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**
G	**EGGER DHF**	**15 mm**	**15 mm**	**–**	**15 mm**	**15 mm**	**15 mm**
	EGGER OSB	**–**	**–**	**15 mm**	**–**	**–**	**–**
H	Ventilated façade	yes	yes	yes	yes	**vertical battens 50 × 30 mm / horizontal battens 20 × 40 mm**	yes
	Fire classification report	Fire exposure interior: Classification report HF Austria A1972/2009/17 Fire exposure exterior: Classification report K-3649/428/08-MBA BS	Fire exposure interior: Classification report HF Austria A1972/2009/21 Fire exposure exterior: Classification report K-3649/428/08-MBA BS	Classification report HF Austria A1972/2009/20	Classification report HF Austria A1972/2009/18	Fire exposure exterior: Classification report HF Austria A1972/2009/15	Fire exposure exterior: Classification report HF Austria A1972/2009/14
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 37, Row 4	42 dB	42 dB	42 dB	42 dB	42 dB	42 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation

TCG = Thermal conductivity group.
Please observe the general instructions on page 18.

	Installation of the wall construction (from inside outwards)	Fire resistance according to DIN 4102-4				
		F30-B	F30-B	F30-B	F30-B	F30-B
A	Gypsum fire board or gypsum fibre board	–	–	–	–	–
B	Plasterboard not effective in fire protection	9.5 mm	9.5 mm	9.5 mm	9.5 mm	–
	Gypsum fire board	–	–	–	–	–
	Gypsum fire board or gypsum fibre board	–	–	–	–	9.5 mm
C	**EGGER OSB**	**15 mm**	**15 mm**	**15 mm**	**15 mm**	**10 mm**
D	Vapour barrier s_d	–		–	2.0 m	–
E	Cellulose injected insulation Isocell 65 kg/m³	–	160 mm	–	160 mm	–
	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or Wood fibre insulation board 45 kg/m³	–	–	–	–	–
	Rock wool 30 kg/m³	80 mm	–	80 mm	–	80 mm
F	**Stud**	**40 × 80 mm**	**60 × 160 mm**	**40 × 80 mm**	**60 × 160 mm**	**40 × 80 mm**
G	**EGGER DHF**	**15 mm**	**15 mm**	**–**	**–**	**15 mm**
	EGGER OSB	**–**	**–**	**15 mm**	**15 mm**	**–**
H	Ventilated façade	yes	yes	yes	yes	yes
	Fire classification report	DIN 4102 Table 51 Row 1	abP 3144/4494-MPA BS	DIN 4102-4, Table 51, Row 1	abP 3144/4494-MPA BS	DIN 4102 Table 52 Row 17
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 37, Row 4	42 dB	42 dB	42 dB	42 dB	42 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation

3.1.1.2 Exterior insulation finishing system (EIFS)

	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2 REI 30	Fire resistance according to EN 13501-2 REI 60	Fire resistance according to DIN 4102-4 F30-B
A	Plasterboard not effective in fire protection	9.5 mm	–	9.5 mm
	Gypsum fire board or gypsum fibre board	–	12.5 mm	–
B	**EGGER OSB**	**15 mm**	**15 mm**	**15 mm**
C	Vapour barrier s_d	2.0 m	–	2.0 m
D	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or Wood fibre insulation board 45 kg/m³	160 mm	160 mm	–
	Rock wool 30 kg/m³	–	–	80 mm
E	**Stud**	**60 × 160 mm**	**60 × 160 mm**	**40 × 80 mm**
F	**EGGER DHF**	**15 mm**	**–**	**15 mm**
	Wood fibre insulation board 45 kg/m³	–	80 mm	–
G	Exterior insulation finishing system with General Building Permit STO Therm Classic TCG 040	80 mm	–	80 mm
	Mineral plaster	–	15 mm	–
	Fire classification report	Fire exposure interior: Classification report HF Austria A1972/2009/17	Fire exposure interior: Classification report HF Austria A1972/2009/16	DIN 4102, Table 51, Row 1
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 4	38 dB	–	38 dB
	Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 37, Row 5	–	48 dB	–
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 240/280/300 mm 0.18/0.16/0.15 Case A – free of condensation	Heat insulation TCG 040 240/280/300 mm 0.18/0.16/0.15 Case A – free of condensation	Heat insulation TCG 040 240/280/300 mm 0.18/0.16/0.15 Case A – free of condensation

TCG = Thermal conductivity group.
Please observe the general instructions on page 18.

3.1.1.3 Masonry facings

	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2 REI 60	Fire resistance according to DIN 4102-4 F60-B
A	Gypsum fire board	12.5 mm	12.5 mm
B	**EGGER OSB**	**22 mm**	**22 mm**
C	Rock wool 30 kg/m³	160 mm	–
	Rock wool 100 kg/m³	–	80 mm
D	**Stud**	**60 × 160 mm**	**40 × 80 mm**
E	**EGGER DHF**	**15 mm**	**15 mm**
F	Masonry facing DIN 1053 with water-draining layer $s_d \leq 0.3$ m in front of layer E	yes	yes
	Fire classification report	Fire exposure interior: Classification report HF Austria A1972/2009/2	DIN 4102-4, Table 53, Row 1
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 3, Row 7	52 dB	52 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 160/200/240 mm 0.26/0.21/0.18 free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.21/0.18 free of condensation

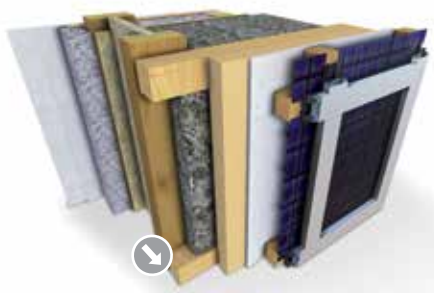
3.1.2.1 Ventilated façades

	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2						
		REI 30	REI 30	REI 30	REI 30	REI 45	REI 45	REI 90
A	Gypsum fire board or gypsum fibre board	–	–	–	–	–	12.5 mm	12.5 mm
B	Plasterboard not effective in fire protection	9.5 mm	9.5 mm	9.5 mm	9.5 mm	–	–	–
	Gypsum fire board or gypsum fibre board	–	–	–	–	12.5 mm	12.5 mm	12.5 mm
C	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or Wood fibre insulation board 45 kg/m³ not effective in fire protection	50 mm	50 mm	–	–	–	–	–
	Rock wool 30 kg/m³	–	–	–	–	50 mm	50 mm	50 mm
	Static air layer	–	–	50 mm	50 mm	–	–	–
D	**EGGER OSB**	**15 mm**	**15 mm**	**15 mm**	**15 mm**	**15 mm**	**15 mm**	**15 mm**
E	Vapour barrier s_d	2.0 m	–	2.0 m	–	–	–	–
F	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or Wood fibre insulation board 45 kg/m³	160 mm	160 mm	160 mm	160 mm	160 mm	160 mm	160 mm
	Rock wool 30 kg/m³	–	–	–	–	–	–	–
	Cellulose injected insulation Isocell 65 kg/m³	–	–	–	–	–	–	–
G	**Stud**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**
H	**EGGER OSB**	**15 mm**	**–**	**15 mm**	**–**	**–**	**–**	**–**
	EGGER DHF	**–**	**15 mm**	**–**	**15 mm**	**15 mm**	**15 mm**	**15 mm**
I	Ventilated façade	yes	yes	yes	yes	yes	**vertical battens 50 × 30 mm / horizontal battens 20 × 40 mm**	yes
	Fire classification report	Classification report HF Austria A1972/ 2009/20	Classification report HF Austria A1972/ 2009/20	Classification report HF Austria A1972/ 2009/20	Classification report HF Austria A1972/ 2009/20	Classification report HF Austria A1972/ 2009/18	Fire exposure exterior: Classification report HF Austria A1972/ 2009/15	Fire exposure interior: Classification report HF Austria A1972/ 2009/14
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 37, Row 4	42 dB	42 dB	42 dB	42 dB	42 dB	42 dB	42 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 160/200/ 240 mm	Heat insulation TCG 040 160/200/ 240 mm	Heat insulation TCG 040 160/200/ 240 mm	Heat insulation TCG 040 160/200/ 240 mm	Heat insulation TCG 040 160/200/ 240 mm	Heat insulation TCG 040 160/200/ 240 mm	Heat insulation TCG 040 160/200/ 240 mm

TCG = Thermal conductivity group.
Please observe the general instructions on page 18.

	Installation of the wall construction (from inside outwards)	Fire resistance according to DIN 4102-4			
		F30-B	F30-B	F30-B	F30-B
A	Gypsum fire board or gypsum fibre board	–	–	–	–
B	Plasterboard not effective in fire protection	9.5 mm	9.5 mm	9.5 mm	9.5 mm
	Gypsum fire board or gypsum fibre board	–	–	–	–
C	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or Wood fibre insulation board 45 kg/m³ not effective in fire protection	50 mm	50 mm	–	–
	Rock wool 30 kg/m³	–	–	–	–
	Static air layer	–	–	50 mm	50 mm
D	**EGGER OSB**	**15 mm**	**15 mm**	**15 mm**	**15 mm**
E	Vapour barrier s_d	–	–	–	–
F	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or Wood fibre insulation board 45 kg/m³	–	–	–	–
	Rock wool 30 kg/m³	80 mm	–	80 mm	–
	Cellulose injected insulation Isocell 65 kg/m³	–	160 mm	–	160 mm
G	**Stud**	**40 × 80 mm**	**60 × 160 mm**	**40 × 80 mm**	**60 × 160 mm**
H	**EGGER OSB**	**–**	**–**	**–**	**–**
	EGGER DHF	**15 mm**	**15 mm**	**15 mm**	**15 mm**
I	Ventilated façade	yes	yes	yes	yes
	Fire classification report	DIN 4102-4, Table 51, Row 1	abP 3144/4494-MPA BS	DIN 4102-4, Table 51, Row 1	abP 3144/4494-MPA BS
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 37, Row 4	42 dB	42 dB	42 dB	42 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation	Heat insulation TCG 040 160/200/240 mm 0.26/0.22/0.18 Case A – free of condensation

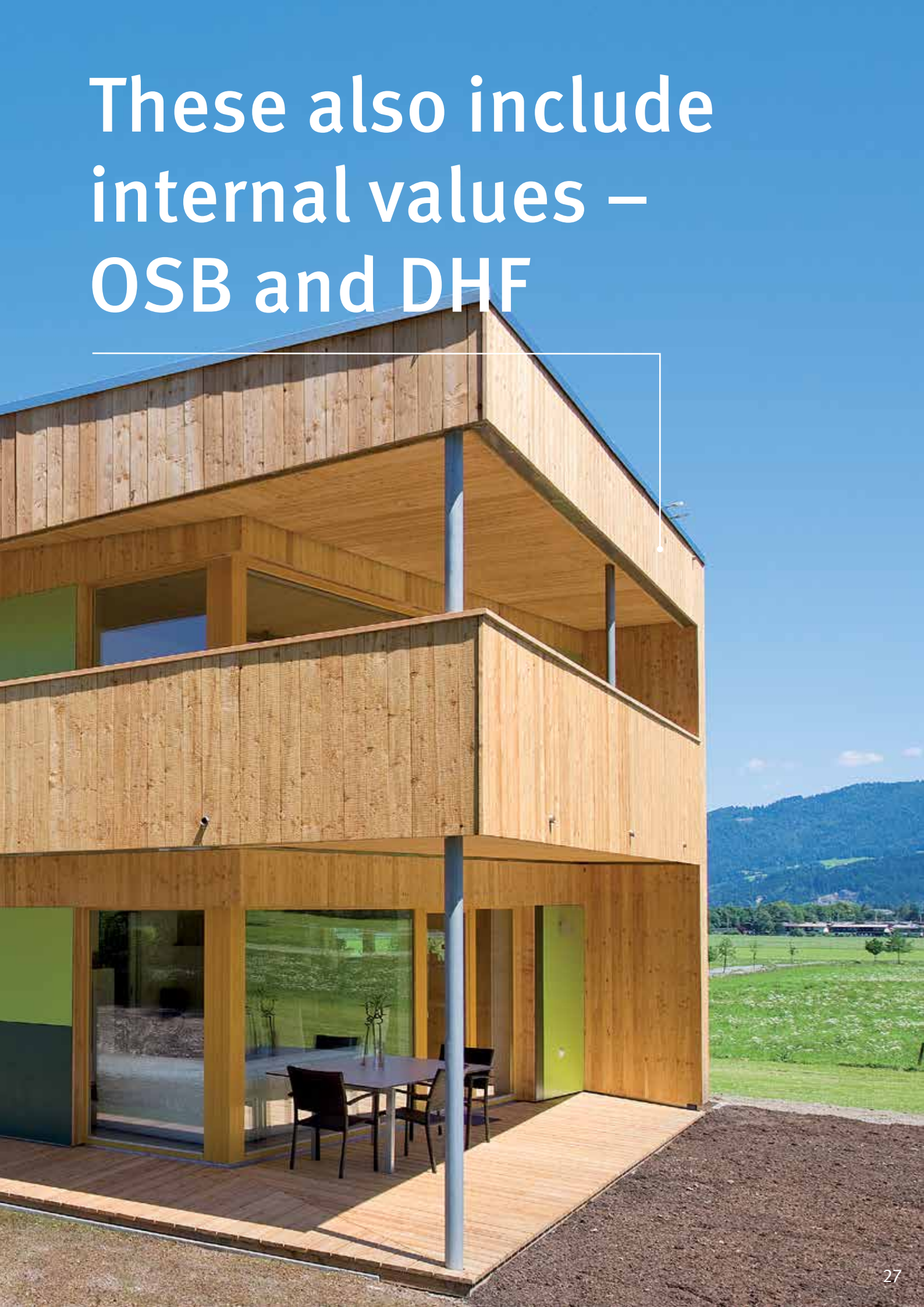
3.1.2.2 Passive house



	Installation of the wall construction (from inside outwards)	Fire resistance according to DIN 4102-4					
		Solar wall passive house F90-B	Solar wall passive house F120-B	Solar wall passive house F120-B	Exterior wall passive house F90-B	Exterior wall passive house F120-B	Exterior wall passive house F120-B
A	Gypsum fibre board	12.5 mm	–	–	12.5 mm	–	–
	Promatect-H	–	10 mm	10 mm	–	10 mm	10 mm
B	Gypsum fibre board	12.5 mm	–	–	12.5 mm	–	–
	Promatect-H	–	10 mm	10 mm	–	10 mm	10 mm
C	**Horizontal battens** a = 625 mm	**30 × 50 mm**	**30 × 50 mm**	**30 × 50 mm**	**30 × 50 mm**	**30 × 50 mm**	**30 × 50 mm**
D	Cellulose injected insulation Isofloc L	106 mm	106 mm	106 mm	106 mm	106 mm	106 mm
E	Vertical intermediate support a = 625 mm (with 22 mm wood fibre decoupled to the lathwork of the inner shell)	54 × 54 mm	54 × 54 mm	54 × 54 mm	54 × 54 mm	54 × 54 mm	54 × 54 mm
F	**EGGER OSB 4 TOP** (connected inside to the double T carrier belt)	**15 mm**	**15 mm**	**15 mm**	**15 mm**	**15 mm**	**15 mm**
G	Cellulose injected insulation Isofloc L	296 mm	296 mm	296 mm	296 mm	296 mm	296 mm
H	Double T carrier H30N or similar a = 1,250 mm	98 × 305 mm	98 × 305 mm	98 × 305 mm	98 × 305 mm	98 × 305 mm	98 × 305 mm
I	**Horizontal battens** a = 625 mm	**60 × 60 mm**	**60 × 60 mm**	**60 × 60 mm**	**60 × 60 mm**	**60 × 60 mm**	**60 × 60 mm**
J	Gutex Thermowall base board	60 mm	40 mm	–	60 mm	40 mm	–
	Wood wool lightweight board Heraklith BM	–	–	35 mm	–	–	35 mm
K	Gypsum fibre board or Bayosan MC 55 W reinforcing compound	› 8 mm	–	–	› 8 mm	–	–
	Promatect-H	–	10 mm	10 mm	–	10 mm	10 mm
L	Solar absorber Werthie Variosol	yes	yes	yes	–	–	–
	Toughened safety solar glass	4 mm	4 mm	4 mm	–	–	–
	Glazing system Gutmann	F50	F50	F50	–	–	–
	Fire classification report	abP P.SAC 02 / III-531	abP P.SAC 02 / III-531	abP P.SAC 02 / III-531	abP P.SAC 02 / III-531	abP P.SAC 02 / III-531	abP P.SAC 02 / III-531
	Sound protection Airborne sound R'_w DIN 4109 PB V700-640 MFPA Engineering office Naumann & Stahr	60 dB	60 dB	60 dB	60 dB	60 dB	60 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	0.12	0.12	0.12	0.12	0.12	0.12

Please observe the general instructions on page 18.

These also include internal values – OSB and DHF



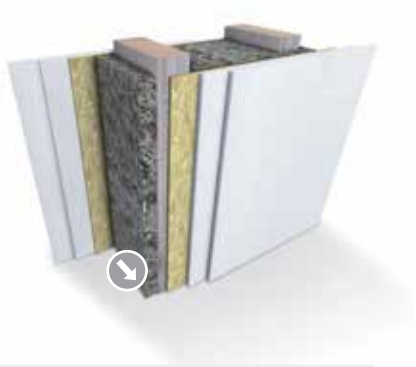
3.1.3.1 Partition walls with one- or two-layer cladding

	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2			
		REI 30	REI 30	REI 45	REI 60
A	Plasterboard not effective in fire protection	9.5 mm	–	–	–
	Gypsum fire board or gypsum fibre board	–	12.5 mm	12.5 mm	15 mm
	Plasterboard	–	–	–	–
	Gypsum fire board	–	–	–	–
B	Vapour barrier s_d	approx. 20 m	approx. 20 m	approx. 20 m	approx. 20 m
C	**EGGER OSB**	**15 mm**	**9 mm**	**9 mm**	**15 mm**
D	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ Wood fibre insulation board 16 kg/m³ Hemp 30 kg/m³ or Sheep wool 16 kg/m³	160 mm	100 mm	100 mm	160 mm
	Cellulose injected insulation Isocell 65 kg/m³	–	–	–	–
	Rock wool 30 kg/m³	–	–	–	–
	Rock wool 50 kg/m³	–	–	–	–
E	**Stud**	**60 × 160 mm**	**60 × 100 mm**	**60 × 100 mm**	**60 × 160 mm**
F	**EGGER OSB**	**15 mm**	**9 mm**	**9 mm**	**15 mm**
G	Plasterboard not effective in fire protection	9.5 mm	–	–	–
	Gypsum fire board or gypsum fibre board	–	12.5 mm	12.5 mm	15 mm
	Plasterboard	–	–	–	–
	Gypsum fire board	–	–	–	–
	Fire classification report	Classification report HF Austria A1972/2009/20	Classification report HF Austria A1972/2009/21	Classification report HF Austria A1972/2009/22	Classification report HF Austria A1972/2009/23
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 2	46 dB	46 dB	46 dB	46 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation

TCG = Thermal conductivity group.
Please observe the general instructions on page 18.

	Installation of the wall construction (from inside outwards)	Fire resistance according to DIN 4102-4			
		F30-B	F30-B	F60-B	F60-B
A	Plasterboard not effective in fire protection	9.5 mm	9.5 mm	–	–
	Gypsum fire board or gypsum fibre board	–	–	–	–
	Plasterboard	–	–	18 mm	–
	Gypsum fire board	–	–	–	12.5 mm
B	Vapour barrier s_d	approx. 20 m	approx. 20 m	approx. 20 m	approx. 20 m
C	**EGGER OSB**	**15 mm**	**15 mm**	**18 mm**	**15 mm**
D	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ Wood fibre insulation board 16 kg/m³ Hemp 30 kg/m³ or Sheep wool 16 kg/m³	–	–	–	–
	Cellulose injected insulation Isocell 65 kg/m³	160 mm	–	–	–
	Rock wool 30 kg/m³	–	80 mm	–	–
	Rock wool 50 kg/m³	–	–	60 mm	60 mm
E	**Stud**	**60 × 160 mm**	**40 × 80 mm**	**40 × 80 mm**	**40 × 80 mm**
F	**EGGER OSB**	**15 mm**	**15 mm**	**18 mm**	**15 mm**
G	Plasterboard not effective in fire protection	9.5 mm	9.5 mm	–	–
	Gypsum fire board or gypsum fibre board	–	–	–	–
	Plasterboard	–	–	18 mm	–
	Gypsum fire board	–	–	–	12.5 mm
	Fire classification report	abP P-3144/4494-MPA BS	DIN 4102-4, Table 51, Row 1	DIN 4102-4, Table 51, Row 7	DIN 4102-4, Table 51, Row 14
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 2	46 dB	46 dB	46 dB	46 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation	Heat insulation TCG 040 60/80/100/160 mm 0.52/0.46/0.40/0.26 Case A – free of condensation

3.1.3.2 Partition walls with decoupled stud frame

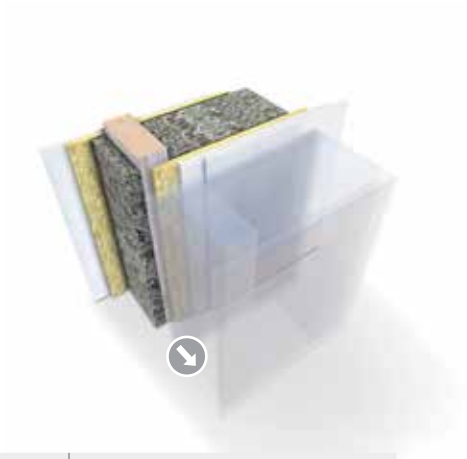


	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2					
		REI 60	REI 60	REI 90	REI 90	REI 90	REI 90
A	Gypsum fire board or gypsum fibre board	–	–	12.5 mm	–	12.5 mm	–
	Gypsum fire board	–	–	–	–	–	–
B	Gypsum fire board or gypsum fibre board	12.5 mm	12.5 mm	12.5 mm	25 mm	12.5 mm	25 mm
	Gypsum fire board	–	–	–	–	–	–
C	**EGGER OSB**	**15 mm**	**15 mm**	**9 mm**	**9 mm**	**9 mm**	**9 mm**
D	Rock wool 30 kg/m³	100 mm	120 mm	160 mm	160 mm	180 mm	180 mm
	Rock wool 50 kg/m³	–	–	–	–	–	–
	Rock wool 100 kg/m³	–	–	–	–	–	–
E	**Stud**	**60 × 100 mm**	**60 × 100 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**
F	**Staggered stud**	**–**	**60 × 100 mm**	**–**	**–**	**60 × 160 mm**	**60 × 160 mm**
G	**EGGER OSB**	**15 mm**	**15 mm**	**9 mm**	**9 mm**	**9 mm**	**9 mm**
H	Gypsum fire board or gypsum fibre board	12.5 mm	12.5 mm	12.5 mm	25 mm	12.5 mm	25 mm
	EGGER OSB	**–**	**–**	**–**	**–**	**–**	**–**
	Gypsum fire board	–	–	–	–	–	–
I	Gypsum fire board or gypsum fibre board	–	–	12.5 mm	–	12.5 mm	–
	Gypsum fire board	–	–	–	–	–	–
	Fire classification report	Classification report HF Austria A1972/2009/9	Classification report HF Austria A1972/2009/9	Classification report HF Austria A1972/2009/24	Classification report HF Austria A1972/2009/24	Classification report HF Austria A1972/2009/24	Classification report HF Austria A1972/2009/24
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 2	46 dB	49 dB	46 dB	46 dB	49 dB	49 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22

TCG = Thermal conductivity group.
Please observe the general instructions on page 18.

	Installation of the wall construction (from inside outwards)	Fire resistance according to DIN 4102-4	
		F90-B	F90-B
A	Gypsum fire board or gypsum fibre board	–	–
	Gypsum fire board	15 mm	–
B	Gypsum fire board or gypsum fibre board	–	–
	Gypsum fire board	12.5 mm	15 mm
C	**EGGER OSB**	**18 mm**	**22 mm**
D	Rock wool 30 kg/m³	–	–
	Rock wool 50 kg/m³	60 mm	–
	Rock wool 100 kg/m³	–	100 mm
E	**Stud**	**40 × 80 mm**	**40 × 80 mm**
F	**Staggered stud**	**–**	**40 × 80 mm**
G	**EGGER OSB**	**18 mm**	**22 mm**
H	Gypsum fire board or gypsum fibre board	–	–
	EGGER OSB	**18 mm**	**–**
	Gypsum fire board	–	15 mm
I	Gypsum fire board or gypsum fibre board	–	–
	Gypsum fire board	15 mm	–
	Fire classification report	DIN 4102-4, Table 51, Row 18	DIN 4102-4, Table 51, Row 19
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 2	46 dB	49 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22	Heat insulation TCG 040 100/160/180 mm 0.40/0.26/0.22

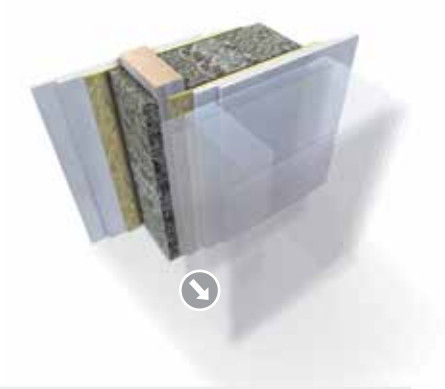
3.1.4.1 Building end walls



	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2 REI 30 + REI 90	Fire resistance according to EN 13501-2 REI 30 + REI 90	Fire resistance according to DIN 4102-4 F30-B + F90-B
A	Plasterboard not effective in fire protection	9.5 mm	–	9.5 mm
	Gypsum fire board or gypsum fibre board	–	12.5 mm	
B	**EGGER OSB**	**15 mm**	**9 mm**	**15 mm**
C	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ or wood fibre insulation board 45 kg/m³	160 mm	100 mm	–
	Rock wool 30 kg/m³	–	–	80 mm
D	**Stud**	**60 × 160 mm**	**60 × 100 mm**	**40 × 80 mm**
E	**EGGER OSB**	**15 mm**	**9 mm**	**15 mm**
F	Gypsum fire board or gypsum fibre board	12.5 mm	12.5 mm	–
	Gypsum fire board	–	–	18 mm
G	Gypsum fire board or gypsum fibre board	12.5 mm	12.5 mm	–
	Gypsum fire board	–	–	18 mm
	Fire classification report	Classification report HF Austria REI 30 A1972/2009/17 REI 90 A1972/2009/10	Classification report HF Austria REI 30 A1972/2009/21 REI 90 A1972/2009/10	DIN 4102-4, Table 54, Row 1
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 24, Row 9	57 dB	57 dB	57 dB
	Heat/moisture protection U-value* (W/m²K) EN ISO 6946	Heat insulation TCG 040 80/ 100/ 160/200 mm 0.44/0.40/0.26/0.22	Heat insulation TCG 040 80/ 100/ 160/200 mm 0.44/0.40/0.26/0.22	Heat insulation TCG 040 80/ 100/ 160/200 mm 0.44/0.40/0.26/0.22

*Component U-values were calculated for the respective single sided stud element.
TCG = Thermal conductivity group.
Please observe the general instructions on page 18.

3.1.4.2 Building partition walls



	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-2						
		REI 45	REI 60	REI 60	REI 90	REI 90	REI 90	REI 90
A	Gypsum fibre board	–	–	15 mm	–	–	–	–
A	Gypsum fire board or gypsum fibre board	–	–	–	12.5 mm	–	12.5 mm	–
B	Gypsum fire board or gypsum fibre board	12.5 mm	12.5 mm	–	12.5 mm	25 mm	12.5 mm	25 mm
C	**EGGER OSB**	**9 mm**	**15 mm**	**15 mm**	**9 mm**	**9 mm**	**15 mm**	**15 mm**
D	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ Wood fibre insulation board 16 kg/m³ Hemp 30 kg/m³ or Sheep wool 16 kg/m³	100 mm	160 mm	160 mm	–	–	100 mm	100 mm
	Rock wool 30 kg/m³	–	–	–	160 mm	160 mm	–	–
E	**Stud**	**60 × 100 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 160 mm**	**60 × 100 mm**	**60 × 100 mm**
F	**EGGER OSB**	**9 mm**	**15 mm**	**15 mm**	**9 mm**	**9 mm**	**15 mm**	**15 mm**
G	Gypsum fire board or gypsum fibre board	12.5 mm	12.5 mm	15 mm	12.5 mm	25 mm	12.5 mm	25 mm
H	Gypsum fire board or gypsum fibre board	–	–	–	12.5 mm	–	12.5 mm	–
	Fire classification report	Classification report HF Austria A1972/ 2009/22	Classification report HF Austria A1972/ 2009/16	Classification report HF Austria A1972/ 2009/23	Classification report HF Austria A1972/ 2009/24	Classification report HF Austria A1972/ 2009/24	Classification report HF Austria A1972/ 2009/10	Classification report HF Austria A1972/ 2009/10
	Sound insulation Airborne sound R_w(C,Ctr) DIN 4109 www.dataholz.com Partition wall twrxxo03a	57 dB (-3,-11)	57 dB (-3,-11)	57 dB (-3,-11)	–	–	–	–
	Airborne sound R_w(C,Ctr) DIN 4109 www.dataholz.com Partition wall twrxxo03b	–	–	–	59 dB (-2,-10)	59 dB (-2,-10)	59 dB (-2,-10)	59 dB (-2,-10)
	Heat/moisture protection U-value (W/m²K) EN ISO 6946 (cavity wall)	0.2	0.18	0.18	0.18	0.18	0.17	0.17

Note: 20 mm mineral wool partition boards must be inserted between the building partition walls.

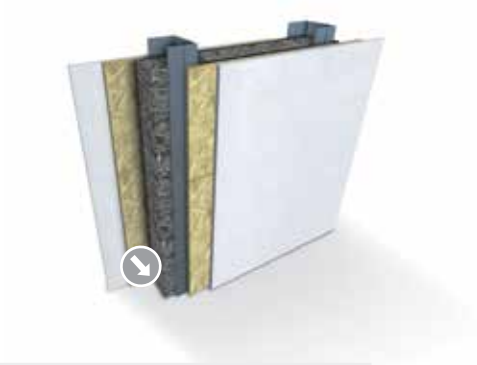
3.1.5 Load-bearing, non space-enclosing walls

	Installation of the wall construction (from inside outwards)	Fire resistance according to DIN 4102-4	
		F30-B	F60-B
A	Plasterboard	9.5 mm	–
	Gypsum fire board	–	18 mm
B	**EGGER OSB**	**15 mm**	**22 mm**
C	Insulation material B2 not effective in fire protection	80 mm	80 mm
D	**Stud**	**40 × 80 mm**	**40 × 80 mm**
E	**EGGER OSB**	**15 mm**	**22 mm**
F	Plasterboard	9.5 mm	–
	Gypsum fire board	–	18 mm
	Fire classification report	DIN 4102-4, Table 50, Row 7	DIN 4102-4, Table 50, Row 9
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 2	46 dB	46 dB

Please observe the general instructions on page 18.

Man and board – with load-bearing function.

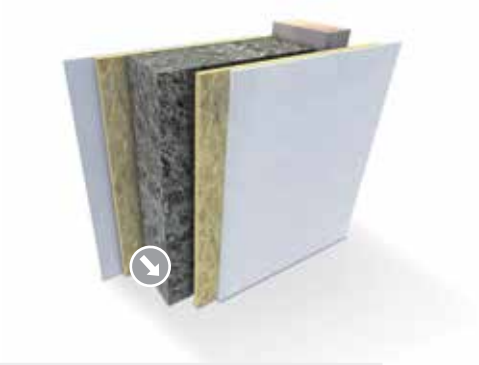
3.1.6.1 Non load-bearing, interior partition walls with EGGER Ergo Board



	Installation of the wall construction (from inside outwards)	Fire resistance according to EN 13501-1	
		EI 30	EI 60
A	Plasterboard	9.5 mm	–
	Gypsum fire board	–	15 mm
B	**EGGER Ergo Board**	**12 mm**	**12 mm**
C	Mineral wool 40 kg/m³	60 mm	100 mm
D	Metals studs CW a = 625 mm	75/70 mm	100/90 mm
E	**EGGER Ergo Board**	**12 mm**	**12 mm**
F	Plasterboard	9.5 mm	–
	Gypsum fire board	–	15 mm
	Fire classification report	KB 3.2/15-013-3	KB 3.2/15-013-4
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 3	45 dB	49 dB

Please observe the general instructions on page 18.

3.1.6.2 Non load-bearing, interior partition walls without fire protection requirements



	Installation of the wall construction (from inside outwards)	no fire protection requirements		
A	Plasterboard or gypsum fibre board	≥ 9.5 mm	≥ 9.5 mm	10 mm
	Plasterboard or gypsum fibre board	–	≥ 9.5 mm	–
B	**EGGER OSB**	**12 mm**	**12 mm**	**15 mm**
C	Insulation B2 / class E	100 mm	100 mm	–
	Homatherm flex	–	–	120 mm
D	**Stud**	**60 × 100 mm**	**60 × 100 mm**	**60 × 140 mm**
E	**EGGER OSB**	**12 mm**	**12 mm**	**15 mm**
F	Plasterboard or gypsum fibre board	≥ 9.5 mm	≥ 9.5 mm	10 mm
	Plasterboard or gypsum fibre board	–	≥ 9.5 mm	–
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 9, Row 1	38 dB	46 dB	–
	Airborne sound R_w DIN 4109 Test report Homatherm	–	–	50 dB

3.2 Ceilings

The following applies to all ceiling installations with EGGER building materials:

- The constructions must be executed at the grid of the timber structure of a = 625 mm. For grid spacings a ≤ 625 mm, the data regarding fire protection apply without limitation. Data regarding heat insulation and sound protection may need to be verified again where applicable.

- For constructions classified according to EN 13501-2, the following applies:
  Plasterboard 600 kg/m³
  Gypsum fire board 800 kg/m³
  Gypsum fibre board 1,000 kg/m³

- The materials selected by the manufacturer for this purpose must be used for the mineral impact sound insulation in floating dry screed (mineral fibre insulation materials according to EN 13162, wood fibre insulation materials according to EN 13171).

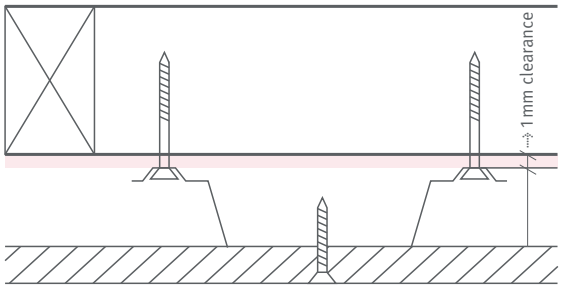
- Insulation materials for cavity damping should have a length-related flow resistance of r › 5 kN s/m⁴ (AFr5) and must be secured against falling out.

- The insulation materials used in components classified for fire protection according to DIN 4102-4 made of mineral wool must have a melting point of T ≥ 1,000 °C.

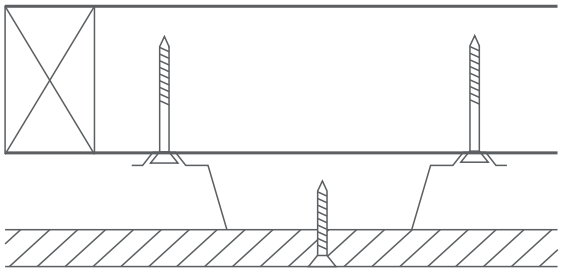
- Where applicable, a vapour barrier must be included in ceilings towards unheated roof spaces. The fire classification is not affected by this.

- Individual electrical lines may be led through the classified ceilings if the remaining hole cross-section is fully sealed with gypsum or similar.

- Wooden beam ceilings with lower-side cladding can have improved sound insulation with the use of spring clips. However, this requires correct installation (see image).

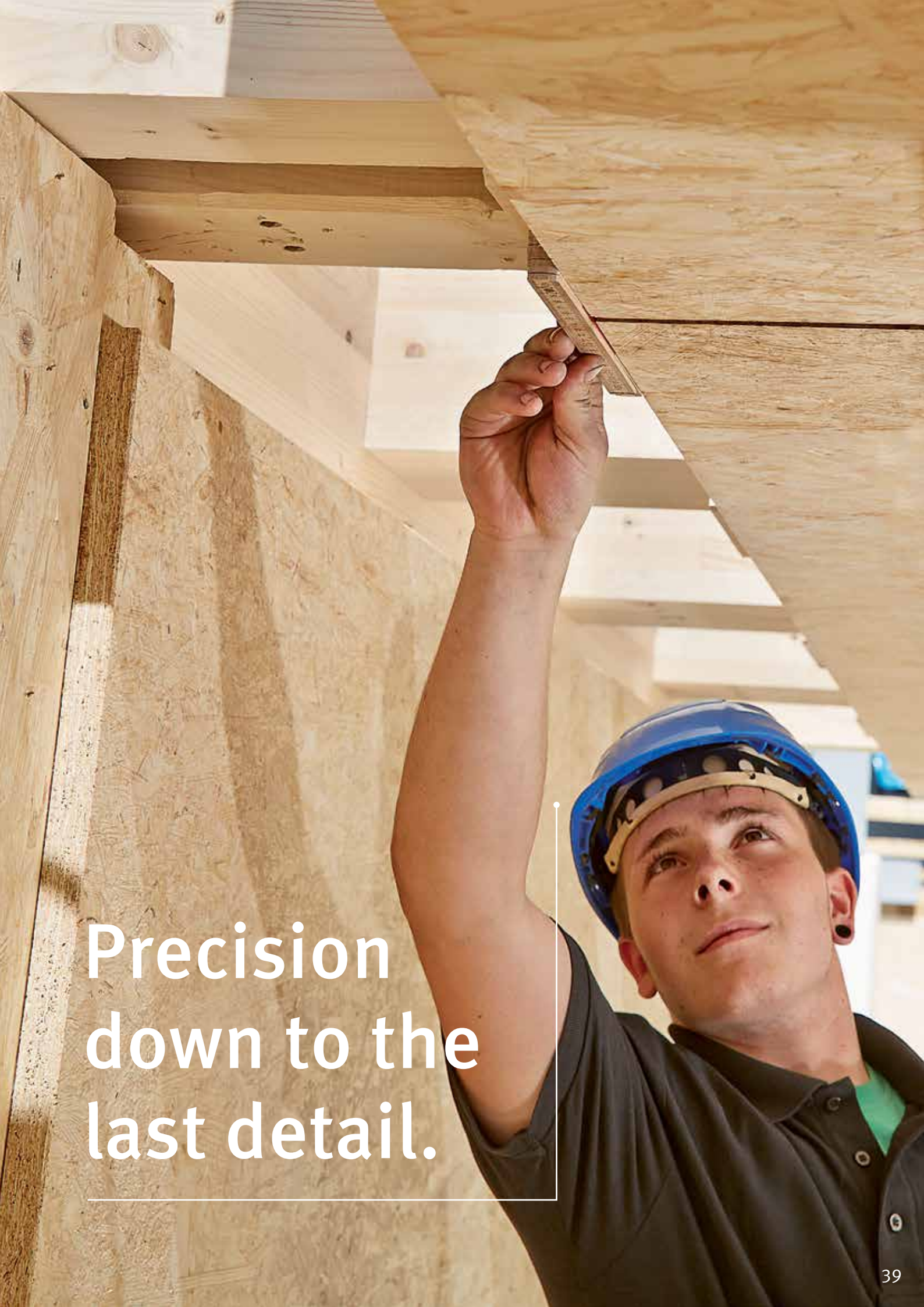


Correct decoupling



Incorrect decoupling

Installation of a spring clip on a wooden beam ceiling



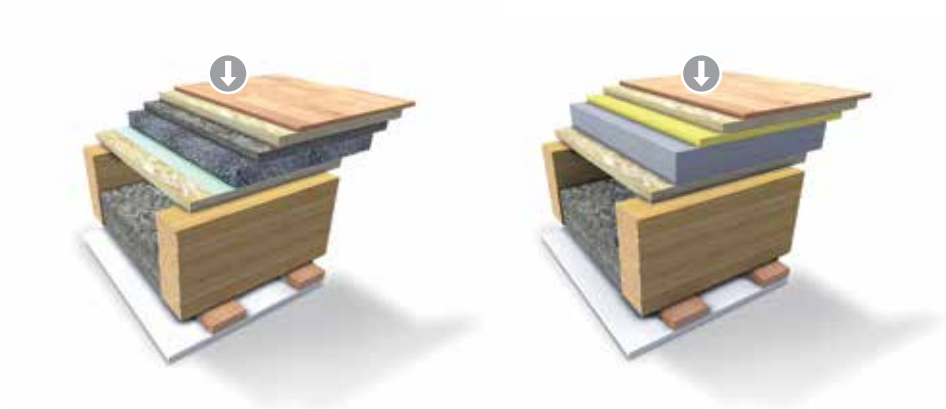
Precision down to the last detail.

3.2.1.1 Timber beam floors closed with dry screed

	Installation of the ceiling construction (top down)	Fire resistance according to EN 13501-2		Fire resistance according to DIN 4102-4	
		REI 30	REI 60	F30-B	F60-B
A	**EGGER OSB**	–	–	**18 mm**	**25 mm**
B	Rock wool impact sound insulation 30 kg/m³, s' < 15 MN/m²	–	–	15 mm	30 mm
C	**EGGER OSB**	**22 mm**	**22 mm**	**15 mm**	**15 mm**
D	Rock wool 30 kg/m³	200 mm	100 mm	60 mm	60 mm
E	**Floor beam** for 3.65 kN/m² a ≤ 625 mm, l ≤ 5,000 mm	**80 × 220 mm**	**80 × 200 mm**	**80 × 220 mm**	**80 × 200 mm**
F	**EGGER OSB**	**15 mm**	–	**15 mm**	–
G	**Battens** a = 500 mm	–	**22 × 100 mm**	–	**22 × 100 mm**
H	Gypsum fire board or gypsum fibre board	–	12.5 mm	–	–
	Gypsum fire board	–	–	–	12.5 mm
I	Gypsum fire board or gypsum fibre board	–	12.5 mm	–	–
	Gypsum fire board	–	–	–	12.5 mm
	Fire classification report	Fire exposure bottom side: Classification report HF Austria A1972/2009/6 Test load 3.66 kN/m²	Fire exposure bottom side: Classification report HF Austria A1972/2009/2 Test load 3.66 kN/m²	DIN 4102-4, Table 56, Row 2	DIN 4102-4, Table 56, Row 5
	Sound insulation Airborne sound R'_w DIN 4109 Supplement 1, Table 34, Row 1	–	50 dB	–	50 dB
	Impact sound $L'_{n,w}$ DIN 4109 Supplement 1, Table 34, Row 1	–	62 dB	–	62 dB
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	for the upper floor ceiling, with insulation of λ_R = 0.035 W/mK, the requirement U = 0.20 W/m²K is fulfilled	for the upper floor ceiling, with insulation of λ_R = 0.035 W/mK, the requirement U = 0.20 W/m²K is fulfilled	for the upper floor ceiling, with insulation of λ_R = 0.035 W/mK, the requirement U = 0.20 W/m²K is fulfilled	for the upper floor ceiling, with insulation of λ_R = 0.035 W/mK, the requirement U = 0.20 W/m²K is fulfilled

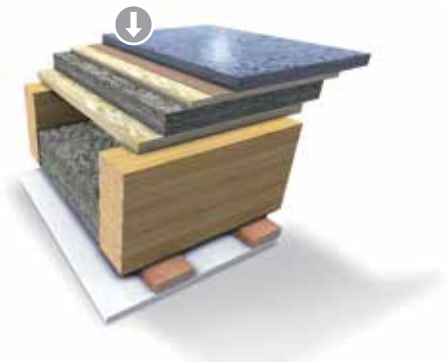
Please observe the general instructions on page 38.

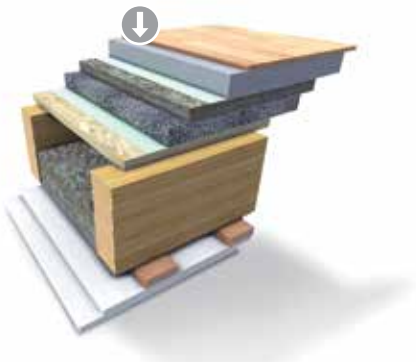
3.2.1.2 Timber beam floors closed with dry screed and ballasting



	Installation of the ceiling construction (top down)	Fire resistance according to EN 13501-2		Fire resistance according to DIN 4102-4		
		REI 30	REI 30	F30-B	F30-B	F30-B
A	**EGGER OSB 4 TOP Tongue and groove profile**	**22 mm**	**22 mm**	**18 mm**	**22 mm**	**22 mm**
B	Rock wool impact sound insulation 30 kg/m³, s' < 15 MN/m²	20 mm	20 mm	15 mm	20 mm	20 mm
C	Loose filling 45 kg/m²	30 mm	–	–	30 mm	–
	Loose filling 60 kg/m²	–	40 mm	–	–	40 mm
D	Drip protection paper	yes	yes	–	yes	yes
E	**EGGER OSB**	**22 mm**	**22 mm**	**15 mm**	**22 mm**	**22 mm**
F	**Floor beams**	**80 × 200 mm**	**80 × 200 mm**	**80 × 200 mm**	**80 × 200 mm**	**80 × 200 mm**
G	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ Wood fibre insulation board 16 kg/m³ Hemp 30 kg/m³ or Sheep wool 16 kg/m³	100 mm	100 mm	–	–	–
	Rock wool 30 kg/m³	–	–	60 mm	60 mm	60 mm
H	**Battens** a = 400 mm	**22 × 80 mm**	**22 × 80 mm**	**24 × 80 mm**	**24 × 80 mm**	**24 × 80 mm**
I	Spring clip between battens a = 400 mm	–	27 mm	–	27 mm	27 mm
J	Gypsum fire board or gypsum fibre board	12.5 mm	12.5 mm	–	–	–
	Gypsum fire board	–	–	12.5 mm	12.5 mm	12.5 mm
	Fire classification report	Fire exposure bottom side: Classification report HF Austria A1972/2009/1 Test load 3.66 kN/m²	Fire exposure bottom side: Classification report HF Austria A1972/2009/1 Test load 3.66 kN/m²	DIN 4102-4, Table 56, Row 2	DIN 4102-4, Table 56, Row 2	DIN 4102-4, Table 56, Row 2
	Sound insulation Airborne sound R'_w DIN 4109 Informationsdienst Holz, Row 3, Part 3, Volume 3, May 1999	› 50 dB	› 54 dB	› 50 dB	› 50 dB	› 54 dB
	Impact sound $L'_{n,w}$ DIN 4109 Informationsdienst Holz, Row 3, Part 3, Volume 3, May 1999	56 dB	53 dB	62 dB	56 dB	53 dB

3.2.1.3 Timber beam floors closed with mastic asphalt / cement screed





	Installation of the ceiling construction (top down)	Fire resistance according to EN 13501-2		Fire resistance according to DIN 4102-4	
		REI 30	REI 60	F30-B	F60-B
A	Mastic asphalt on corrugated cardboard	25 mm	–	25 mm	–
	Cement screed Anhydrite screed	–	50 mm	–	50 mm
B	Separating layer	–	yes	–	yes
C	**EGGER OSB 4 TOP Tongue and groove profile**	**12 mm**	**–**	**12 mm**	**–**
D	Rock wool impact sound insulation 30 kg/m³, s' < 15 MN/m²	40 mm	30 mm	40 mm	30 mm
E	Loose filling 72 kg/m²	–	40 mm	–	40 mm
F	Drip protection	–	yes	–	yes
G	**EGGER OSB**	**22 mm**	**22 mm**	**22 mm**	**22 mm**
H	Between beams	80 × 200 mm	80 × 200 mm	80 × 200 mm	80 × 200 mm
I	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ Wood fibre insulation board 16 kg/m³ Hemp 30 kg/m³ or Sheep wool 16 kg/m³	100 mm	100 mm	–	–
	Rock wool 30 kg/m³	–	–	60 mm	60 mm
J	**Battens** a = 400 mm	**22 × 80 mm**	**22 × 80 mm**	**22 × 80 mm**	**22 × 80 mm**
K	Spring clip between batten or clapboard siding a = 400 mm	27 mm	27 mm	27 mm	27 mm
L	Gypsum fire board	12.5 mm	12.5 mm	12.5 mm	12.5 mm
M	Gypsum fire board	–	12.5 mm	–	12.5 mm
	Fire classification report	Fire exposure bottom side: Classification report HF Austria A1972/2009/1 Test load 3.66 kN/m²	www.dataholz.at Partition ceiling tdrnxa03b (No. 4)	DIN 4102-4, Table 56, Row 1	DIN 4102-4, Table 56, Row 4
	Sound insulation Airborne sound R'_w DIN 4109 Informationsdienst Holz, Row 3, Part 3, Volume 3, May 1999	> 54 dB	–	> 54 dB	–
	Impact sound $L'_{n,w}$ DIN 4109 Informationsdienst Holz, Row 3, Part 3, Volume 3, May 1999	52 dB	–	52 dB	–
	Airborne sound R_w(C,Ctr) www.dataholz.at Partition ceiling: tdrnxa03b (No. 4)	–	70 (0,-4) dB	–	–
	Impact sound R_w(Cl) www.dataholz.at Partition ceiling: tdrnxa03b (No. 4)	–	41 (0) dB	–	41 (0) dB

Please observe the general instructions on page 38.

3.2.1.4 Decoupled timber beam floors

	Installation of the ceiling construction (top down)	Fire resistance according to EN 13501-2 REI 90	Fire resistance according to DIN 4102-4 F90-B
A	**EGGER OSB**	**18 mm**	**18 mm**
B	Wood fibre 45 kg/m³	30 mm	30 mm
C	**EGGER OSB 4 TOP** Large board clamped in beam layer a = 150 mm	**15 mm**	**15 mm**
D	**EGGER OSB 4 TOP** Large board clamped in beam layer a = 150 mm	**15 mm**	**15 mm**
E	Glued laminated timber beam layer according to statics	280 × 120 mm	280 × 120 mm
F	Glued laminated timber frontal edge board	280 × 120 mm	280 × 120 mm
G	Placement of wall element decoupled	yes	yes
H	**Beam layer** Connected in front via joist hanger	**200 × 100 mm**	**200 × 100 mm**
I	**Clapboard siding** a = 400 mm	**40 × 60 mm**	**40 × 60 mm**
J	Wood fibre insulation strip connected to the beam layer	20 mm	20 mm
K	Cavity insulation Cellulose insulation Isofloc	100 mm	100 mm
L	Gypsum fibre board	15 mm	15 mm
M	Fiberglass mesh	yes	yes
N	Gypsum fibre board	18 mm	18 mm
	Fire classification report	Fire exposure bottom side: Classification report KB 3.2/09-126	Fire exposure bottom side: abP MFPA Leipzig P-SAC 02/III-573
	Sound insulation Airborne sound R_w(C,Ctr) DIN 4109	› 56 dB	› 56 dB
	Impact sound $L_{n,w}$(CI) Din 4109	≤ 46 (0) dB	≤ 46 (0) dB

Remark
Board joints as well as component connections glued (resistant to fire water)
Decoupled timber beam floor for large span widths, with increased sound protection and fire protection with building class B2/C1
Span width: single span ≤ 7.0 m, double span ≤ 10.0 m

3.2.2.1 Exposed beam floors with dry screed

	Installation of the ceiling construction (top down)	Fire resistance according to EN 13501-2 REI 45	Fire resistance according to DIN 4102-4 F30-B	 F30-B
A	EGGER OSB 4 TOP	18 mm	18 mm	18 mm
B	Wood fibre 250 kg/m³	30 mm	30 mm	–
	Rock wool impact sound insulation 30 kg/m³, s' < 15 MN/m²	–	–	20 mm
C	EGGER OSB 4 TOP	30 mm	30 mm	25 mm
D	Floor beam a = 750 mm	120 × 360 mm	120 × 360 mm	–
	Floor beam a = 625 mm	–	–	100 × 280 mm
	Fire classification report	Fire exposure bottom side: Classification report HF Austria A1972/2009/8 Test load 5.3 kN/m²	DIN 4102-4, Table 62, Row 1 Design beam for 3-sided fire exposure	DIN 4102-4, Table 62, Row 2 Design beam for 3-sided fire exposure

Please observe the general instructions on page 38.

3.2.2.2 Exposed beam floors with dry screed and ballasting

	Installation of the ceiling construction (top down)	Fire resistance according to DIN 4102-4	
		F30-B	F30-B
A	EGGER OSB	22 mm	–
B	Cement screed 115 kg/m²	–	50 mm
C	Rock wool impact sound insulation 30 kg/m³, s' ‹ 15 MN/m²	25 mm	35/30 mm
D	Loose filling 75 kg/m²	–	30 mm
E	Concrete boards for weighting with › 140 kg/m² surface weight, glued across the entire surface (tile and bitumen adhesive) or placed in 5 mm quartz sand with drip protection.	60 mm	–
F	Drip protection paper	–	yes
G	EGGER OSB	25 mm	12 mm
H	Exposed sheathing tongue and groove profile	–	28 mm
I	Beam	100 × 280 mm	100 × 200 mm
	Fire classification report	DIN 4102-4, Table 62, Row 1 Design beam for 3-sided fire exposure	DIN 4102-4, Table 62, Row 1 Design beam for 3-sided fire exposure
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109 Informationsdienst Holz, Row 3, Part 3, Volume 3, May 1999	› 50 dB	› 54 dB
	Impact sound $L'_{n,w}$ DIN 4109 Informationsdienst Holz, Row 3, Part 3, Volume 3, May 1999	53 dB	53 dB

3.3 Roofs

The following applies to all roof Installations with EGGER building materials:

- The constructions must be executed at the grid of the timber structure of a = 625 mm.
  For grid spacings a ≤ 625 mm, the data regarding fire protection apply without limitation.
  Data regarding heat insulation and sound protection may need to be verified again where applicable.

- For constructions classified according to EN 13501-2, the following applies:

Plasterboard	600 kg/m³
Gypsum fire board	800 kg/m³
Gypsum fibre board	1,000 kg/m³

- In the case of component classification according to DIN 4102-4, the plasterboards must be fastened to the wood-based boards with an authorised span width of 400 mm.

- If EGGER DHF is used to form roof panels, the format 2,500 × 1,250 × 15 mm must be selected according to DIN 1052.

- The proof of moisture protection must be provided for unventilated constructions with special and validated simulation programmes, such as e.g. WUFI® according to EN 15026.

- Based on the technical consideration of humidity, unventilated (single-sided) roof constructions must always be executed with full insulation.

- The insulation materials used in components classified for fire protection according to DIN 4102-4 made of mineral wool must have a melting point of T ≥ 1,000 °C.

Specificities of flat roof constructions

- As a rule, it is recommended to design roof constructions as vapour-permeable constructions with a closed heat insulation level and ventilated roofing and sealing on top.

- During planning and execution, moisture protection and airtightness must be implemented with special case (blower door test with leakage identification). The inclusion of precipitation humidity during the construction phase must be excluded, e.g., through a high degree of prefabrication of the elements.

- Based on experience from research and practice, flat roofs with insulation materials with high moisture buffering capacity (without loss of insulation properties) have a better fault tolerance.

Also in the flat roofing – load-bearing capacity in its strongest form.

3.3.1 Roofs with full insulation

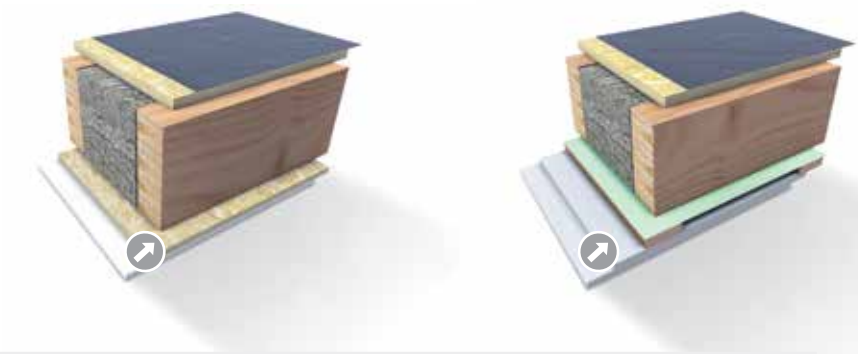
	Installation of the roof construction (from inside outwards)	Fire resistance according to EN 13501-2		Fire resistance according to DIN 4102-4			
		REI 30	REI 60	F30-B	F30-B	F30-B	F60-B
A	Gypsum fire board or gypsum fibre board	–	12.5 mm	–	–	–	–
	Gypsum fire board	–	–	12.5 mm	15 mm	–	12.5 mm
	Plasterboard not effective in fire protection	–	–	–	–	9.5 mm	–
B	Gypsum fire board or gypsum fibre board	15 mm	12.5 mm	–	–	–	–
	EGGER OSB	**–**	**–**	**18 mm**	**15 mm**	**22 mm**	**–**
	Gypsum fire board	–	–	–	–	–	12.5 mm
C	Vapour barrier	yes	yes	–	–	–	yes
D	**Clapboard siding** a = 400 mm	**22 × 80 mm**	**22 × 80 mm**	**22 × 80 mm**	**22 × 80 mm**	**–**	**22 × 80 mm**
E	Rafter a = 625 mm	80 × 220 mm	80 × 200 mm	80 × 220 mm	80 × 220 mm	80 × 220 mm	80 × 220 mm
F	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ Wood fibre insulation board 16 kg/m³ Hemp 30 kg/m³ or Sheep wool 16 kg/m³	220 mm	–	–	–	–	–
	Rock wool 30 kg/m³	–	200 mm	–	–	220 mm	–
	Heat insulation B2	–	–	220 mm	220 mm	–	220 mm
G	**EGGER DHF**	**15 mm**	**–**	**15 mm**	**15 mm**	**15 mm**	**–**
	EGGER OSB	**–**	**22 mm**	**–**	**–**	**–**	**22 mm**
H	Formwork membrane s_d	–	0.3 m	–	–	–	0.3 m
I	Roofing	yes	yes	yes	yes	yes	yes
	Fire classification report	Fire exposure bottom side: Classification report HF Austria A1972/2009/7 Test load 4.6 kN/m²	Fire exposure bottom side: Classification report HF Austria A1972/2009/2 Test load 3.66 kN/m²	DIN 4102 Table 66 Row 1	DIN 4102 Table 66 Row 2	DIN 4102 Table 65 Row 1	DIN 4102 Table 65 Row 2
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 39, Row 2	40 dB	–	40 dB	40 dB	40 dB	–
	Airborne sound R_w(C,Ctr) www.dataholz.at drhzi01a	–	50 (-3,-9) dB	–	–	–	50 (-3,-9) dB
	Heat/moisture protection U-value (W/m²K) 10 % wood content EN ISO 6946	Heat insulation TCG 040 200/220/260 mm 0.32/0.21/0.18 Case A – free of condensation	Heat insulation TCG 040 200/220/260 mm 0.23/0.20/0.18 (W_V-W_T) ≥ 250 g/m²	Heat insulation TCG 040 200/220/260 mm 0.23/0.21/0.18 Case A – free of condensation	Heat insulation TCG 040 200/220/260 mm 0.23/0.21/0.18 Case A – free of condensation	Heat insulation TCG 040 200/220/260 mm 0.23/0.21/0.18 Case A – free of condensation	Heat insulation TCG 040 200/220/260 mm 0.23/0.20/0.18 (W_V-W_T) ≥ 250 g/m²

TCG = Thermal conductivity group.
Please observe the general instructions on page 46.

3.3.2 Roofs with over rafter insulation

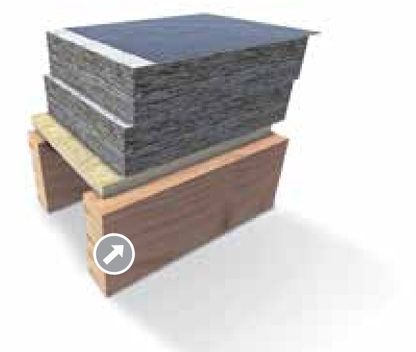
	Installation of the roof construction (from inside outwards)	Fire resistance according to DIN 4102-4	
		F30-B	F30-B
A	Rafter a ≤ 1,250 mm	designed for 3-sided combustion	–
	Rafter a ≤ 650 mm	–	designed for 3-sided combustion
B	**EGGER OSB**	**30 mm**	**30 mm**
C	Rock wool 30 kg/m³	200 mm	–
	Plastic foam	–	200 mm
D	**Sleepers** a ≤ 833 mm	**admissible**	**admissible**
E	**EGGER DHF**	**15 mm**	**15 mm**
F	**Counter battens**	**30 × 50 mm**	**30 × 50 mm**
	Battens	**40 × 60 mm**	**40 × 60 mm**
G	Roofing	yes	yes
	Fire classification report	DIN 4102-4, Table 71, Row 1	DIN 4102-4, Table 72, Row 2
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 39, Row 5	37 dB	–
	Heat/moisture protection U-value (W/m²K) 10 % wood content EN ISO 6946	Heat insulation TCG 040 200/240 mm 0.18/0.16 Case A – free of condensation	Heat insulation TCG 040 200/240 mm 0.18/0.16 Case A – free of condensation

3.3.3 Flat roof structures



	Installation of the roof construction (from inside outwards)	Fire resistance according to EN 13501-2		
		REI 30	REI 45	REI 60
A	Gypsum fire board or gypsum fibre board	–	–	12.5 mm
	Gypsum fire board	–	–	–
B	Plasterboard not effective in fire protection	9.5 mm	–	–
	Gypsum fire board or gypsum fibre board	–	12.5 mm	12.5 mm
	Gypsum fire board or plasterboard	–	–	–
	Gypsum fire board	–	–	–
C	**Clapboard siding** a = 400 mm	**–**	**22 × 80 mm**	**22 × 80 mm**
D	**EGGER OSB**	**15 mm**	**–**	**–**
E	Vapour barrier	–	yes	yes
F	Rafter a = 625 mm	80 × 220 mm	120 × 360 mm	80 × 200 mm
	Rafter a ≤ 1,250 mm	–	–	–
G	Rock wool 30 kg/m³	220 mm	–	–
	Glass wool 11 kg/m³ Rock wool 30 kg/m³ Cellulose insulation 50 kg/m³ Wood fibre insulation board 16 kg/m³ Hemp 30 kg/m³ or Sheep wool 16 kg/m³	–	360 mm	200 mm
	Heat insulation B2	–	–	–
	Rock wool 50 kg/m³	–	–	–
H	**EGGER OSB**	**22 mm**	**22 mm**	**22 mm**
I	High-resistance foam sheet EPS 035 Rock wool insulation panels 035 pressure-resistant	–	–	–
	Rock wool insulation panels 035 pressure-resistant	–	–	–
J	Roof sealing or metal covering on structured separation layer	yes	yes	yes
	Fire classification report	Fire exposure bottom side: Classification report HF Austria A1973/2009/6 Test load 4.6kN/m²	Fire exposure bottom side: Classification report HF Austria A1973/2009/3 Test load 4.6kN/m²	Fire exposure bottom side: Classification report HF Austria A1973/2009/4 Test load 3.66kN/m²
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 38, Row 2	› 35 dB	–	–
	Airborne sound $R'_{w,R}$ DIN 4109 Supplement 1, Table 38, Row 4	–	50 dB	50 dB
	Airborne sound $R'_{w,R}$ DIN 4109 Supplement 1, Table 38, Row 5	–	–	–
	Heat/moisture protection U-value (W/m²K) EN ISO 6946	Heat insulation TCG 040 0,21 $(W_V\text{-}W_T) \geq 250$ g/m²	Heat insulation TCG 040 0,14 $(W_V\text{-}W_T) \geq 290$ g/m²	Heat insulation TCG 040 200/220/280 mm 0.23/0.21/0.17 $(W_V\text{-}W_T) \geq 250$ g/m²

TCG = Thermal conductivity group.
Please observe the general instructions on page 46.



	Installation of the roof construction (from inside outwards)	**Fire resistance according to DIN 4102-4**				
		F30-B	**F30-B**	**F30-B**	**F30-B**	**F60-B**
A	Gypsum fire board or gypsum fibre board	–	–	–	–	–
	Gypsum fire board	–	–	–	–	12.5 mm
B	Plasterboard not effective in fire protection	–	–	–	–	–
	Gypsum fire board or gypsum fibre board	–	–	–	–	–
	Gypsum fire board or plasterboard	9.5 mm	–	–	–	–
	Gypsum fire board	–	12.5 mm	12.5 mm	–	12.5 mm
C	**Clapboard siding** a = 400 mm	**–**	**22 × 80 mm**	**22 × 80 mm**	**–**	**22 × 80 mm**
D	**EGGER OSB**	**18 mm**	**15 mm**	**15 mm**	**–**	**–**
E	Vapour barrier	–	–	–	–	yes
F	Rafter a = 625 mm	80 × 220 mm	80 × 220 mm	80 × 220 mm	–	80 × 220 mm
	Rafter a ≤ 1,250 mm	–	–	–	designed for 3-sided combustion	–
G	Rock wool 30 kg/m^3	–	–	–	–	–
	Glass wool 11 kg/m^3 Rock wool 30 kg/m^3 Cellulose insulation 50 kg/m^3 Wood fibre insulation board 16 kg/m^3 Hemp 30 kg/m^3 or Sheep wool 16 kg/m^3	–	–	–	–	–
	Heat insulation B2	220 mm	220 mm	–	–	220 mm
	Rock wool 50 kg/m^3	–	–	80 mm	–	–
H	**EGGER OSB**	**18 mm**	**18 mm**	**22 mm**	**30 mm**	**22 mm**
I	High-resistance foram sheet EPS 035 Rock wool insulation panels 035 pressure-resistant	–	–	140 mm	–	–
	Rock wool insulation panels 035 pressure-resistant	–	–	–	220 mm	–
J	Roof sealing or metal covering on structured separation layer	yes	yes	yes	yes	yes
	Fire classification report	DIN 4102-4, Table 65, Row 1	DIN 4102-4, Table 65, Row 1	DIN 4102-4, Table 66, Row 9	DIN 4102-4, Table 71, Row 1	DIN 4102-4, Table 65, Row 2
	Sound insulation Airborne sound $R'_{w,R}$ DIN 4109, Supplement 1, Table 38, Row 2	› 35 dB	› 35 dB	–	–	–
	Airborne sound $R'_{w,R}$ DIN 4109 Supplement 1, Table 38, Row 4	–	–	50 dB	–	50 dB
	Airborne sound $R'_{w,R}$ DIN 4109 Supplement 1, Table 38, Row 5	–	–	–	37 dB	–
	Heat/moisture protection U-value (W/m^{2}K) EN ISO 6946	Heat insulation TCG 040 200/220/280 mm 0.23/0.21/0.17 $(W_V\text{-}W_T) \geq 250$ g/m^2	Heat insulation TCG 040 200/220/280 mm 0.23/0.21/0.17 $(W_V\text{-}W_T) \geq 250$ g/m^2	Heat insulation TCG 040 200/220/280 mm 0.23/0.21/0.17 $(W_V\text{-}W_T) \geq 250$ g/m^2	Heat insulation TCG 040 200/220/280 mm 0.23/0.21/0.17 $(W_V\text{-}W_T) \geq 250$ g/m^2	Heat insulation TCG 040 200/220/280 mm 0.23/0.21/0.17 $(W_V\text{-}W_T) \geq 250$ g/m^2

4

4 Construction details

4.1 Walls

4.1.1 Exterior wall external corner
4.1.2 Exterior wall internal corner
4.1.3 Socket connection exterior wall I
4.1.4 Socket connection exterior wall II
4.1.5 Socket connection exterior wall III
4.1.6 Socket connection door area
4.1.7 Tensile bracing wall element on floor slab
4.1.8 Tensile bracing level / floor joint
4.1.9 Connection door or window
4.1.10 Connection door or window lateral
4.1.11 Connection inside wall on ceiling with visible beam layer
4.1.12 Connection inside wall on closed ceiling with increased soundproofing
4.1.13 Connection inside wall at outside wall in the field
4.1.14 Connection outside wall on visible beam layer (beam head support)
4.1.15 Connection outside wall on visible beam layer (edge beam)
4.1.16 Connection outside wall on closed ceiling with increased soundproofing
4.1.17 Connection outside wall on closed ceiling (balloon framing)

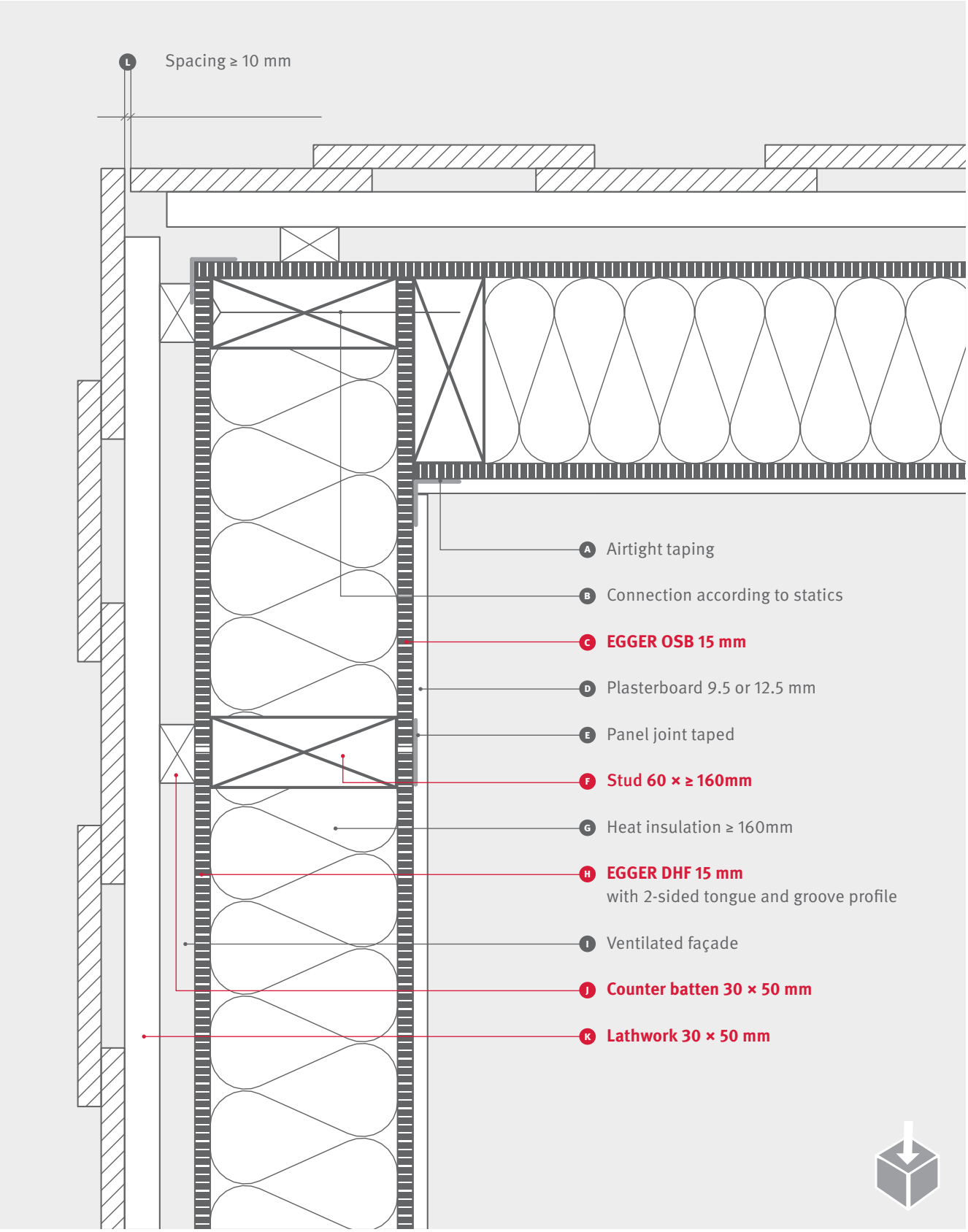
4.2 Roofs

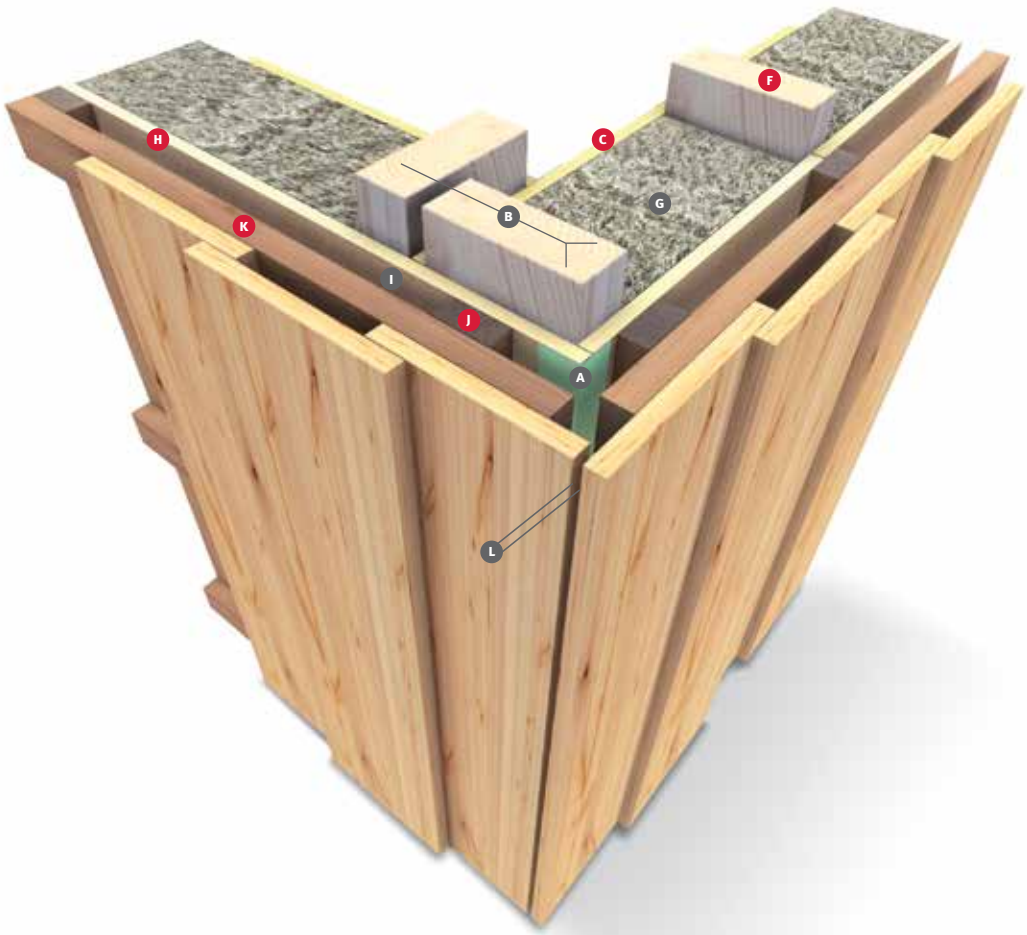
4.2.1 Connection pitched warm roof at the eaves
4.2.2 Connection pre-fabricated warm roof element at the eaves
4.2.3 Connection warm roof at verge
4.2.4 Connection interior wall on warm roof on the side of the eaves
4.2.5 Roof valley
4.2.6 Connection skylight on roof
4.2.7 Connection fireplace penetration on roof
4.2.8 Connection pipe penetration on roof
4.2.9 Roof / uninsulated loft

4.3 Passive house system

4.3.1 Connection box window on solar wall passive house standard
4.3.2 Exterior wall passive house system
4.3.3 Solar wall passive house system

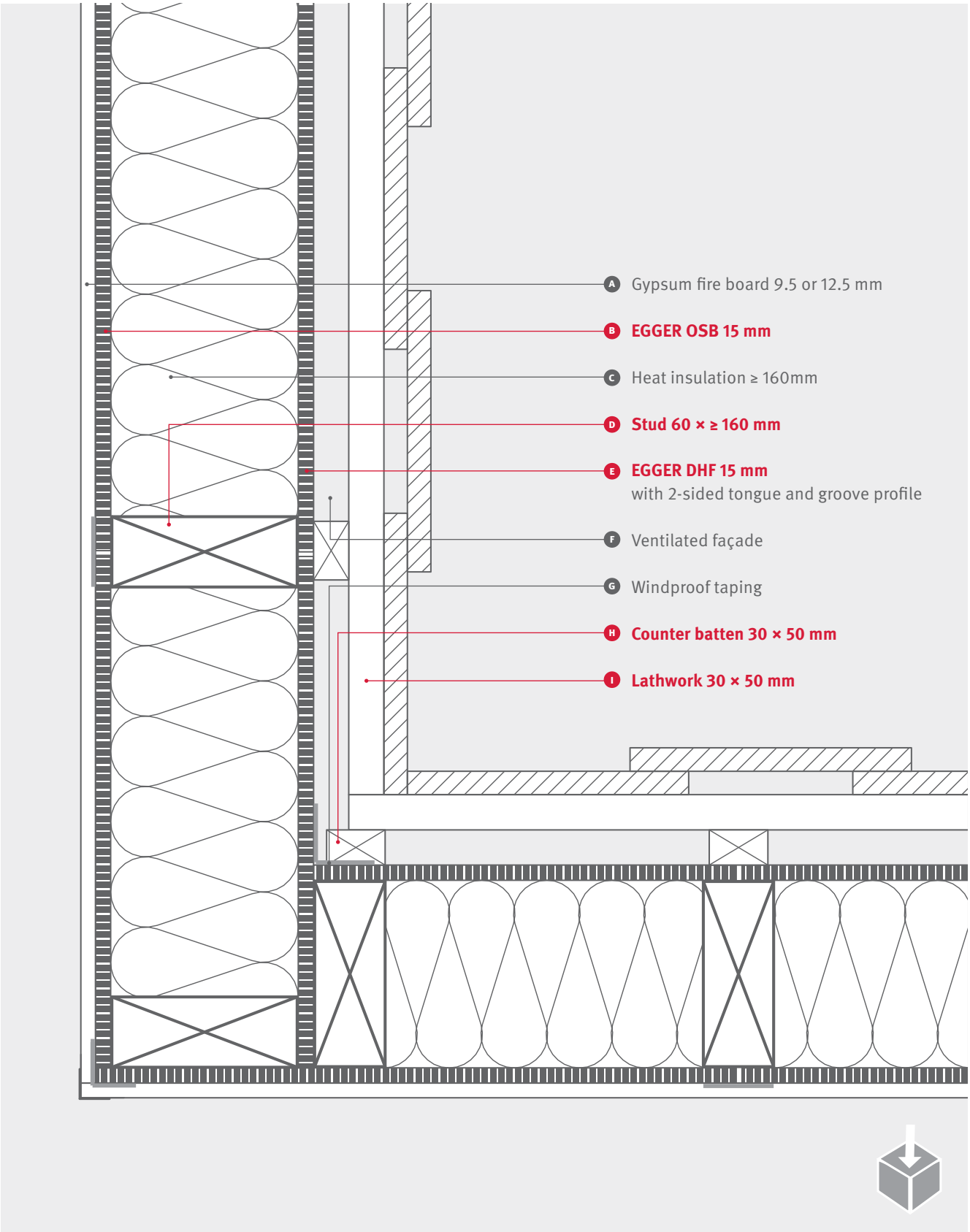
4.1.1 Exterior wall external corner



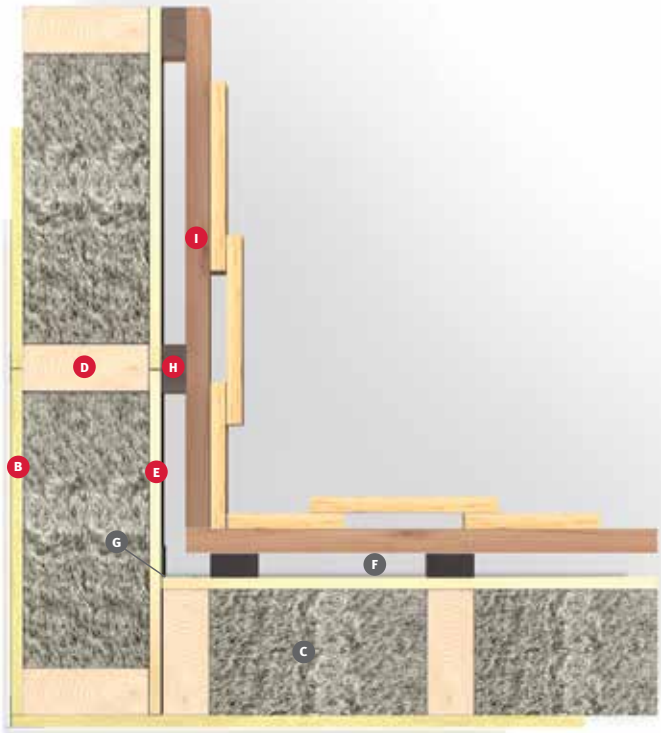


When a service duct is not included, empty pipes may be placed inside the wall element for electrical installations. It must be ensured that **airtight connections** are put in place. For example, airtight cavity sockets and empty pipes as well as tested sealing systems with adhesive tape and sleeves (e.g., from proclima or similar) may be used. External corners must be checked for **thermal bridges**.

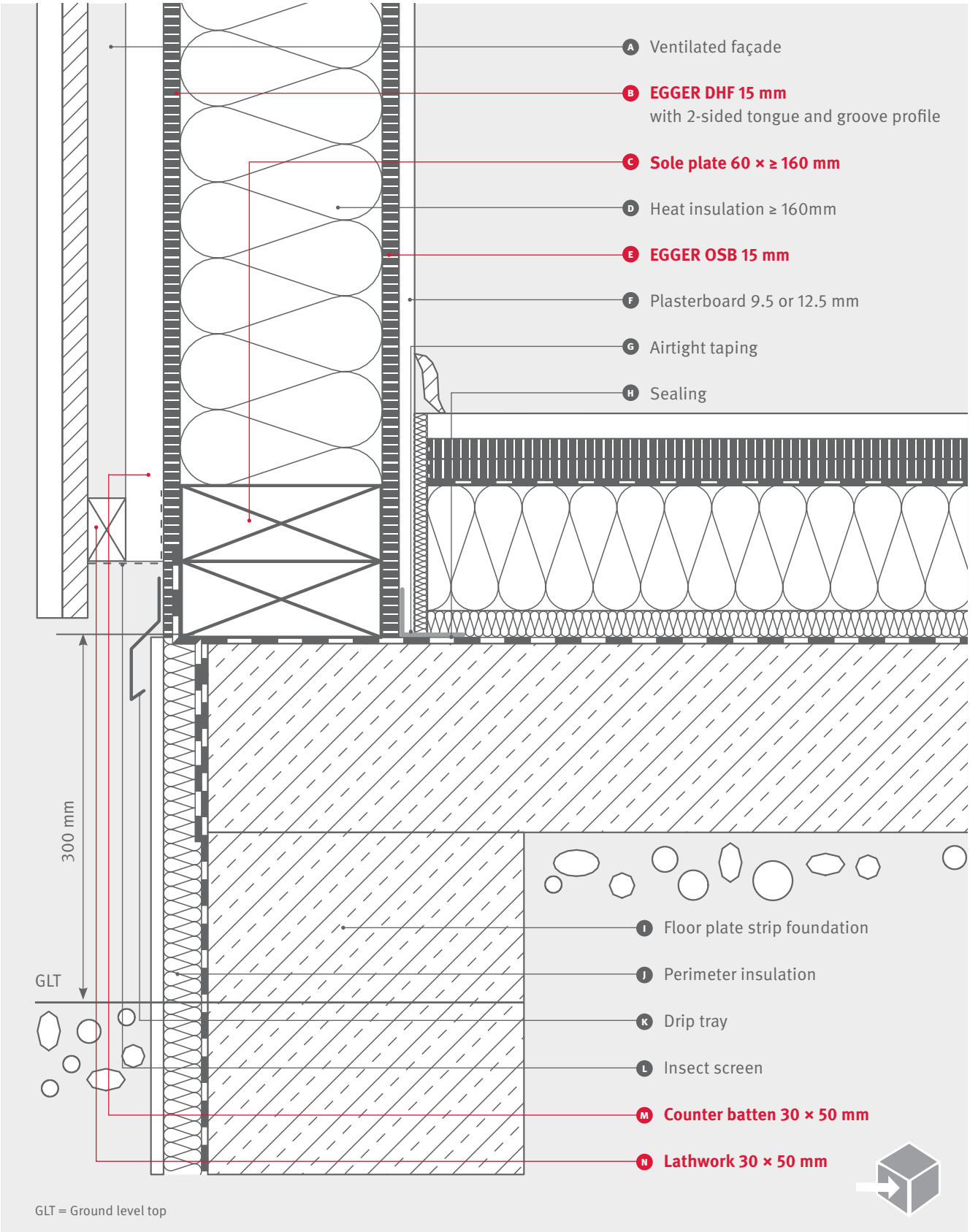
4.1.2 Exterior wall internal corner



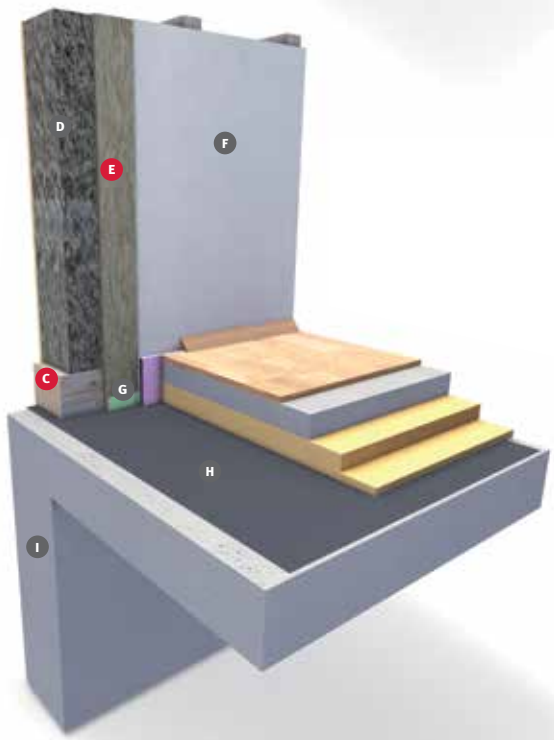
Component and element joints must be taped externally and internally in order to ensure a **windproof and airtight connection**. A functional ventilation of the façade and insect protection are also necessary. Internal corners must be checked for **thermal bridges**.



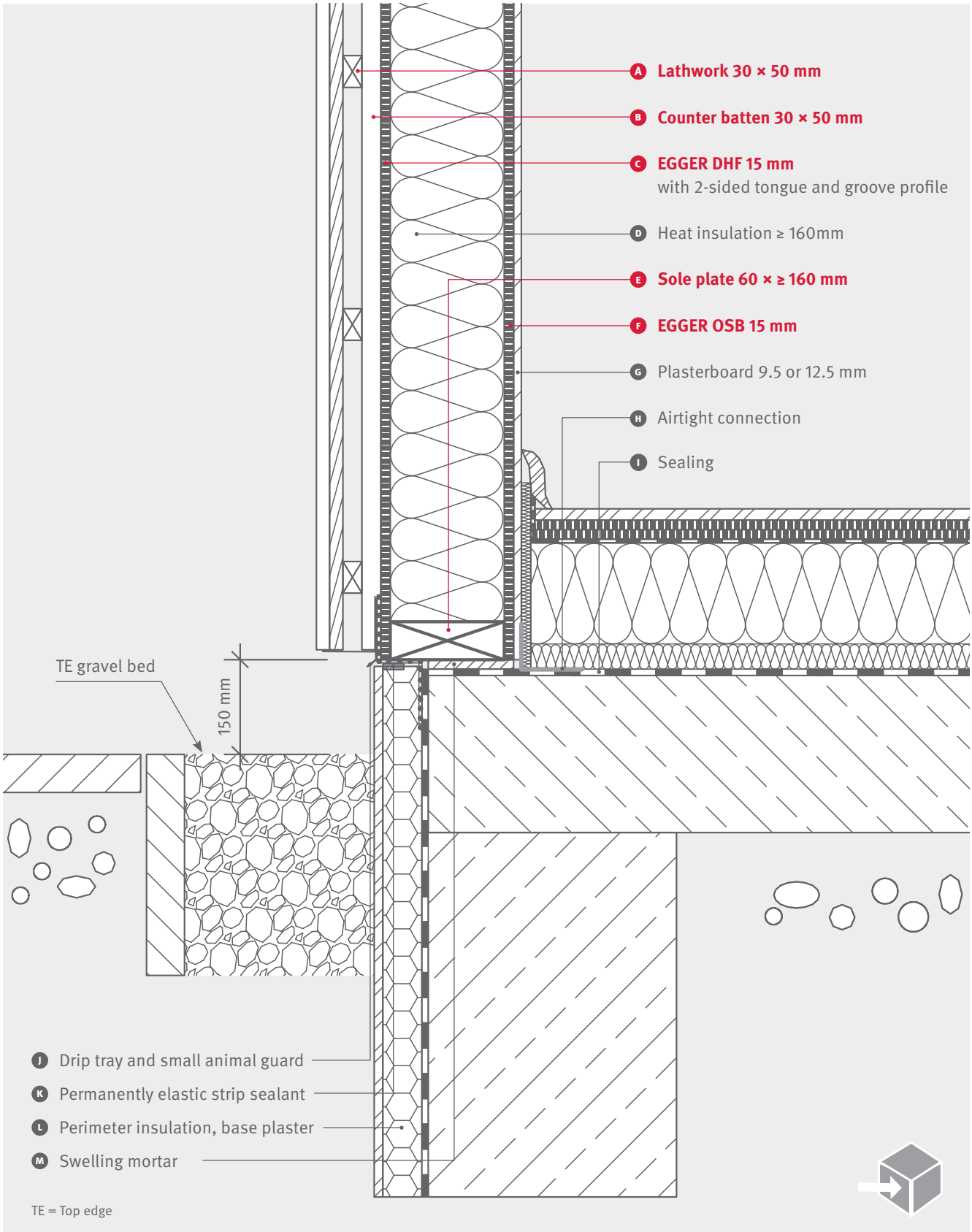
4.1.3 Socket connection exterior wall I

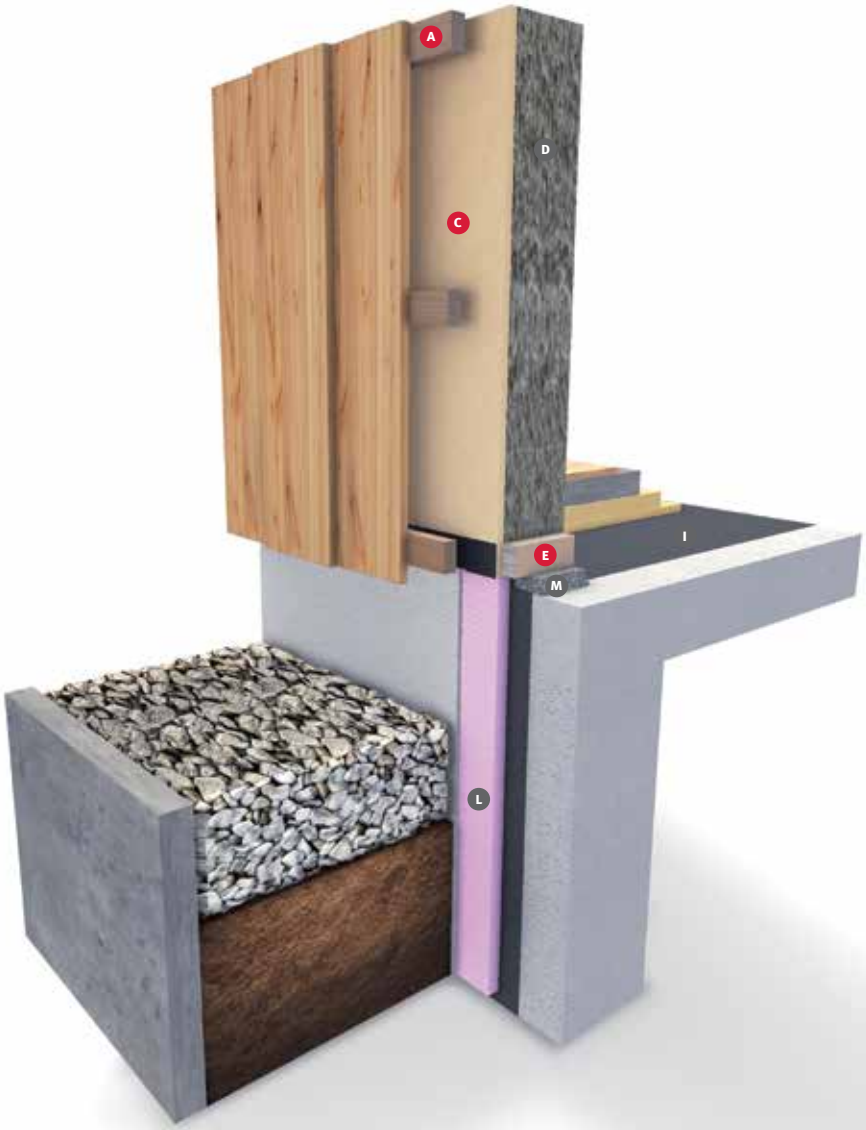


If a maximum dimensional deviation of ± 10 mm is observed for the floor plate, a **levelling threshold** is no longer necessary and the airtightness can be obtained via EPDM plastic profiles (e.g., Trelleborg) (DIN 68800-2 and research Holzforschung Austria).



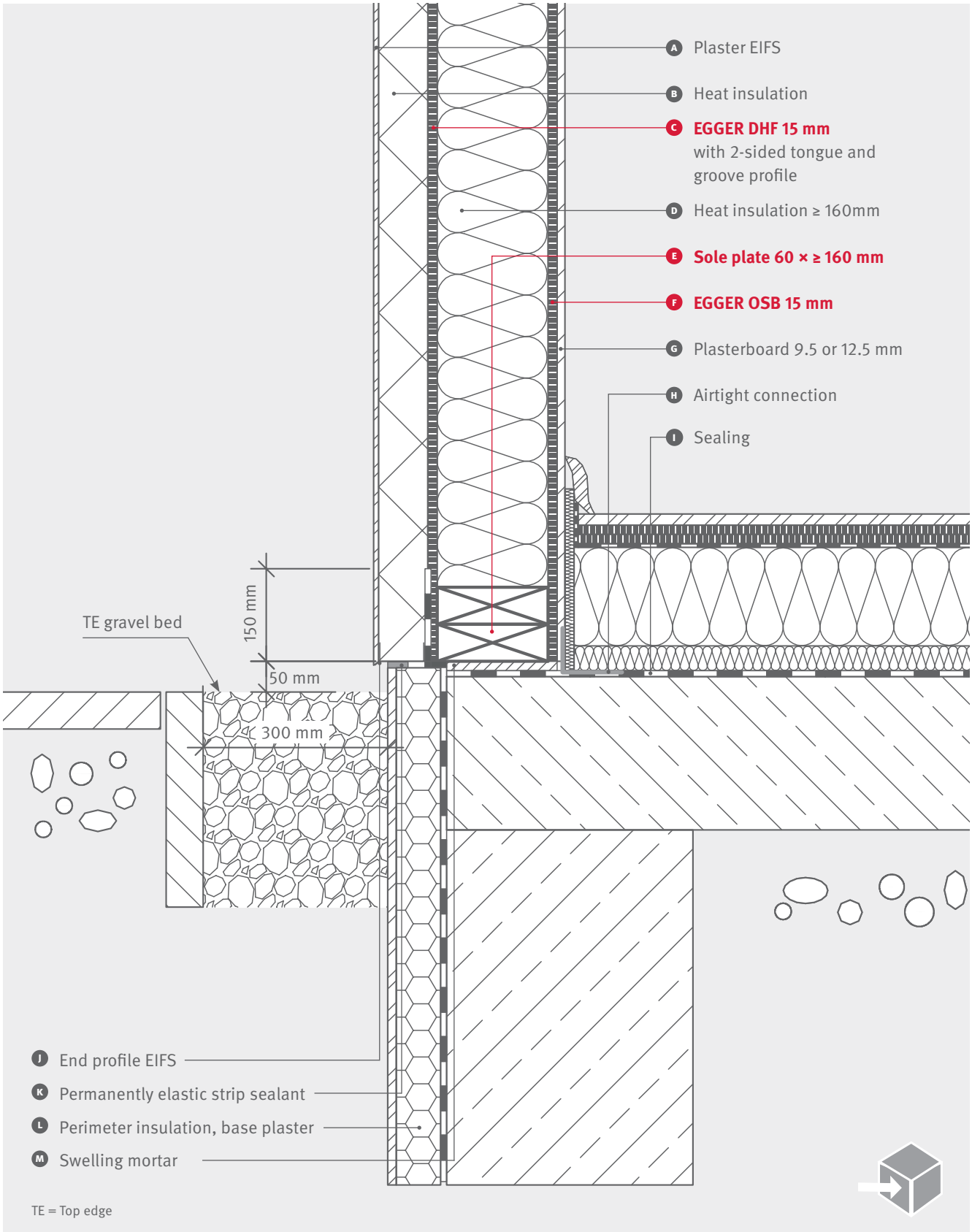
4.1.4 Socket connection exterior wall II

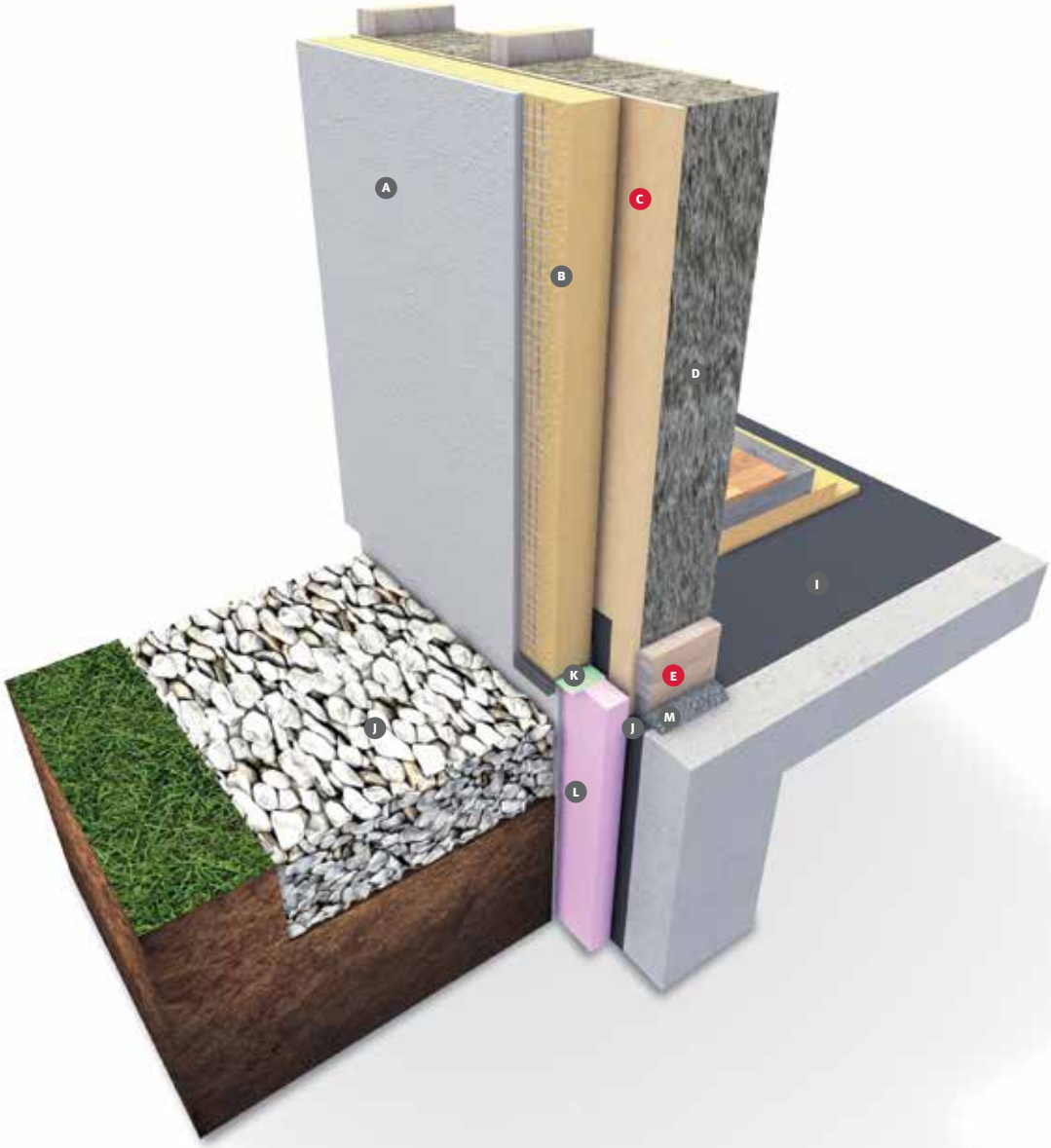




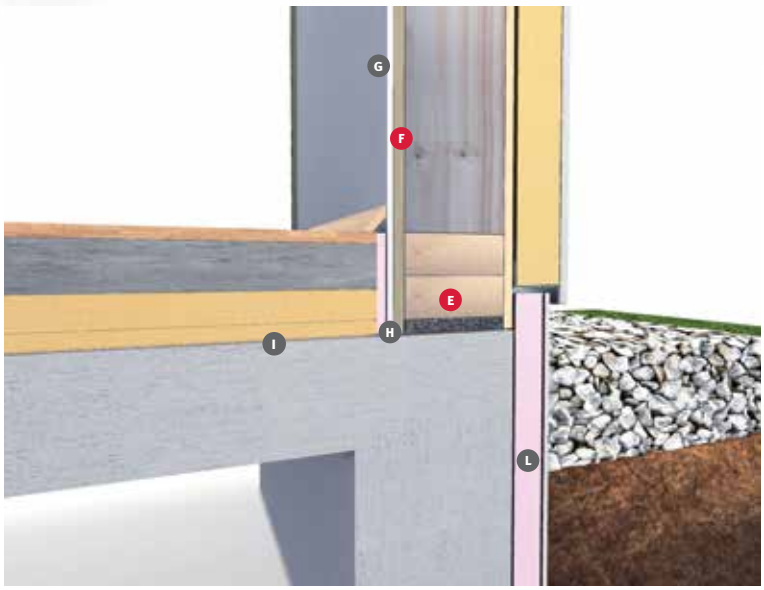
With the help of a 30 cm wide gravel bed, the **splash water exposure** of the base area is diminished and the sealing level can be reduced according to DIN 68800-2, 5.2.1.3 to 15 cm (schematic standard detail A.12).

4.1.5 Socket connection exterior wall III

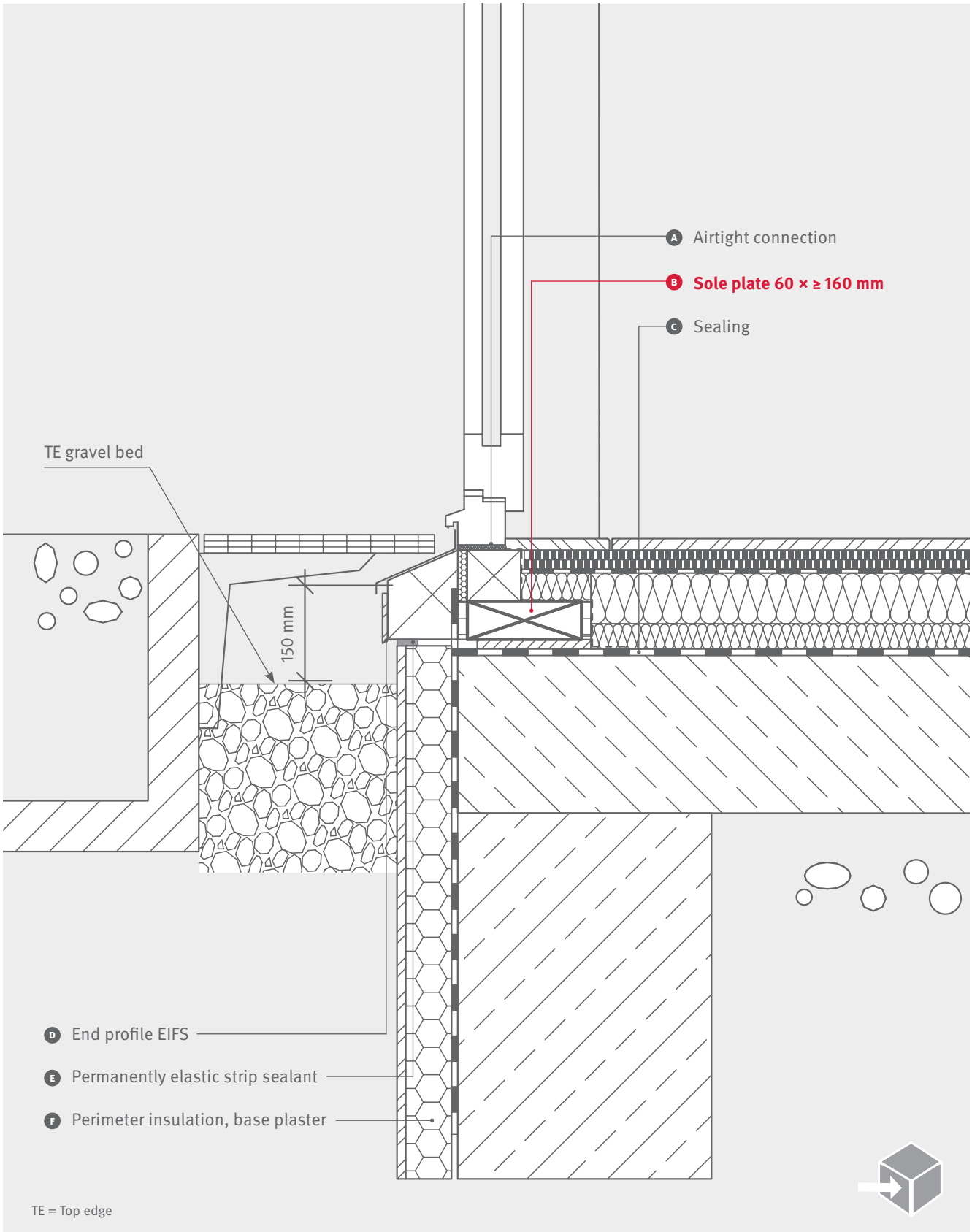


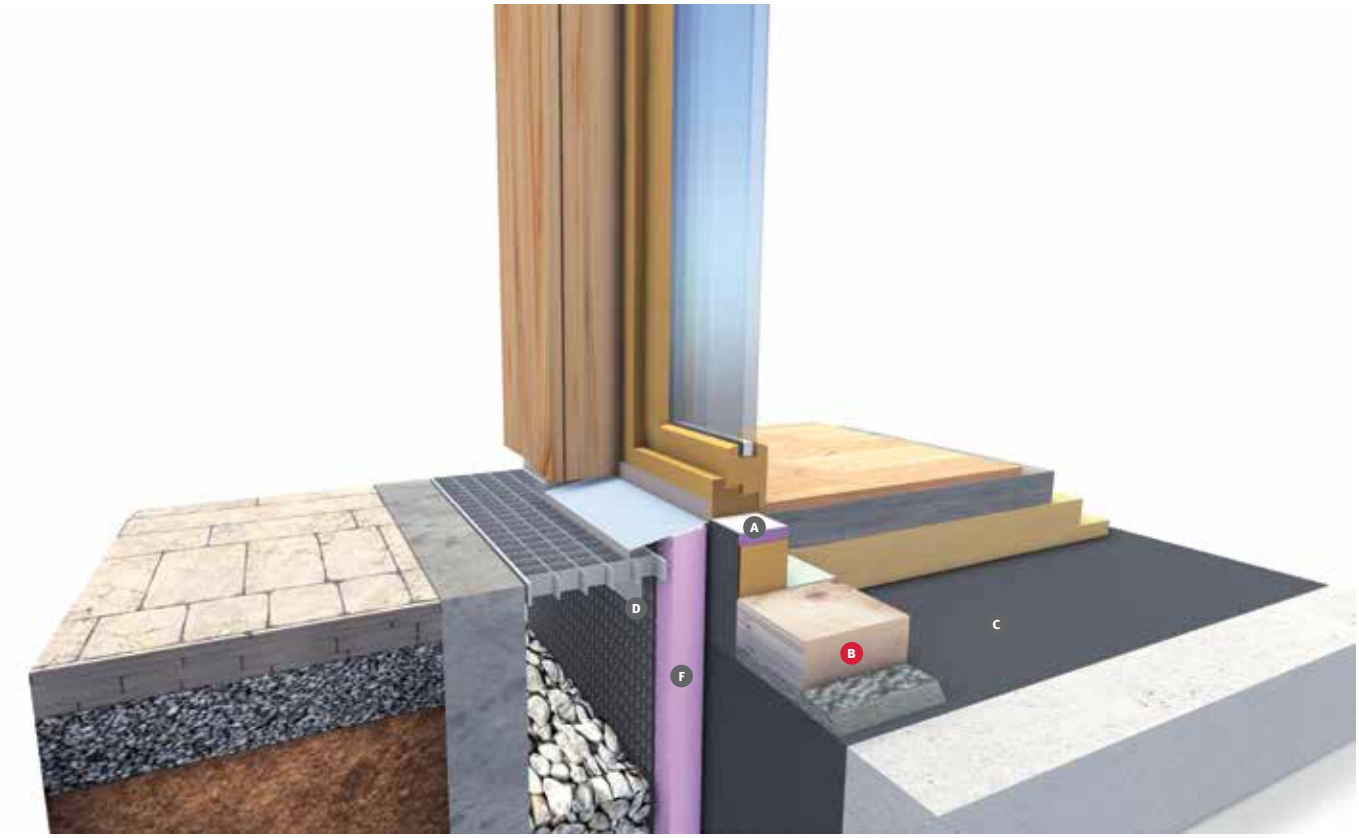


For the protection of the exterior insulation finishing system (EIFS), the data in DIN 68800-2, 5.2.1.3 and the execution instructions of the EIFS supplier must also be observed for the **correct execution of the socket area**.

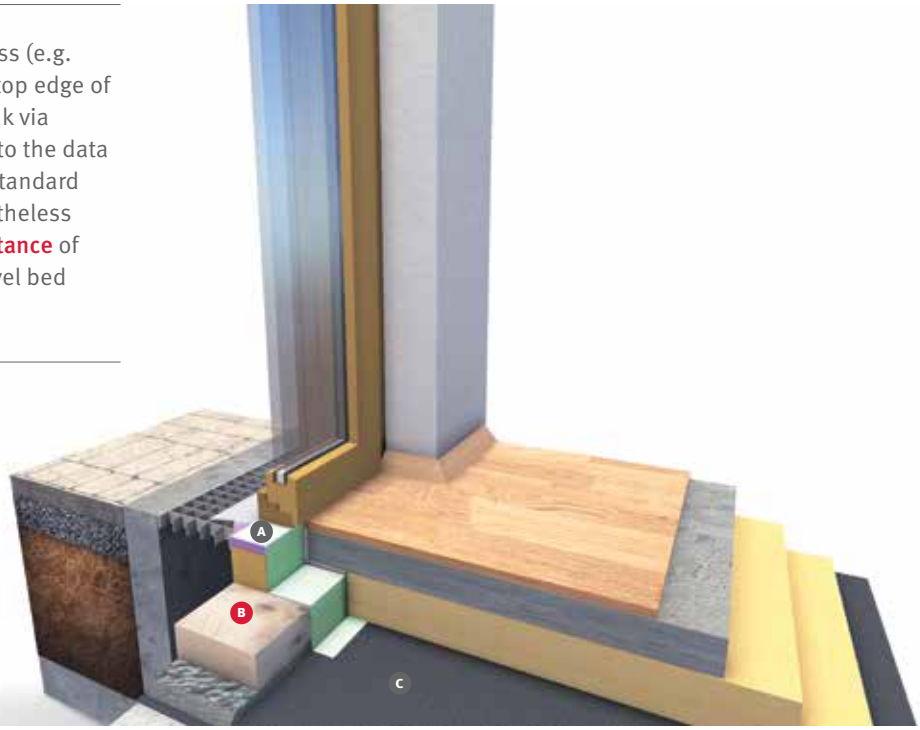


4.1.6 Socket connection door area

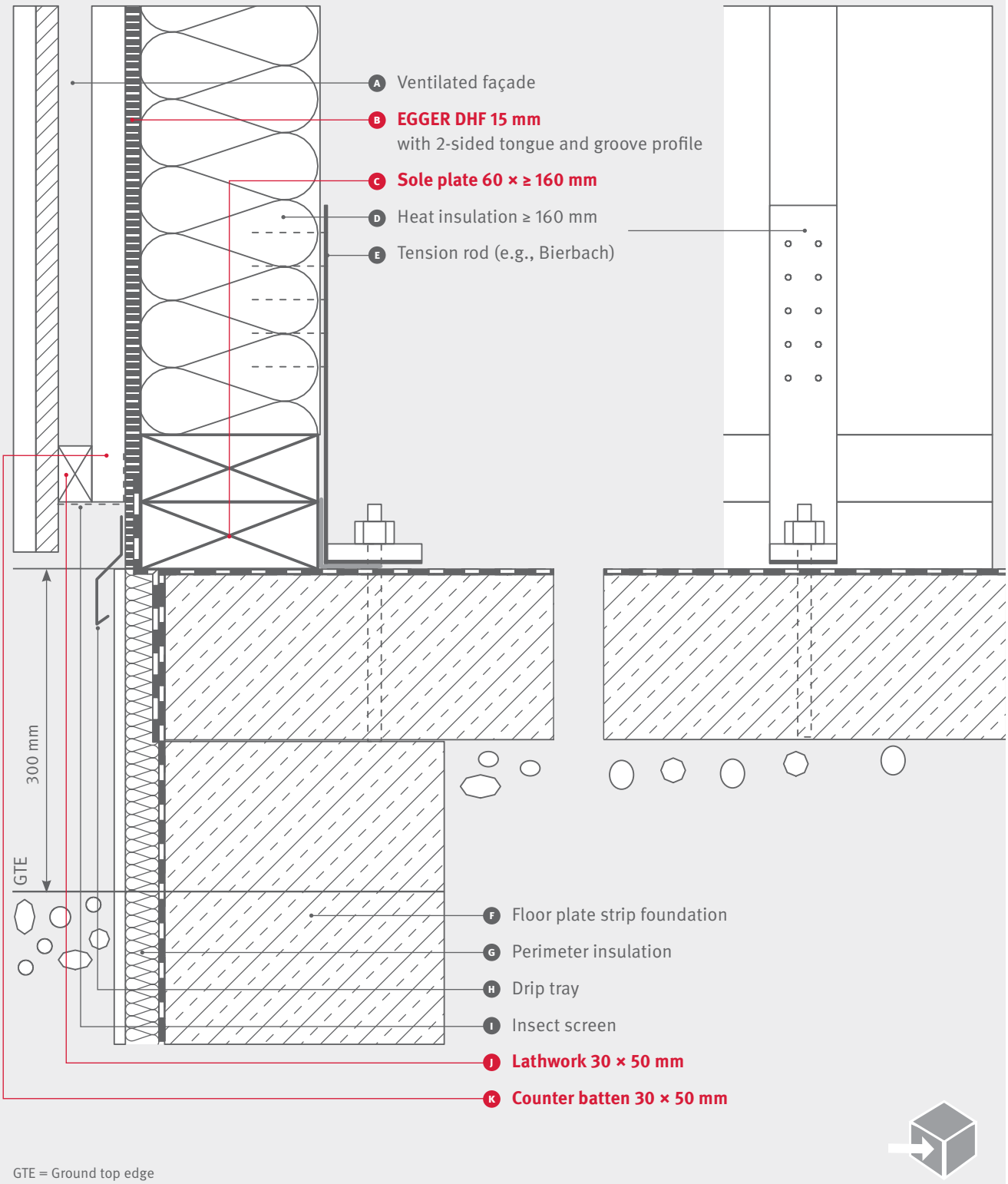




In areas with floor-level access (e.g. terrace entrance areas), the top edge of the floor must be countersunk via special measures according to the data in DIN 68800-2 (schematic standard detail A.14) in order to nevertheless guarantee the **necessary distance** of 15 cm between top edge gravel bed and bottom edge barrier.



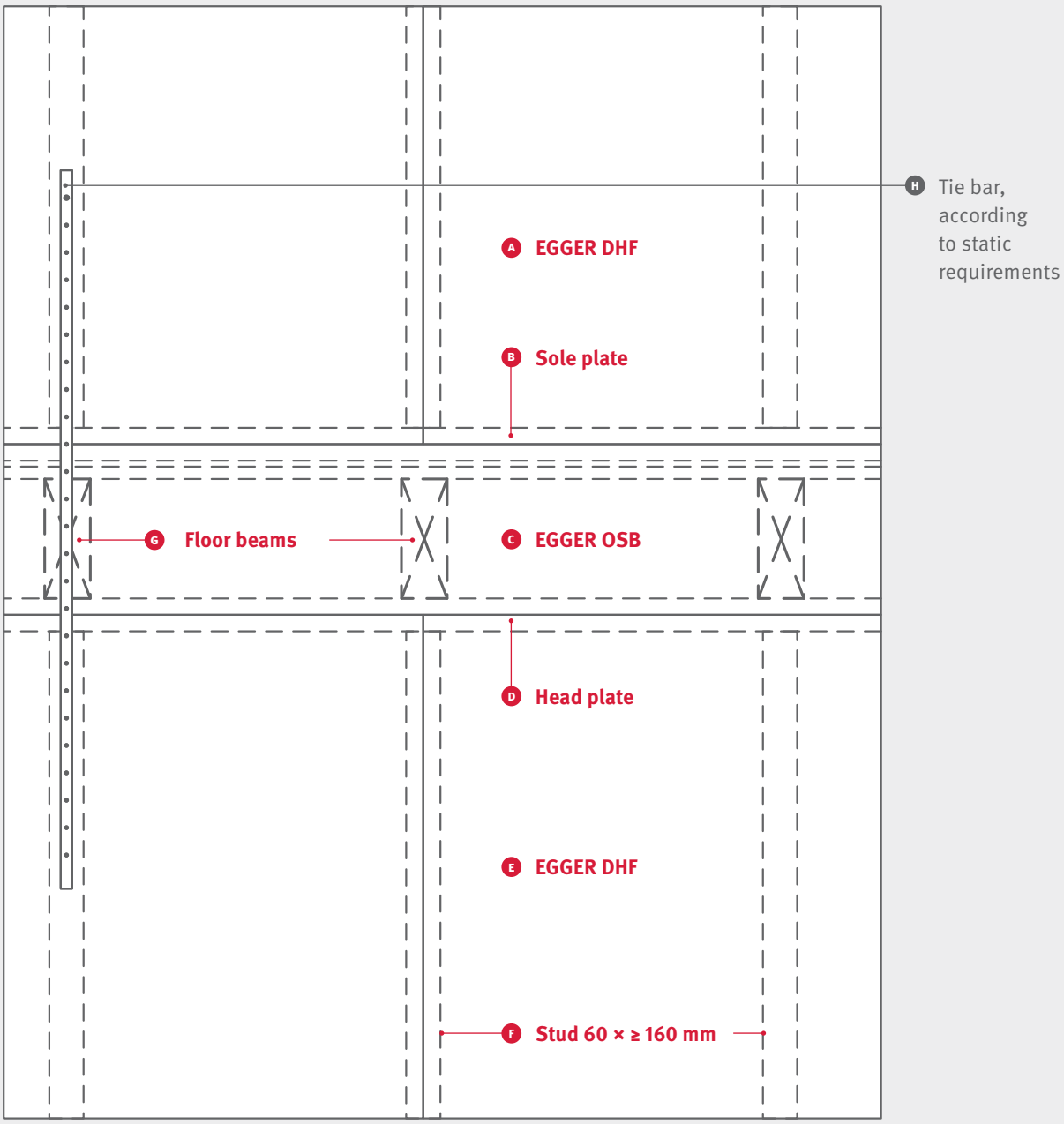
4.1.7 Tensile bracing wall element on floor slab



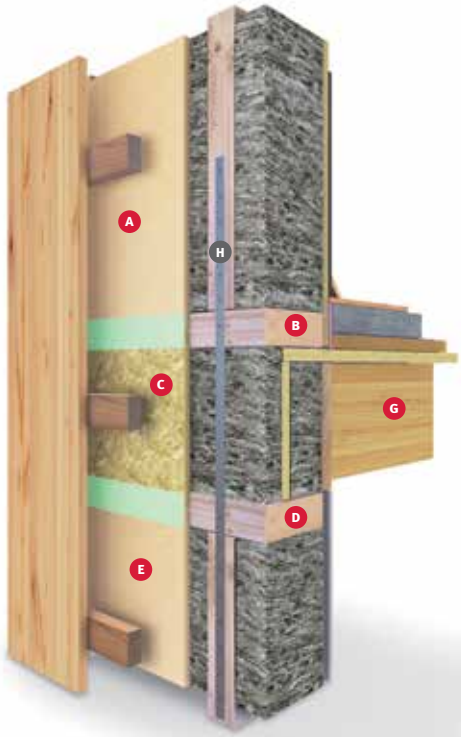
GTE = Ground top edge

Prior and after the mounting of the tension rod, the **airtightness** must be achieved.

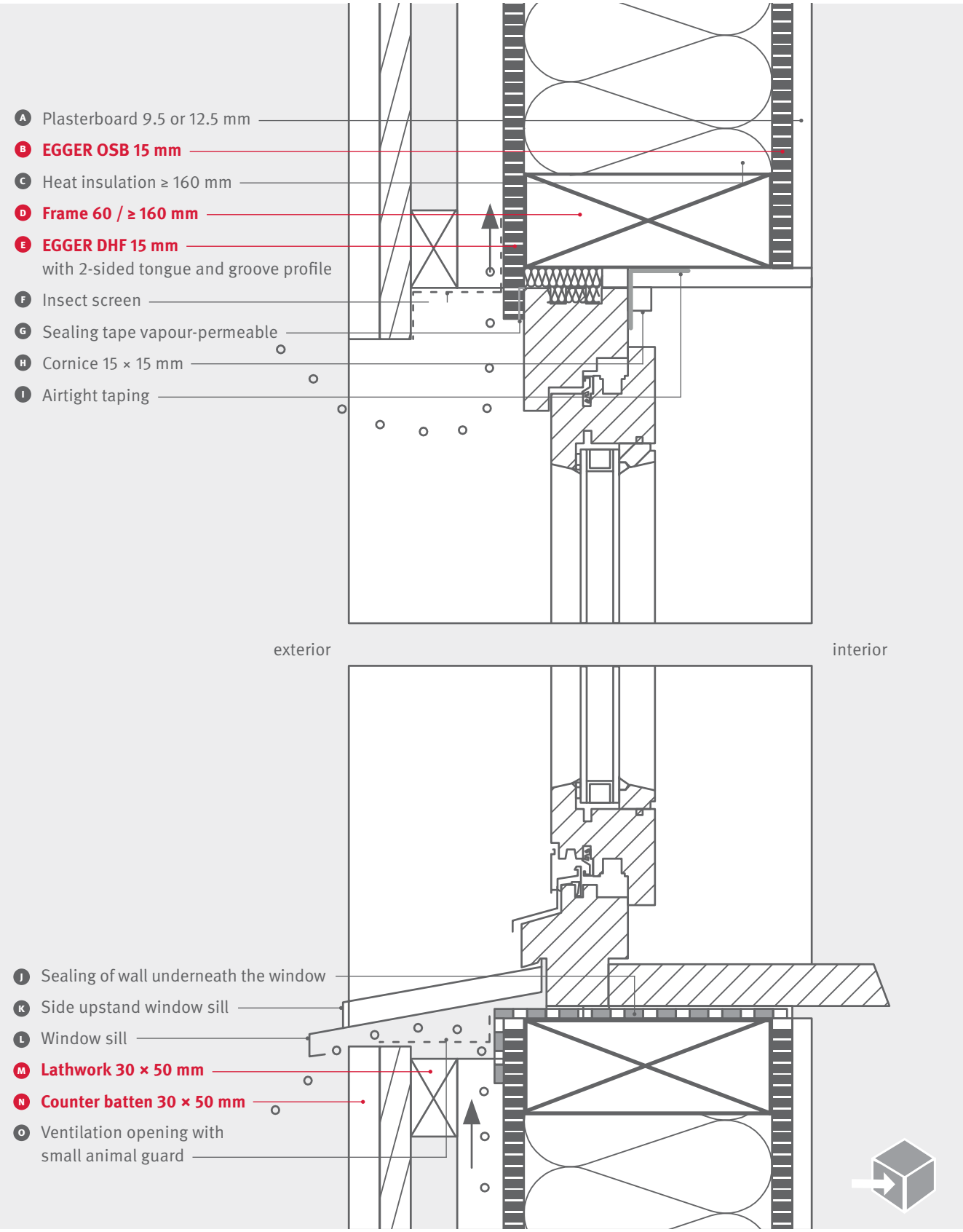
4.1.8 Tensile bracing level / floor joint



The floor joint is secured against shearing stress via a strip made of **EGGER OSB**. If the protection against uplifting caused by wind suction is not sufficient, perforated sheets are used for additional boarding up, according to static requirements.

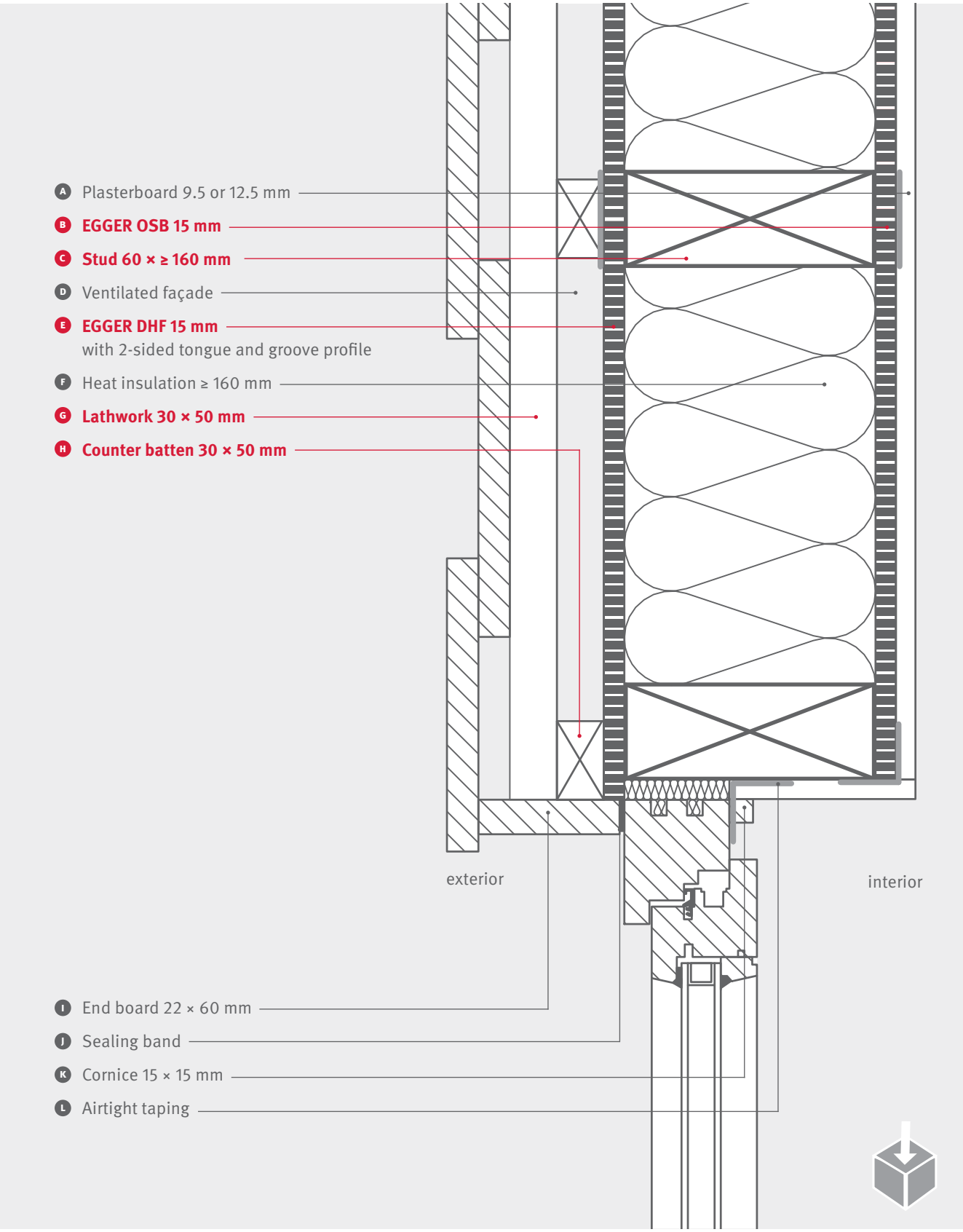


4.1.9 Connection door or window



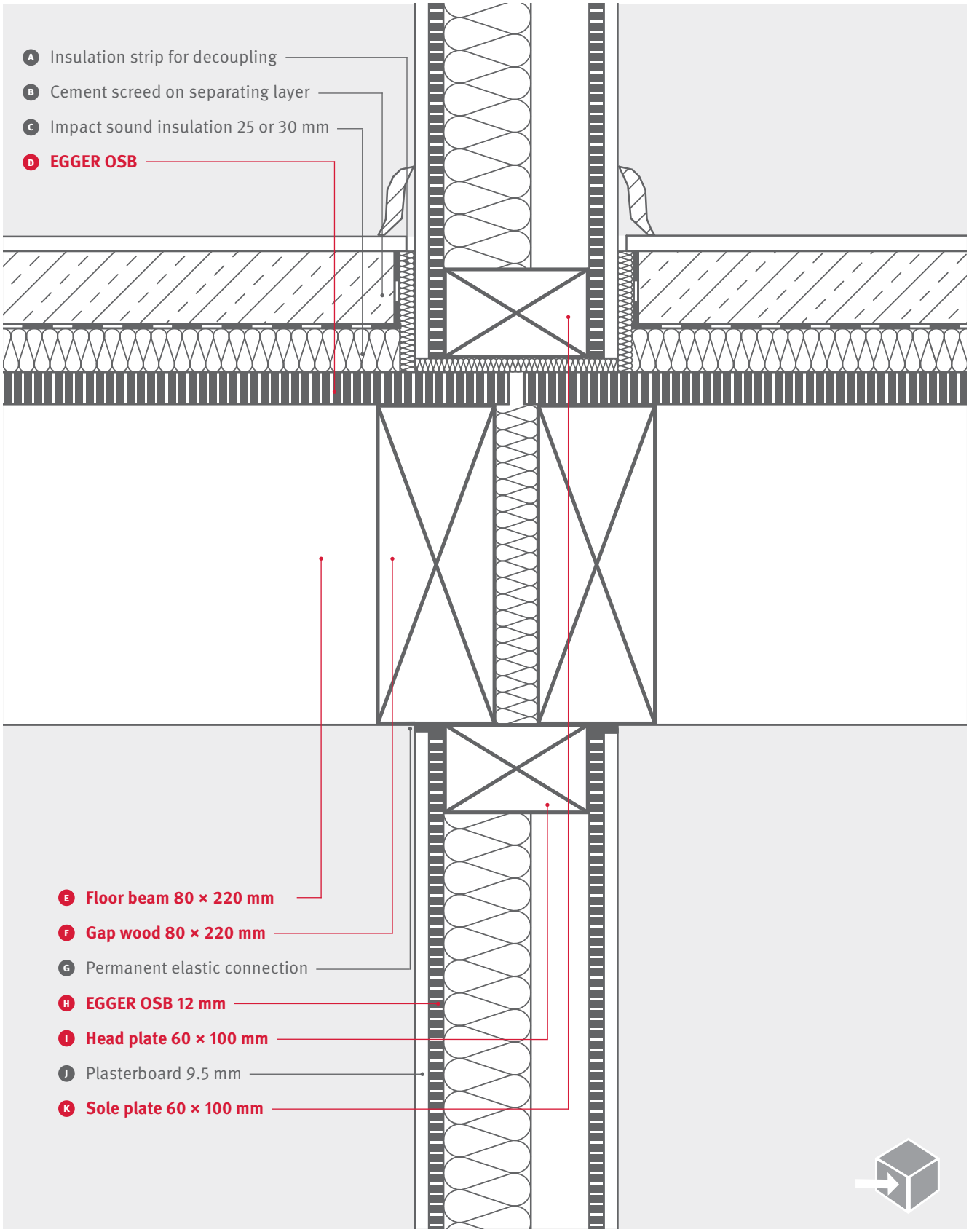
If highly insulated wall constructions are used, **windowpanes with increased heat protection** should also be used (U-value 0.9 – 1.1 W/m²K). South-oriented windows should have possibilities for external shading.

4.1.10 Connection door or window lateral

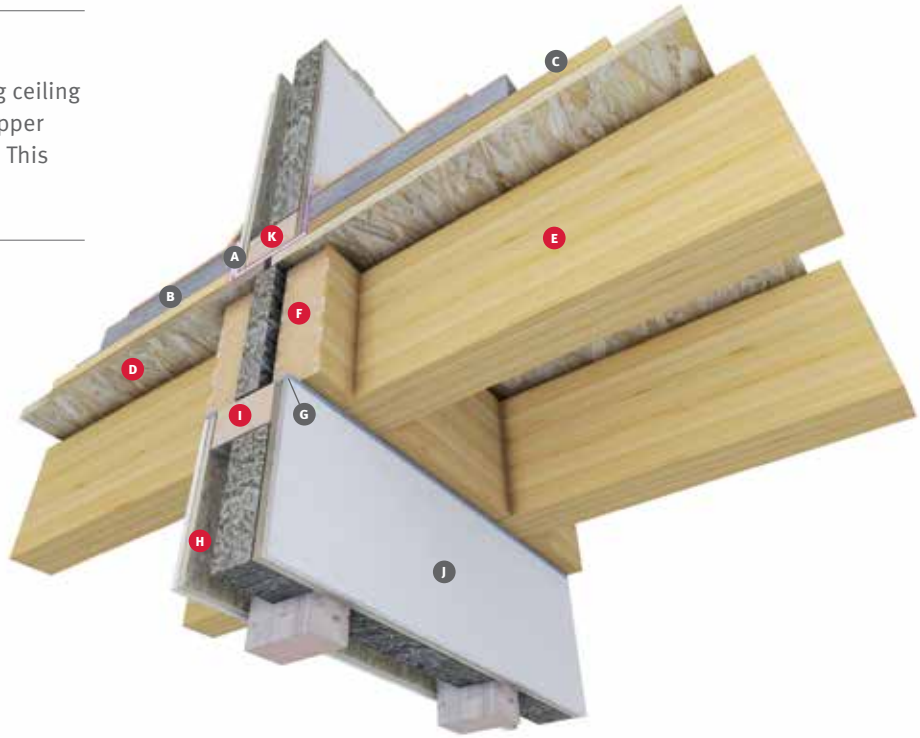


Windows and doors must be **airtight** and should be completely taped, where applicable. Construction foam and sealing bands that are not pre-compressed (pressure lath) are not airtight!

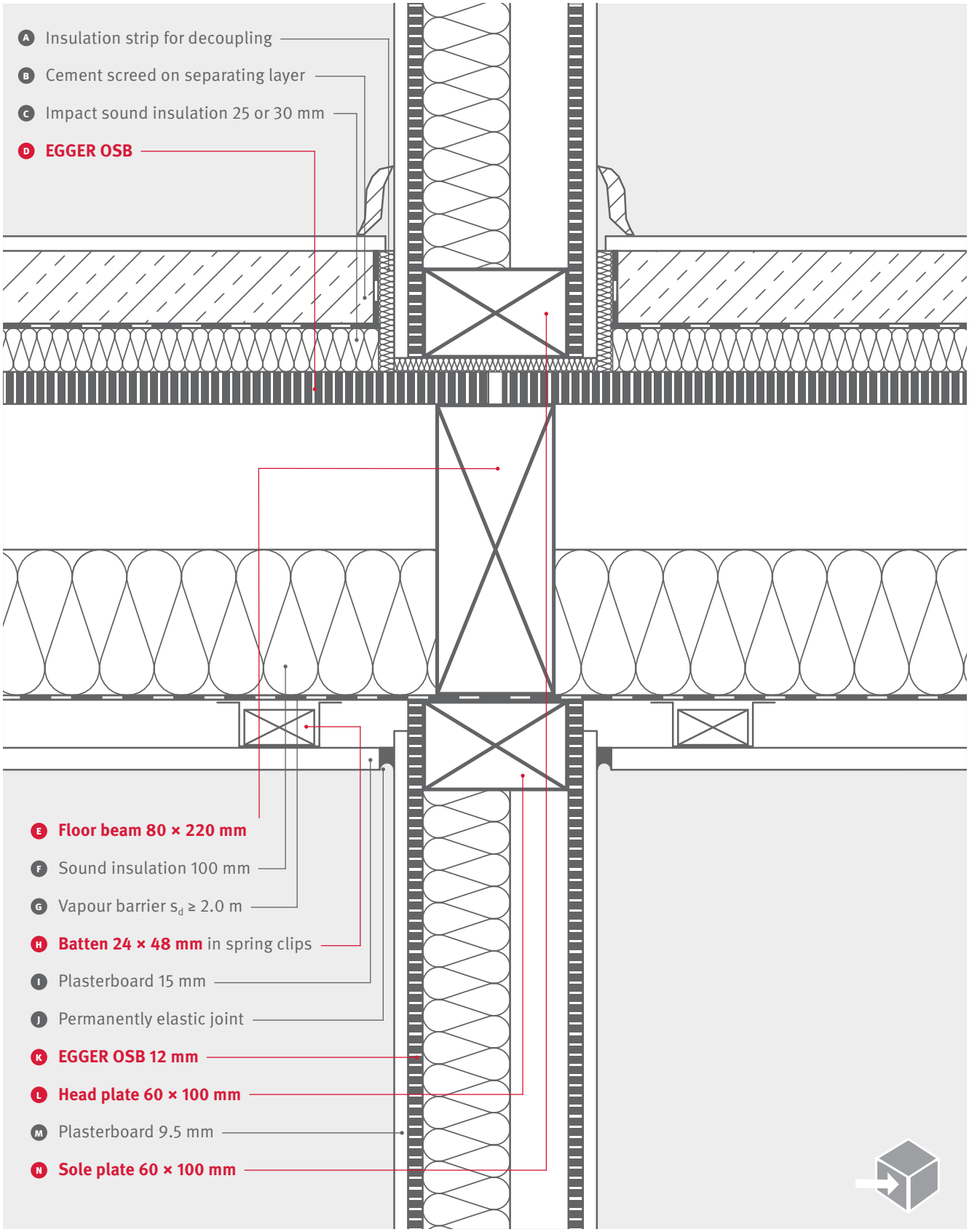
4.1.11 Connection inside wall on ceiling with visible beam layer

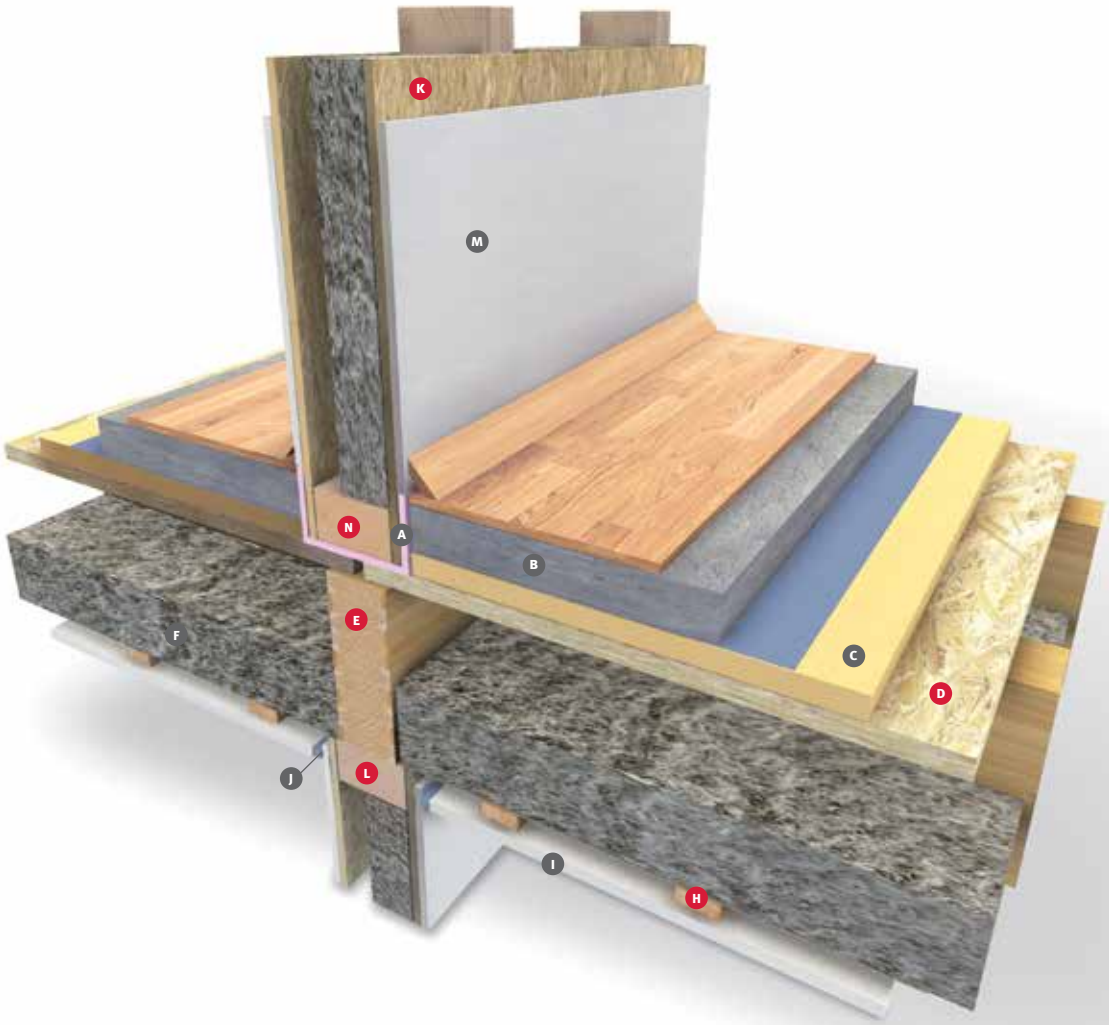


If there is no requirement for the in-plane action, the load-bearing ceiling planking below the wall of the upper floor should be laid **on the joint**. This reduces sound transmission.

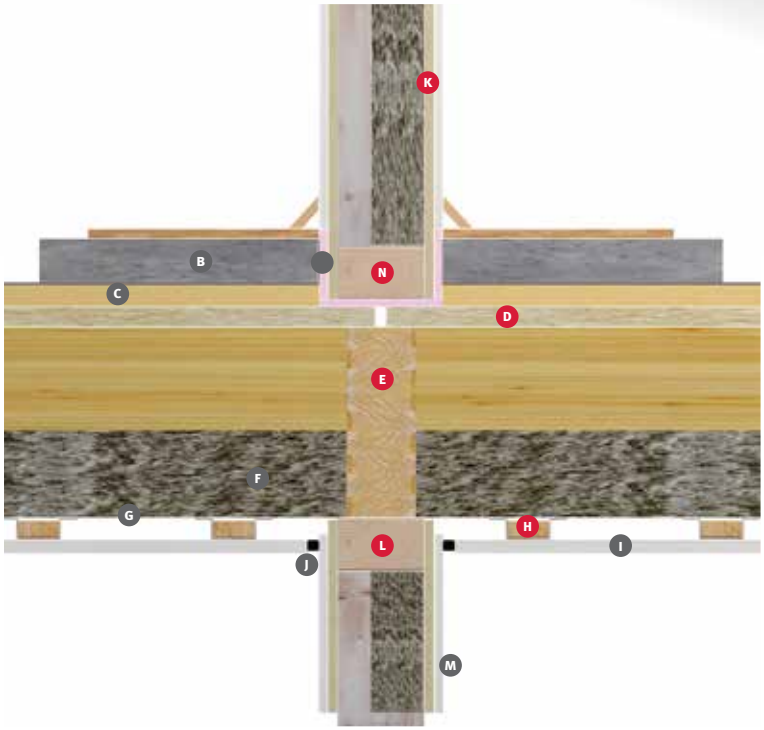


4.1.12 Connection inside wall on closed ceiling with increased soundproofing

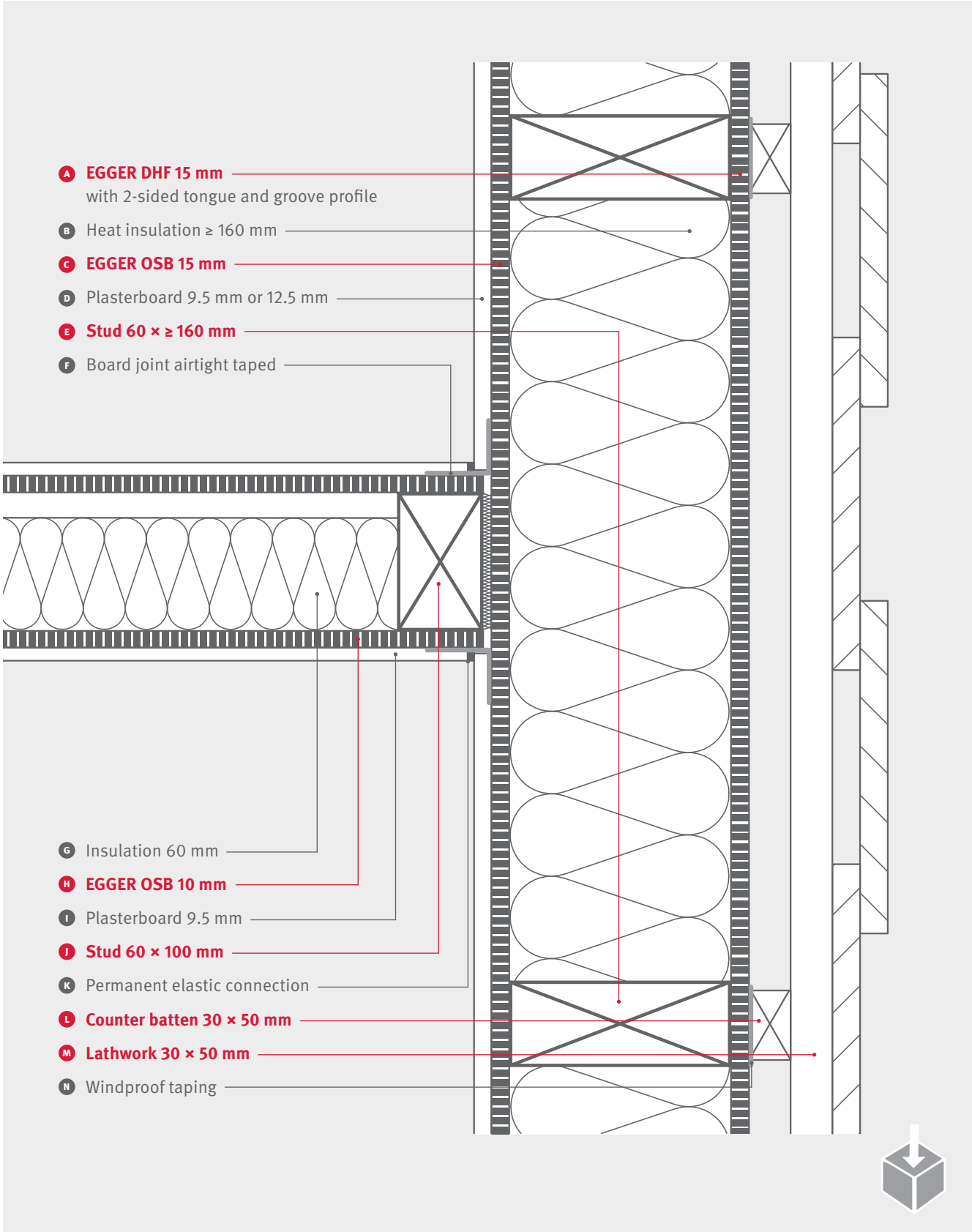




Hanging the ceiling planking on spring clips may lead to an **impact sound improvement** of up to 10 dB. To this end, the spring clips must be free of kinks after installation and hang loose on the screw heads with approx. 1 mm clearance.

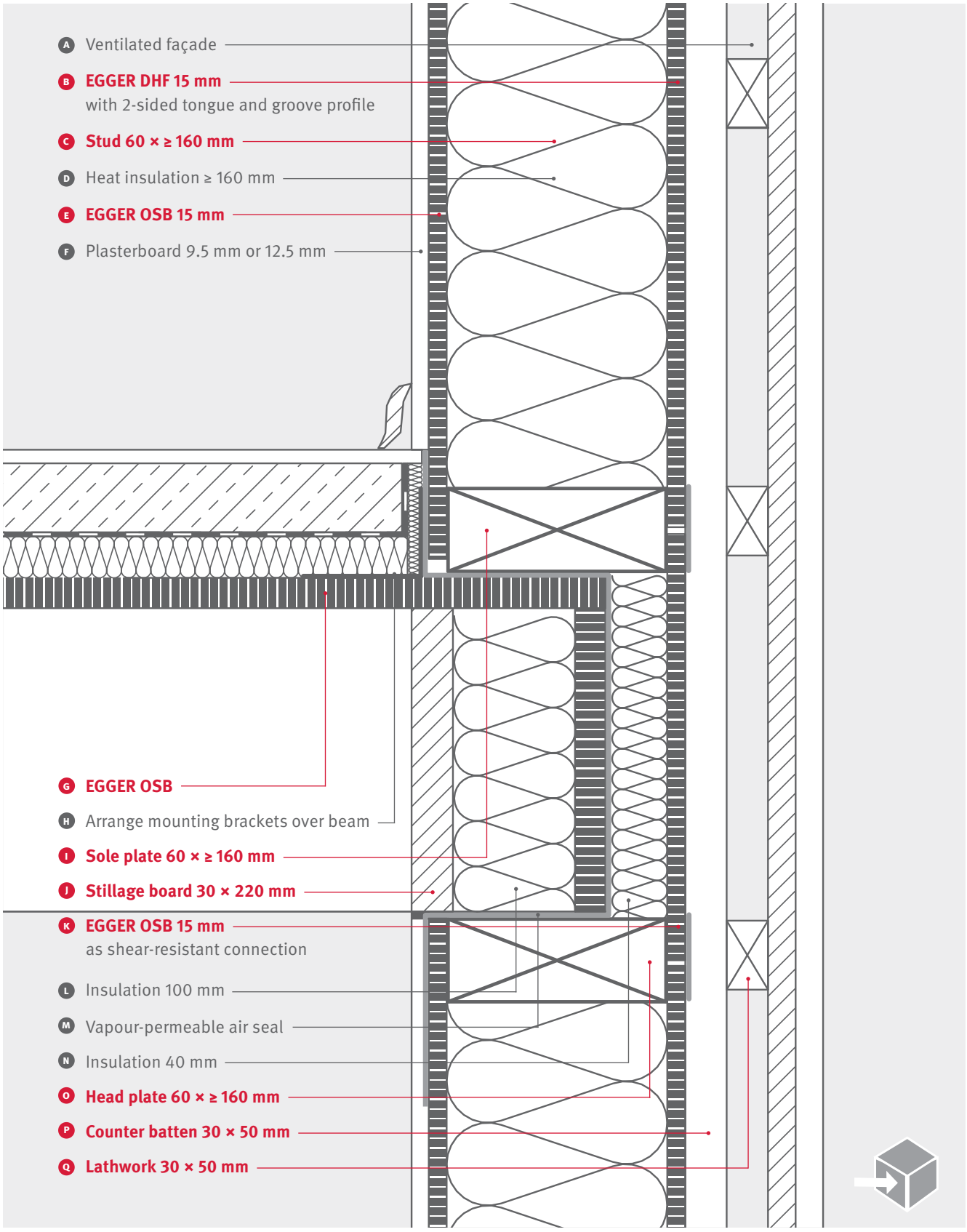


4.1.13 Connection inside wall at outside wall in the field



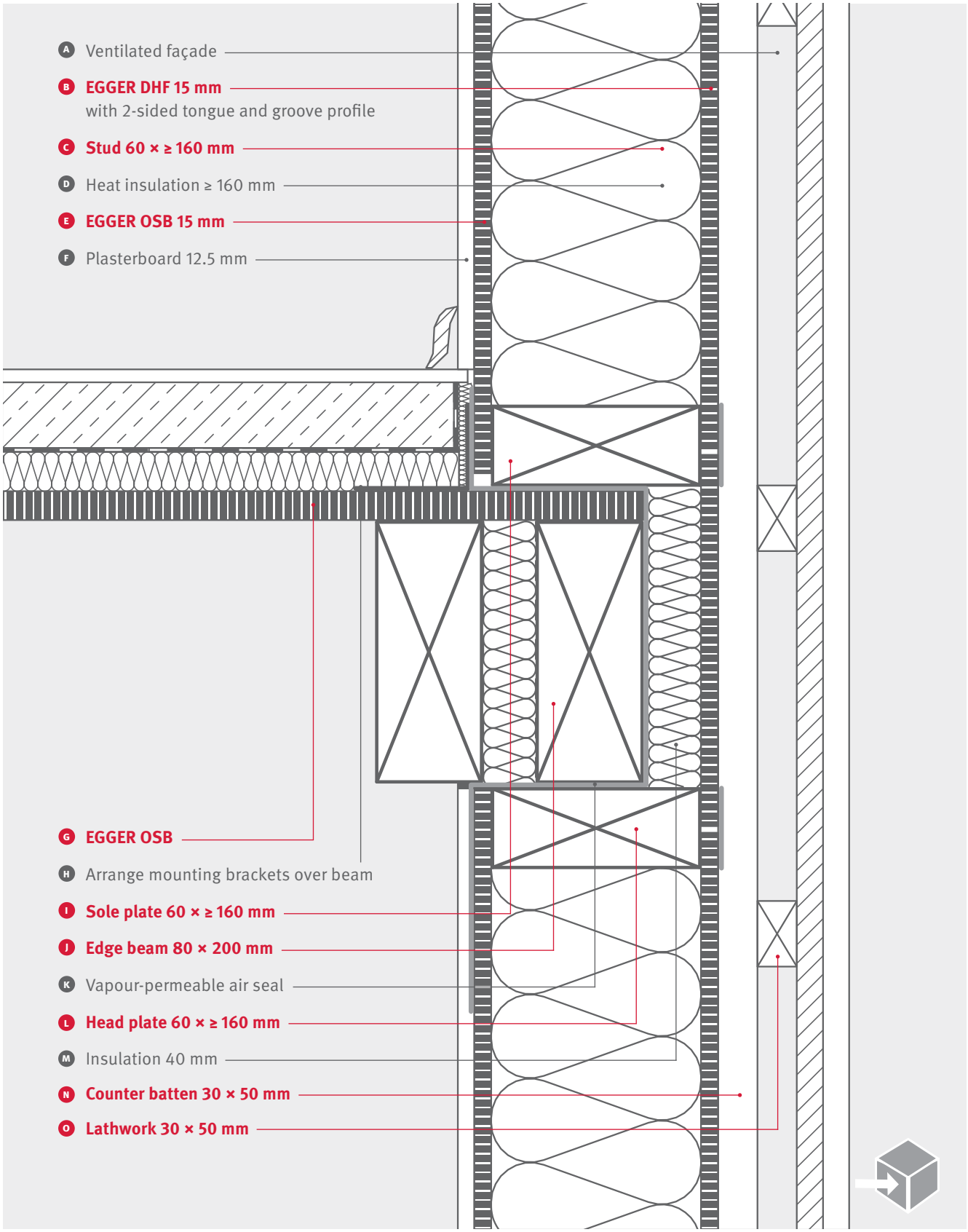
In order to improve the sound protection, the interior planking of the external wall may be installed on the wall stud **on the joint**.

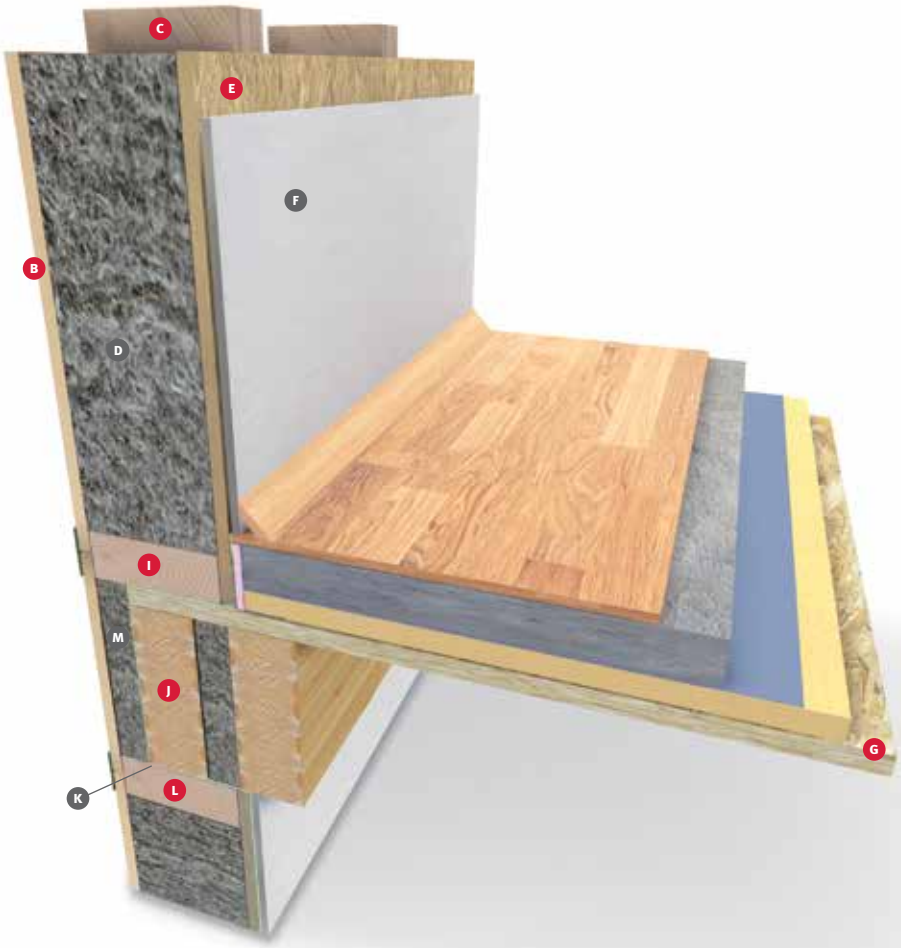
4.1.14 Connection outside wall on visible beam layer (beam head support)



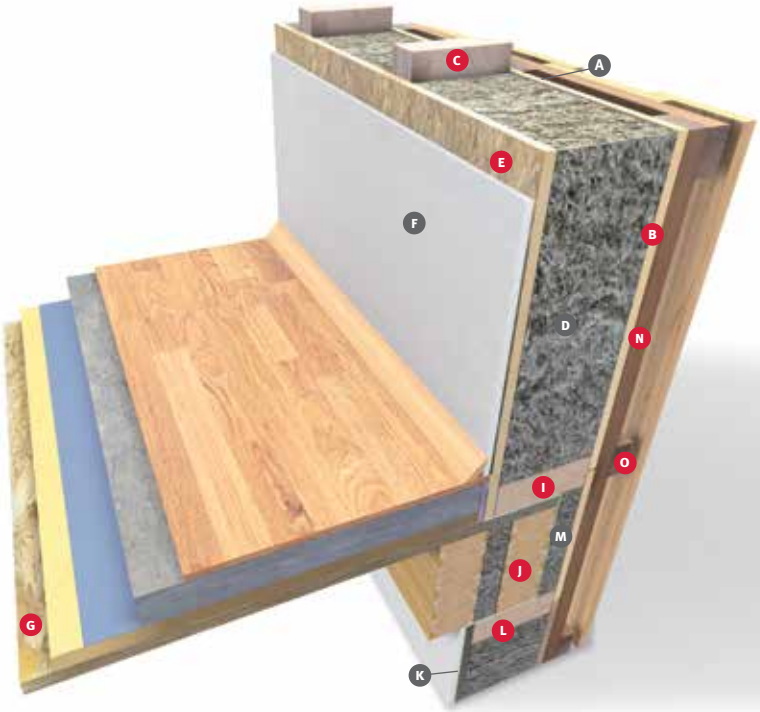
Given that a flush connection between the stillage board and wall element is difficult to achieve, the difficulty of the execution may be diminished with an **intentionally included offset**.

4.1.15 Connection outside wall on visible beam layer (edge beam)

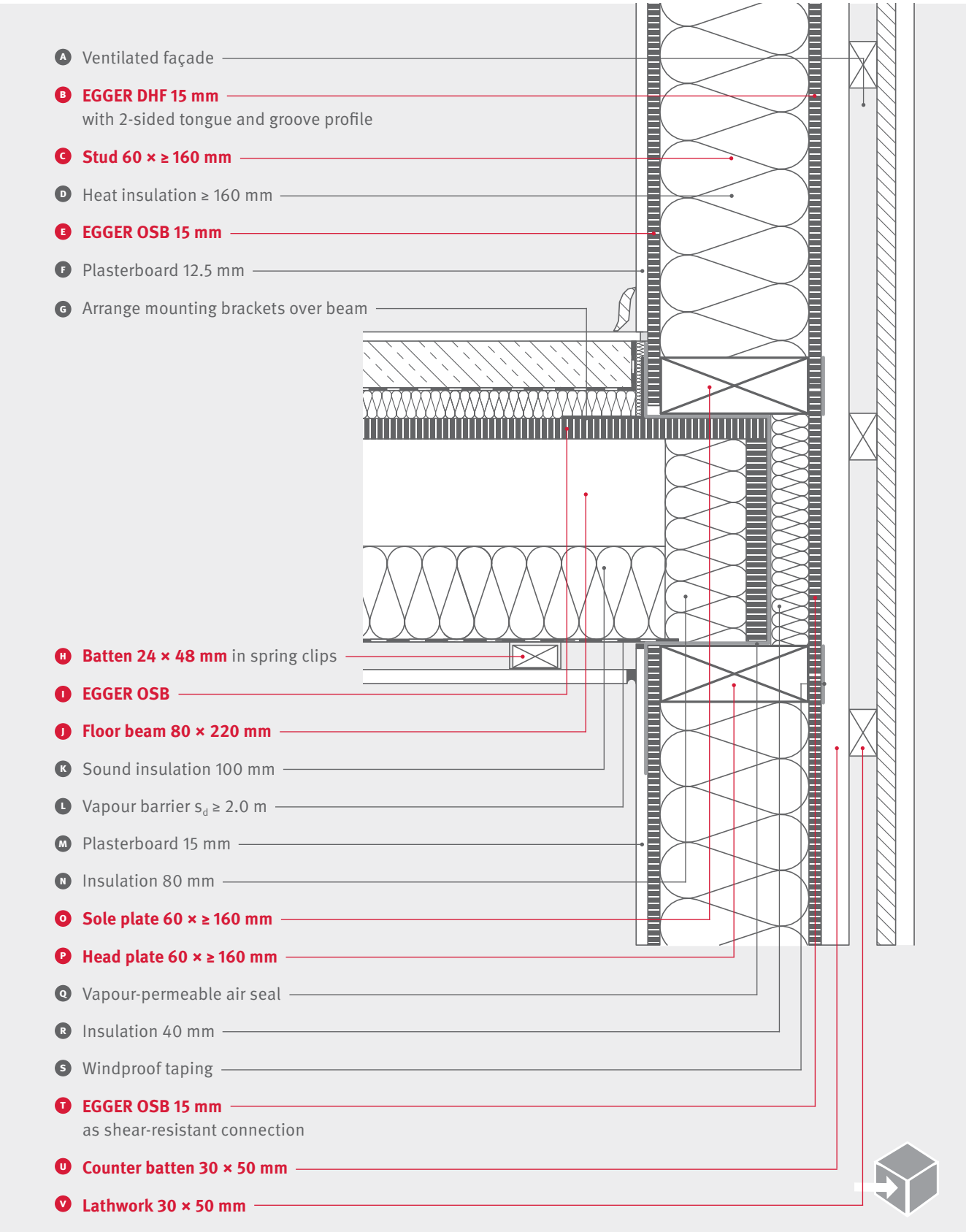


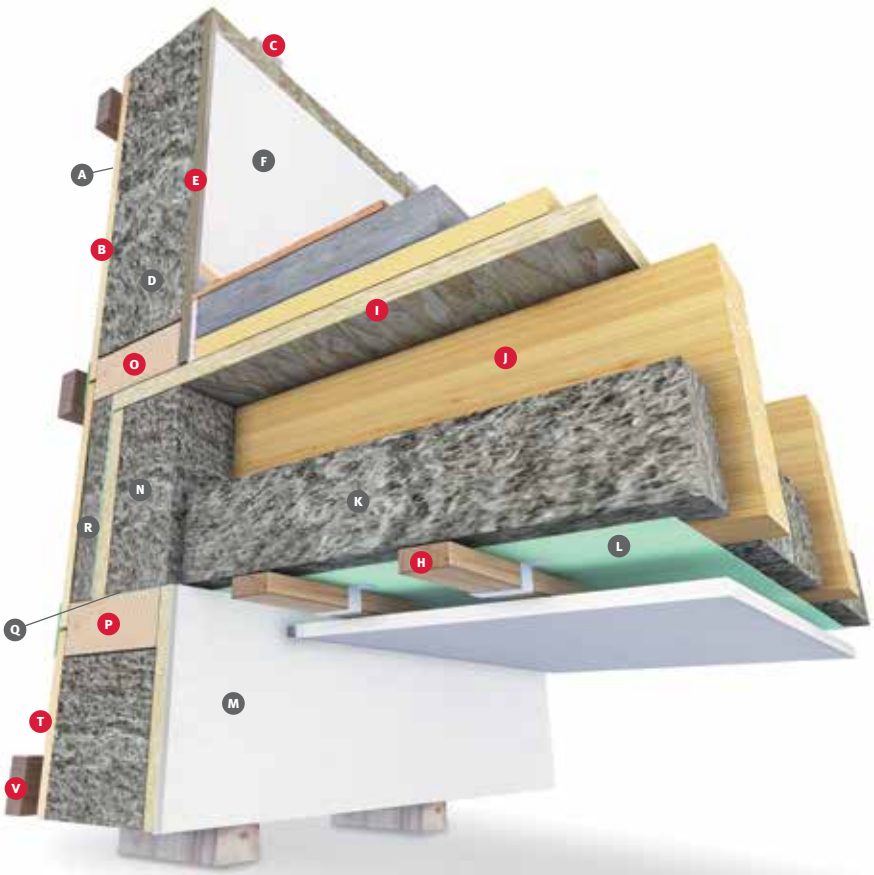


In order to diminish the thermal bridge, it is recommended to include an insulation layer between bearing and external planking. This compensated the **thermal bridge effect** of the load-bearing ceiling planking.

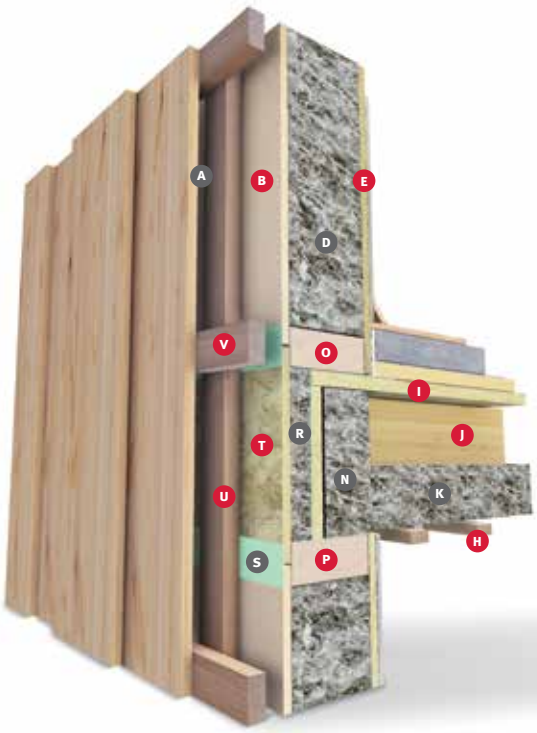


4.1.16 Connection outside wall on closed ceiling with increased soundproofing

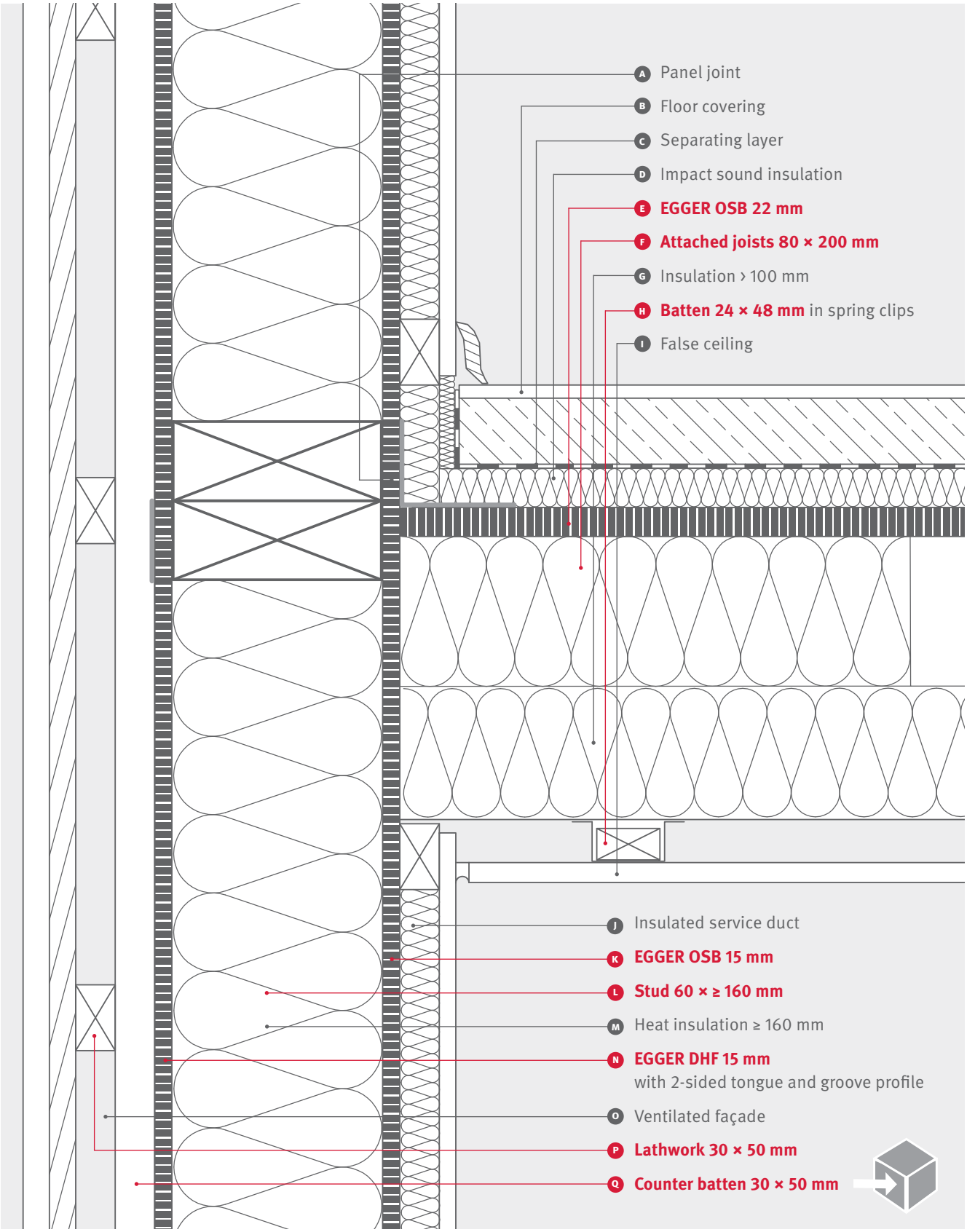




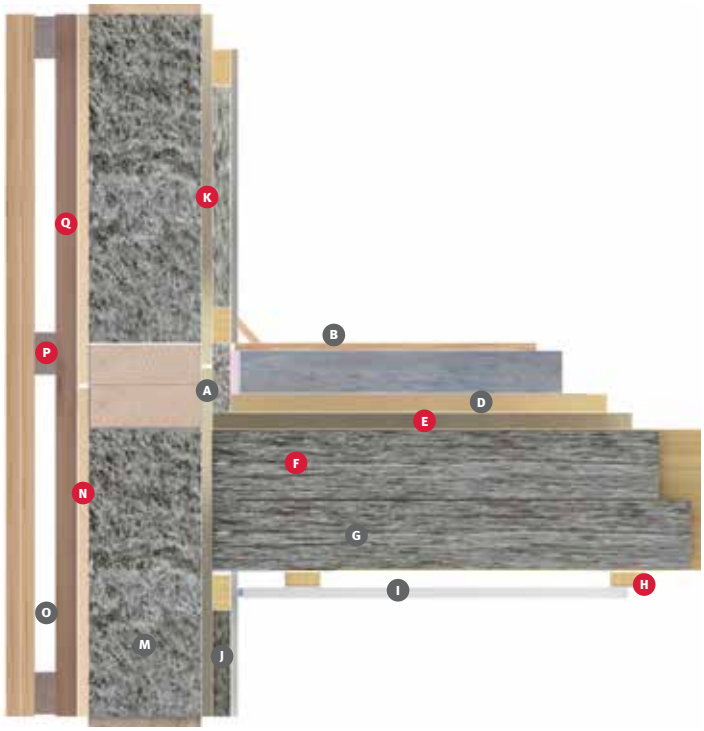
In the area of the ceiling connection, a **continuous airtightness path** must connect the top and bottom airtightness level.



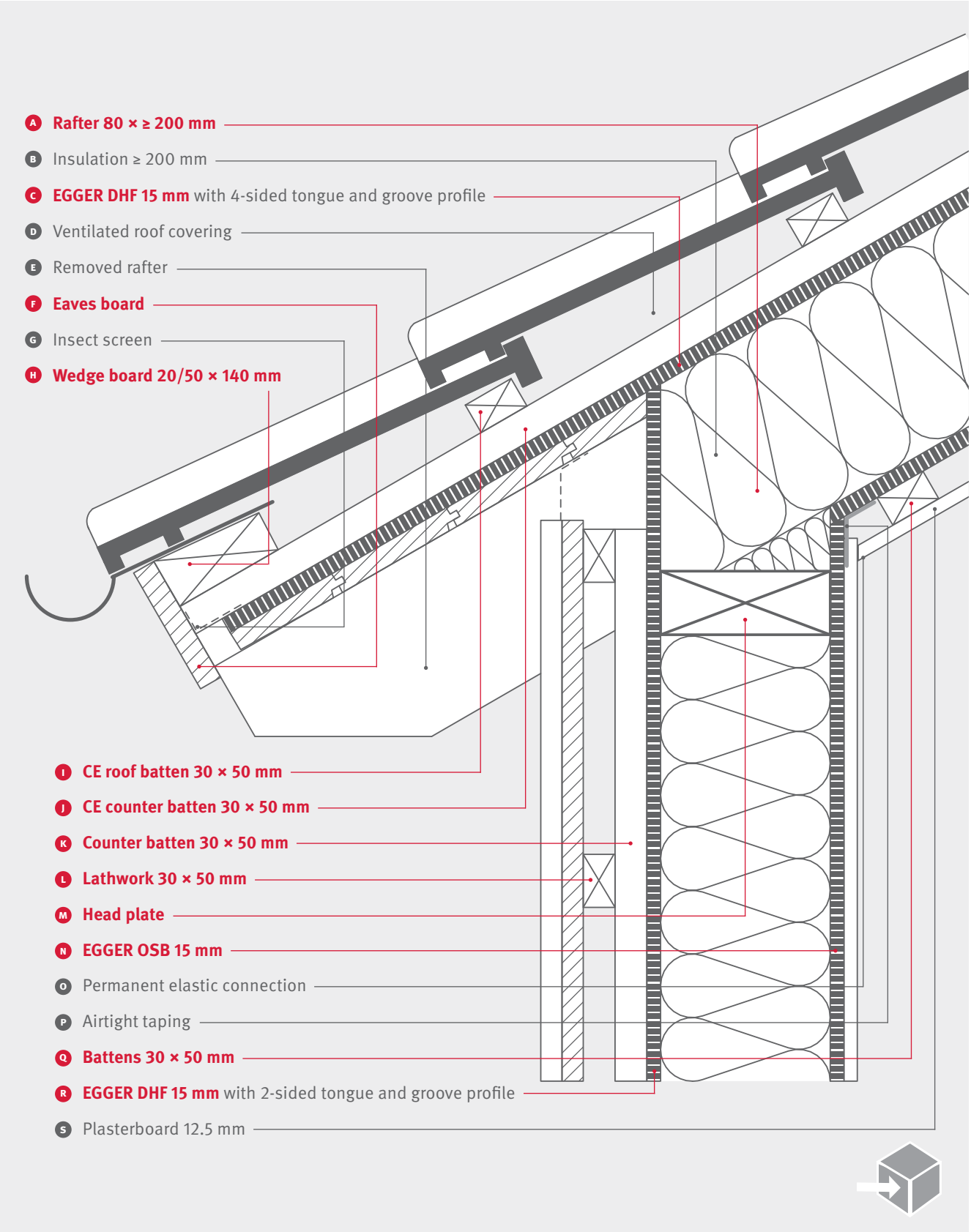
4.1.17 Connection outside wall on closed ceiling (balloon framing)



Continuous joints from the inside to the outside in the wall should be **avoided**. The panel joint of the interior wall planking may be realised by using floor-to-ceiling high OSB 4 TOP and DHF boards above the ceiling structure. This makes the taping of the corner joints easier and safer.

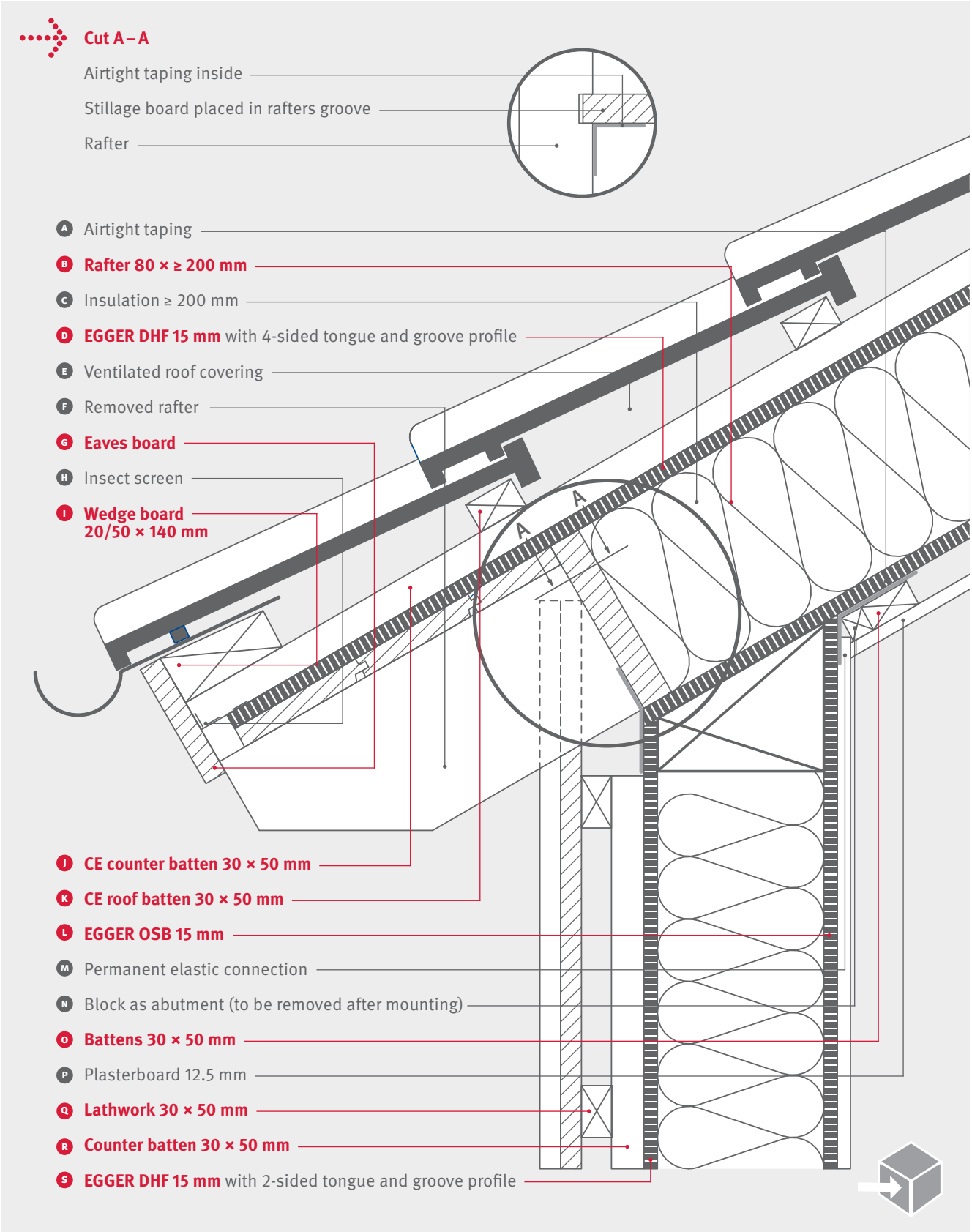


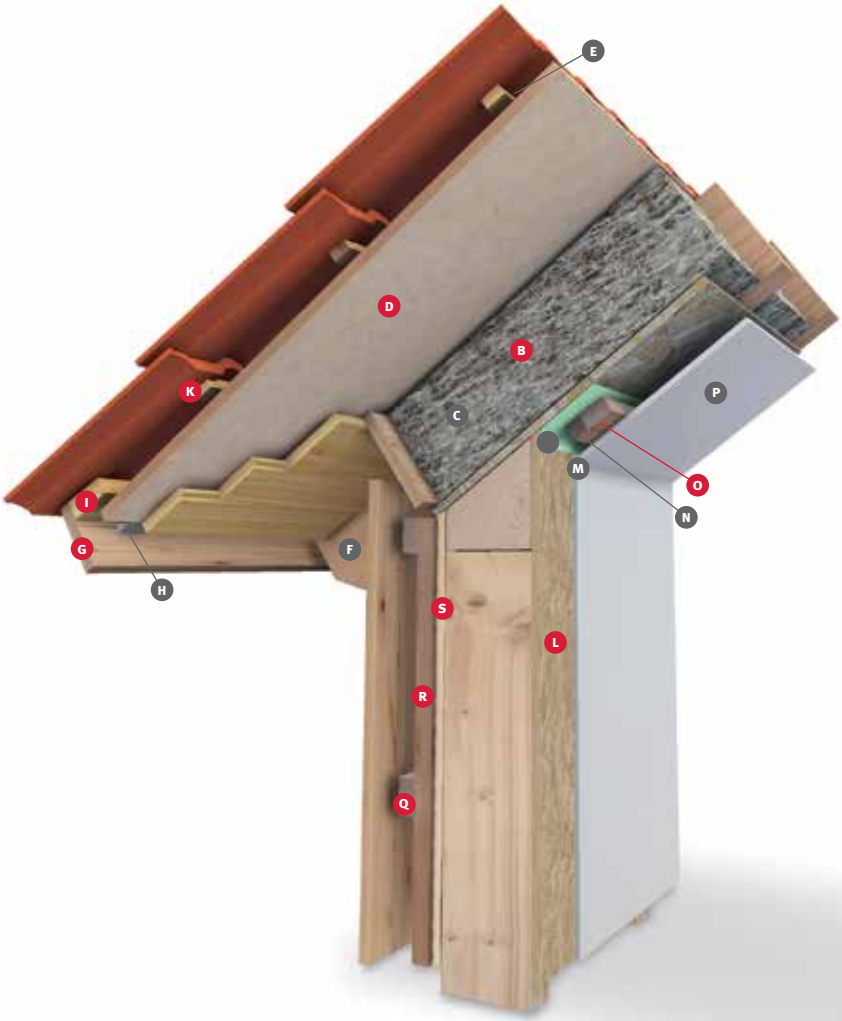
4.2.1 Connection pitched warm roof at the eaves



If there is no additional profile formwork in eaves and verge, the DHF board must be fitted with a **suitable exterior painting** (e.g., Adler paint).

4.2.2 Connection pre-fabricated warm roof element at the eaves

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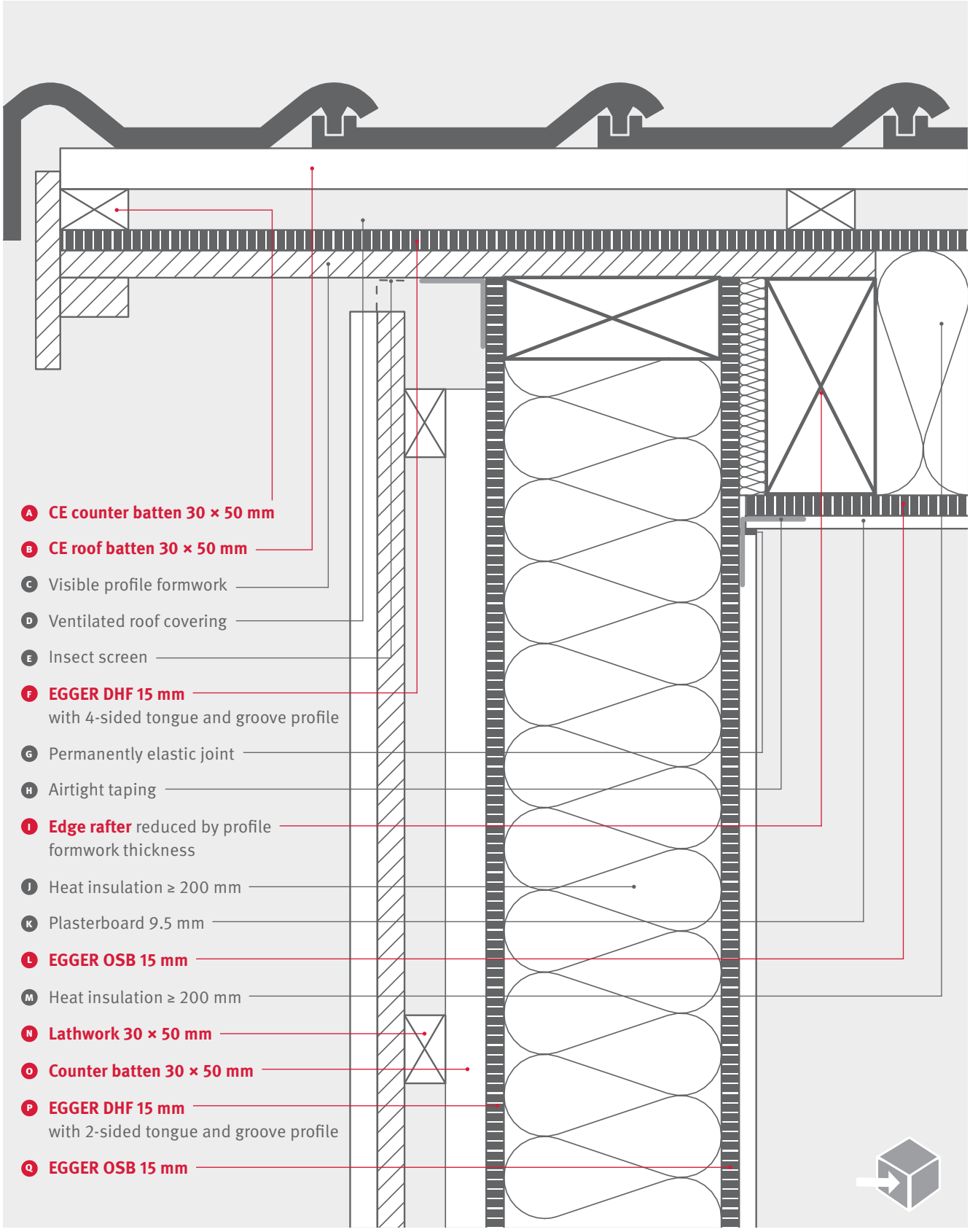
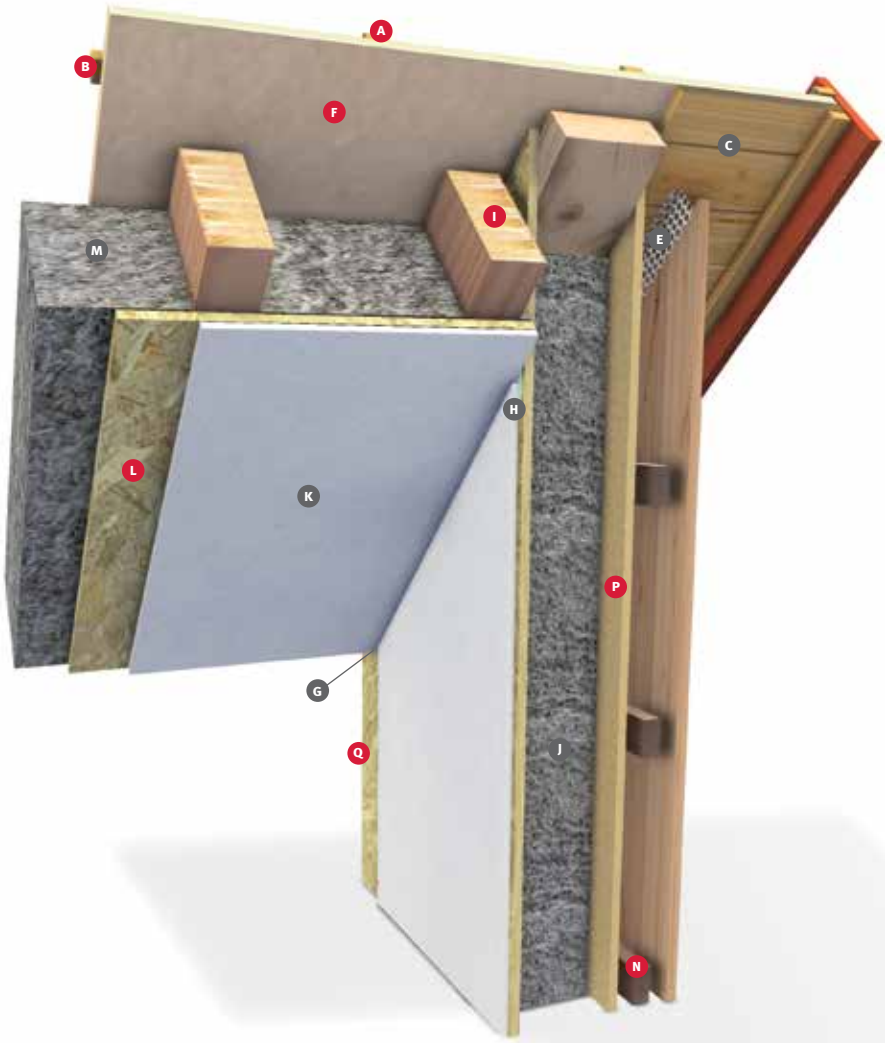
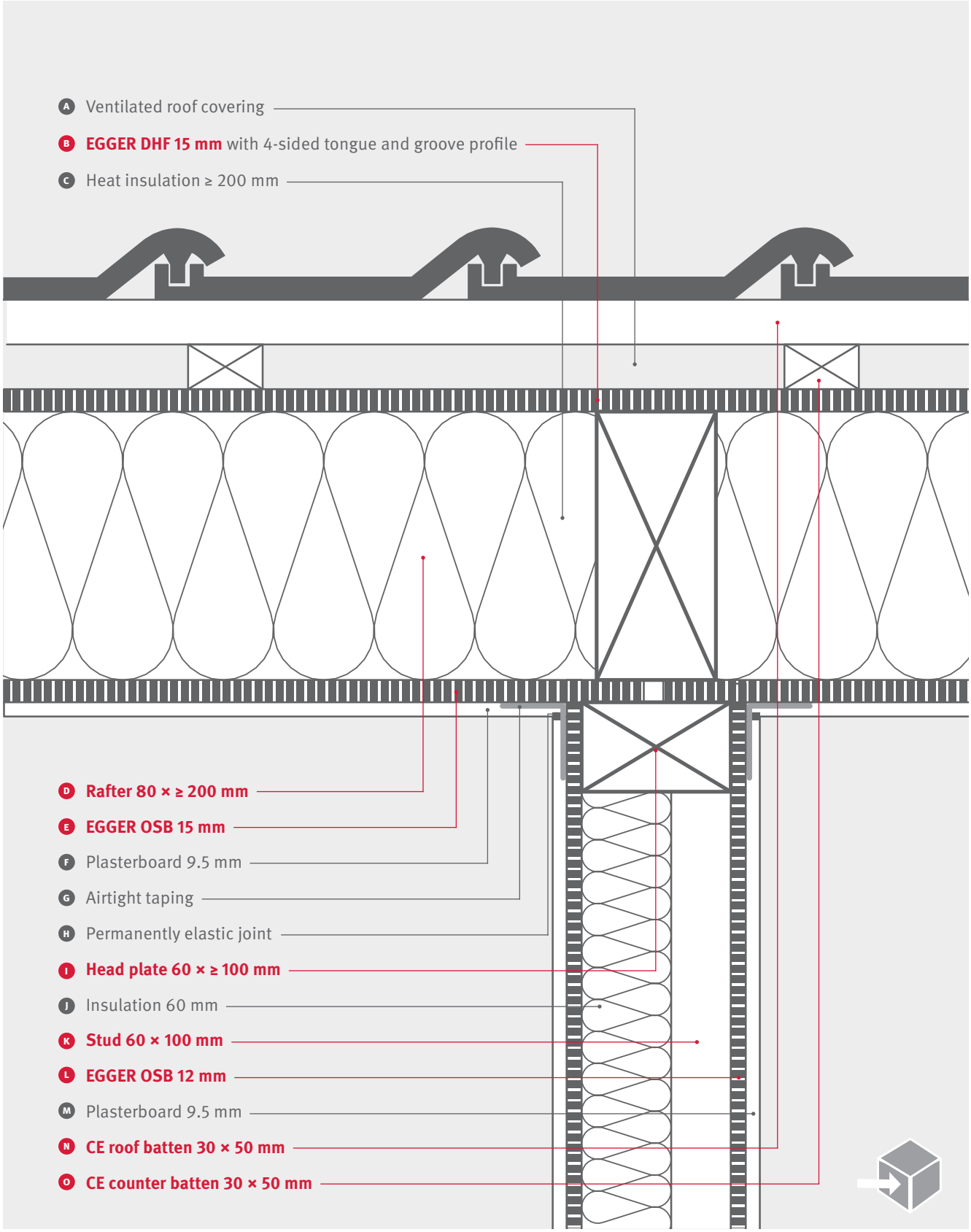
4.2.3 Connection warm roof at verge

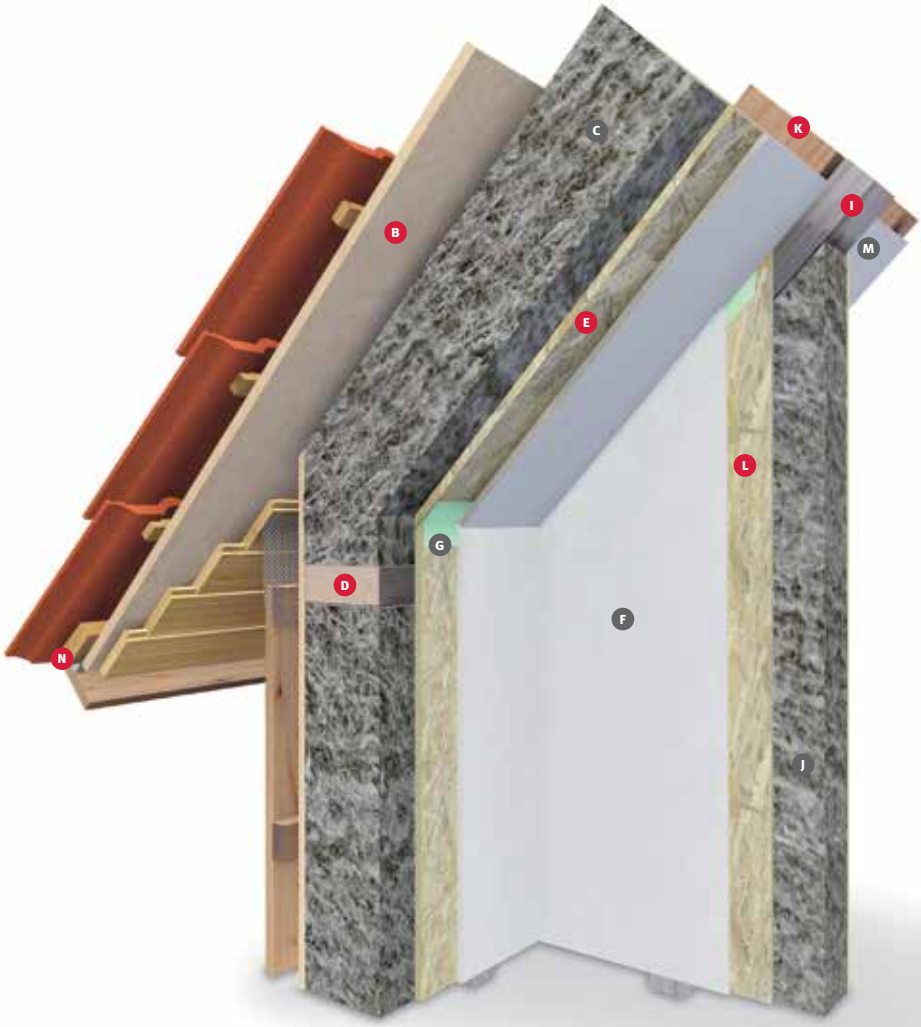




An insulation layer of at least 2 cm between wall rafters and external wall is recommended to **diminish the thermal bridge effect**.

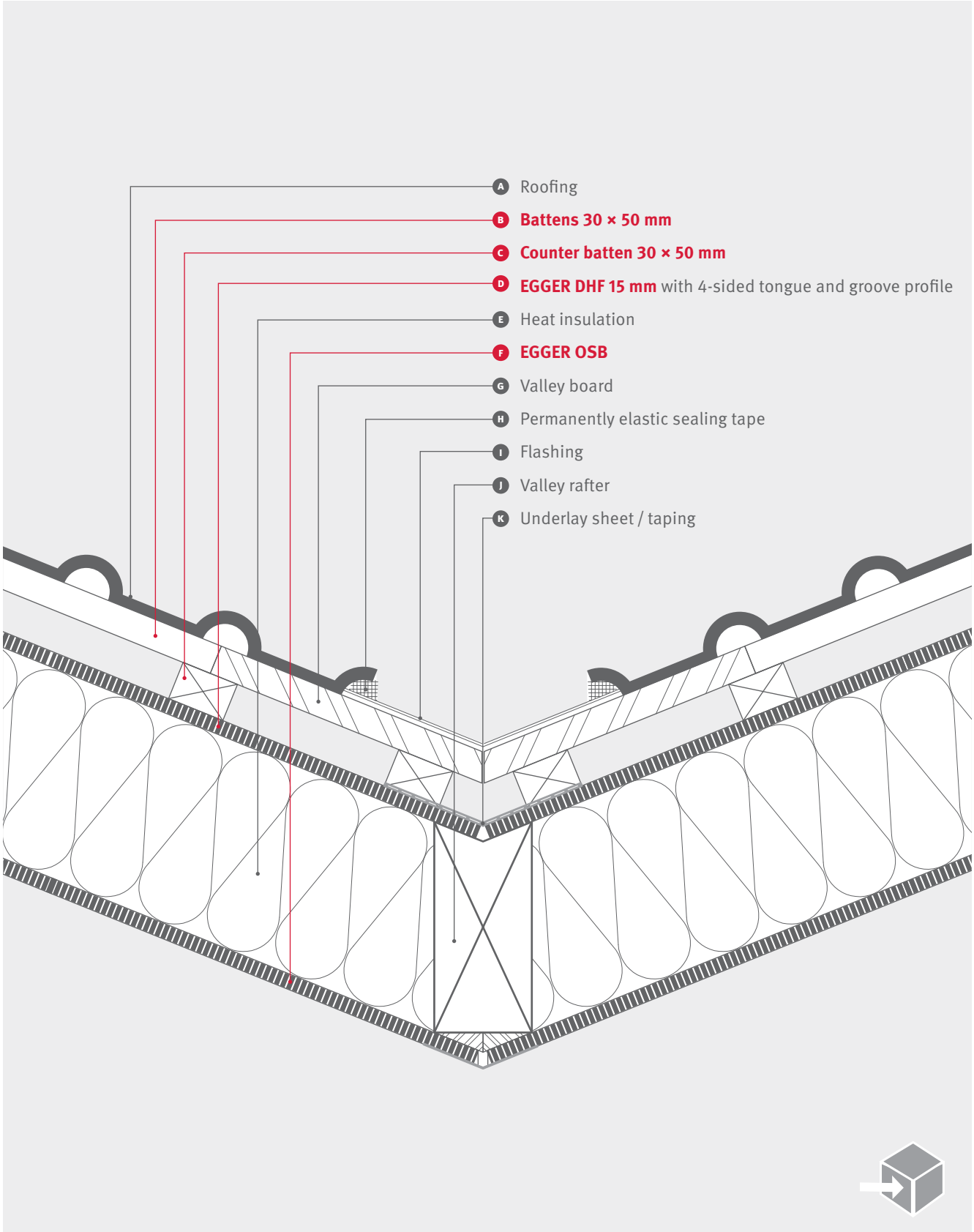
4.2.4 Connection interior wall on warm roof on the side of the eaves





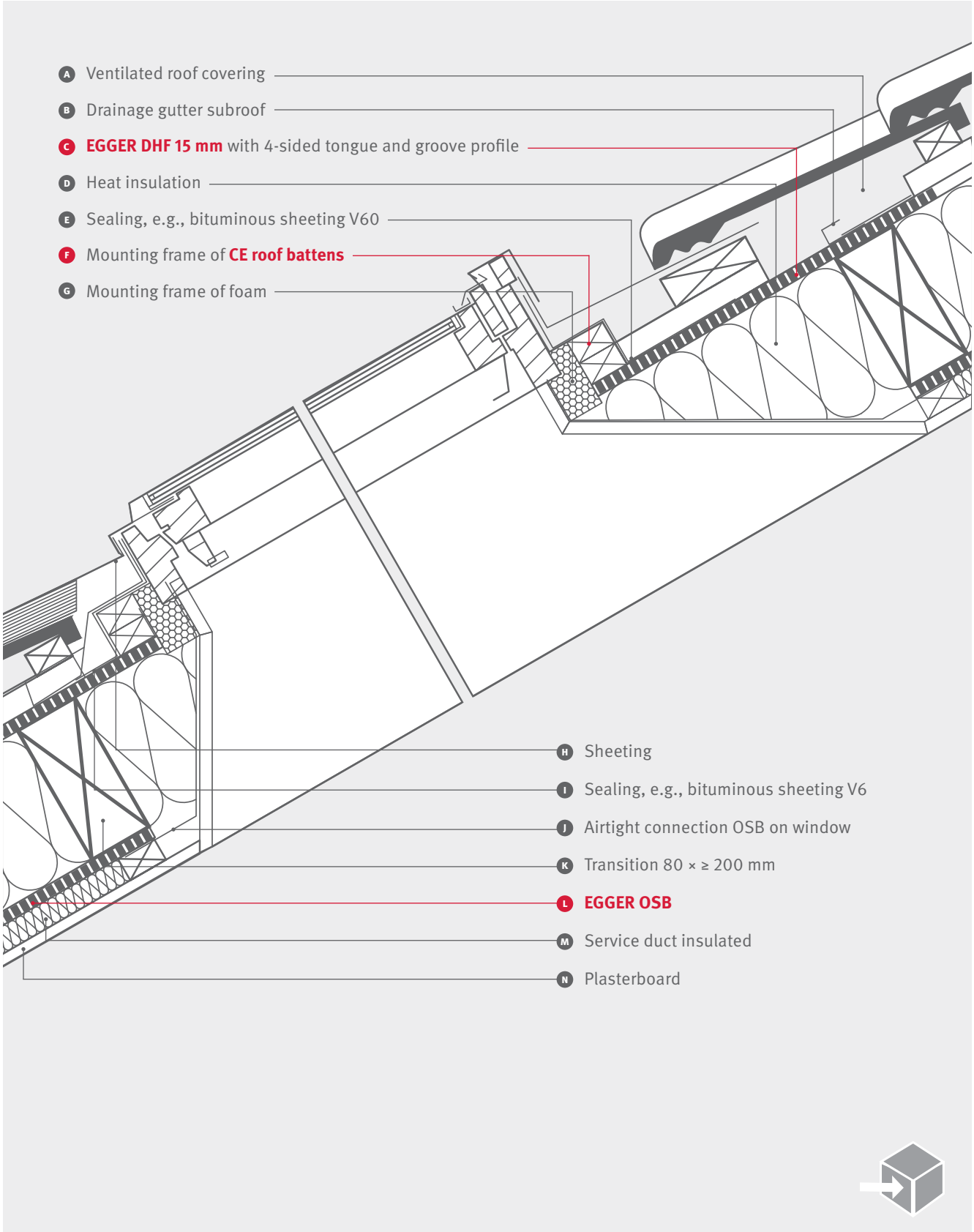
In order to improve **fire protection**, interior wall connections should be placed as far as possible under a rafter. If the bottom roof planking on the rafter is laid with jointing, sound protection can be improved through interruption of the longitudinal line.

4.2.5 Roof valley

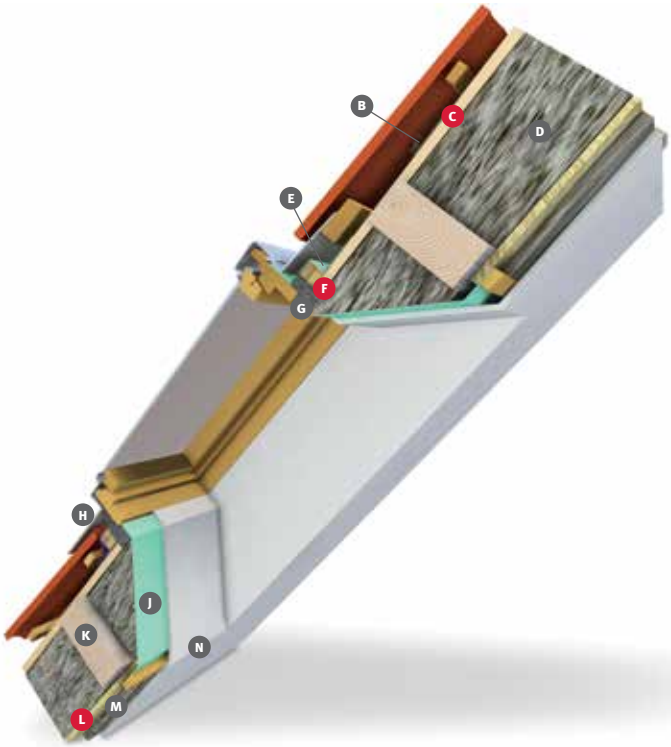


The DHF board builds underneath the sheeting a second water-draining level and must be taped with **adhesive tape**. The width of the adhesive tape should be at least 50 mm on each DHF surface.

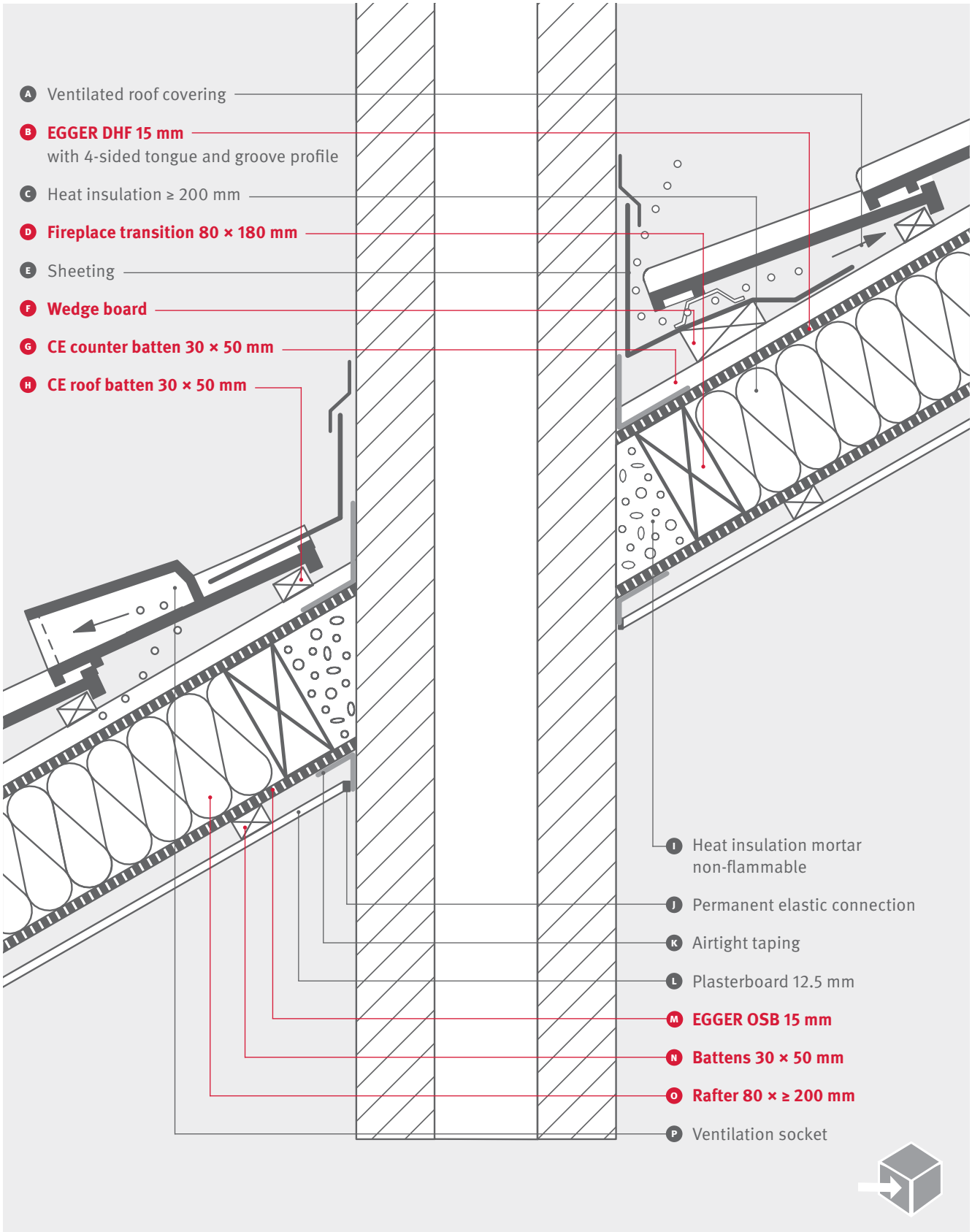
4.2.6 Connection skylight on roof



In the case of large roof windows, it must be ensured that the **ventilation of the roof cover** is ensured for example by ventilation tiles.

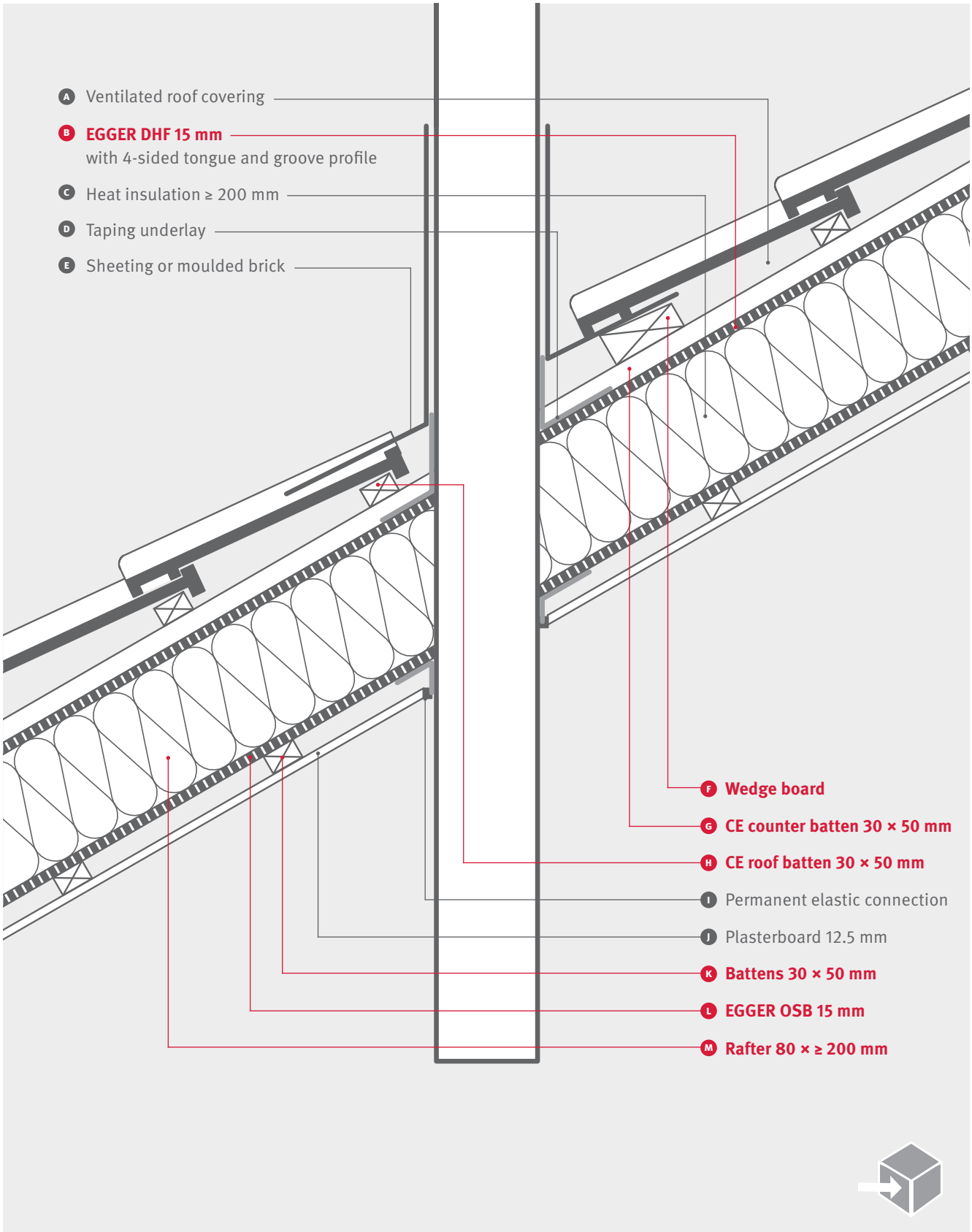


4.2.7 Connection fireplace penetration on roof

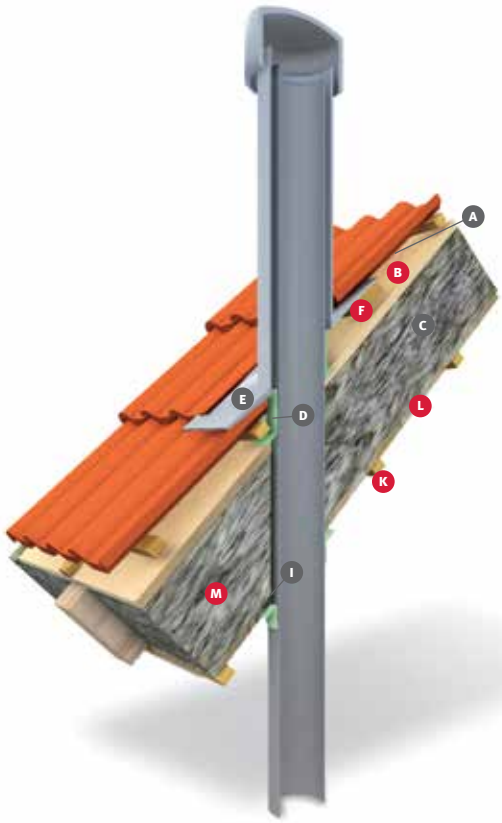


The distance between the fireplace and flammable, load-bearing components (except battens, wood formwork, or similar) must be compliant with the applicable **regional building regulations**.

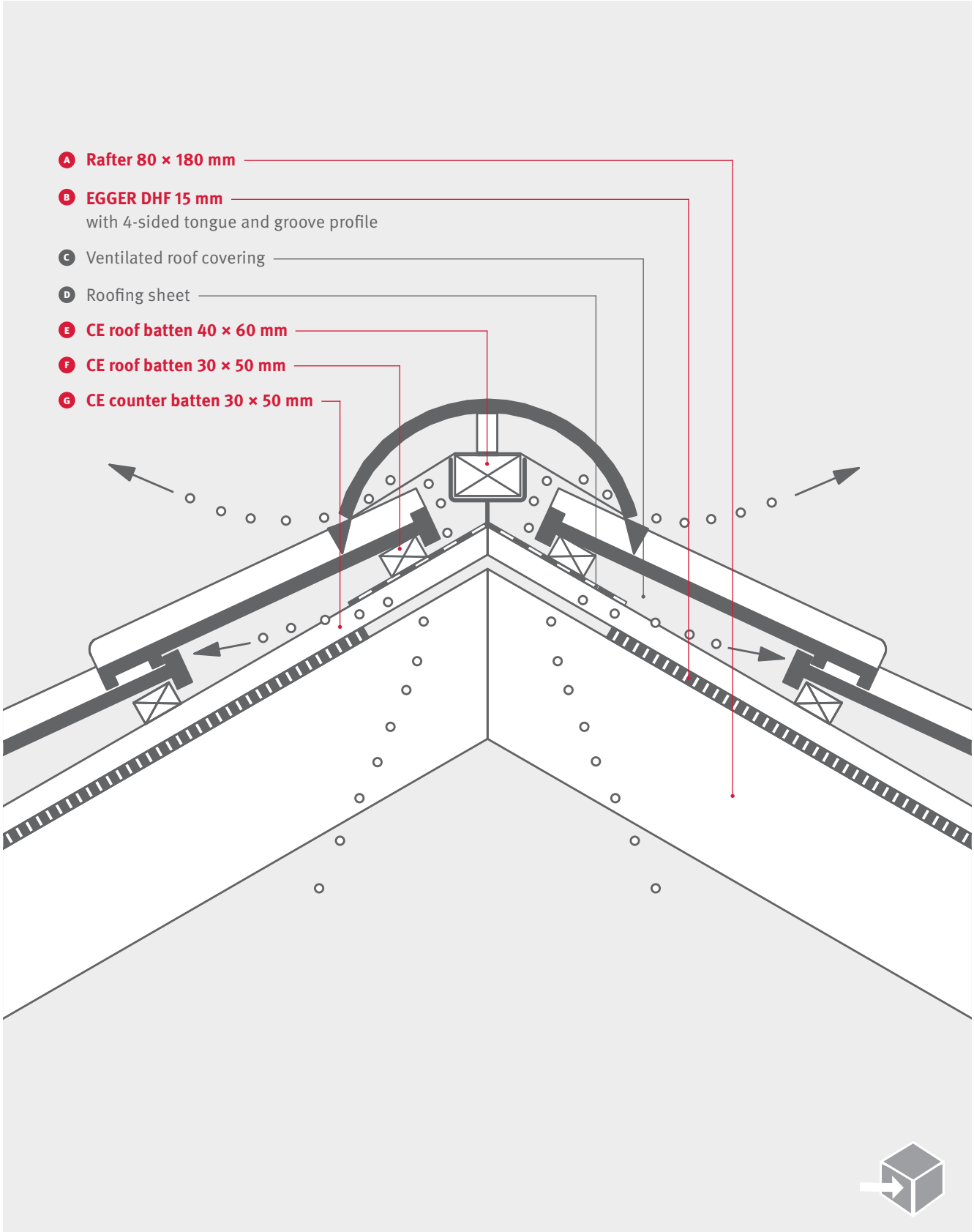
4.2.8 Connection pipe penetration on roof



In the case of complete penetration of external components, **airtightness** and **water drainage** should be achieved with particular care, and should be verified and approved by the carpenter.

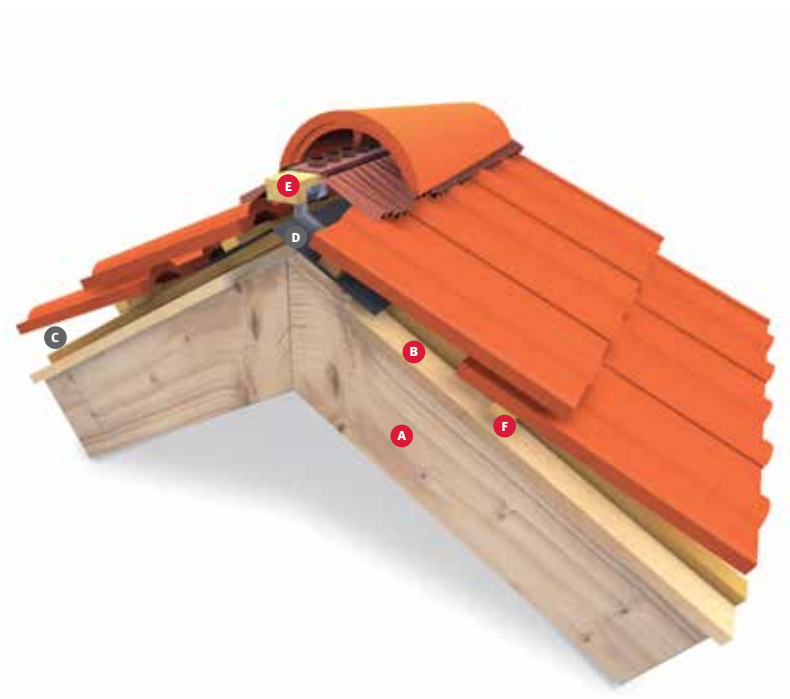


4.2.9 Roof/uninsulated loft

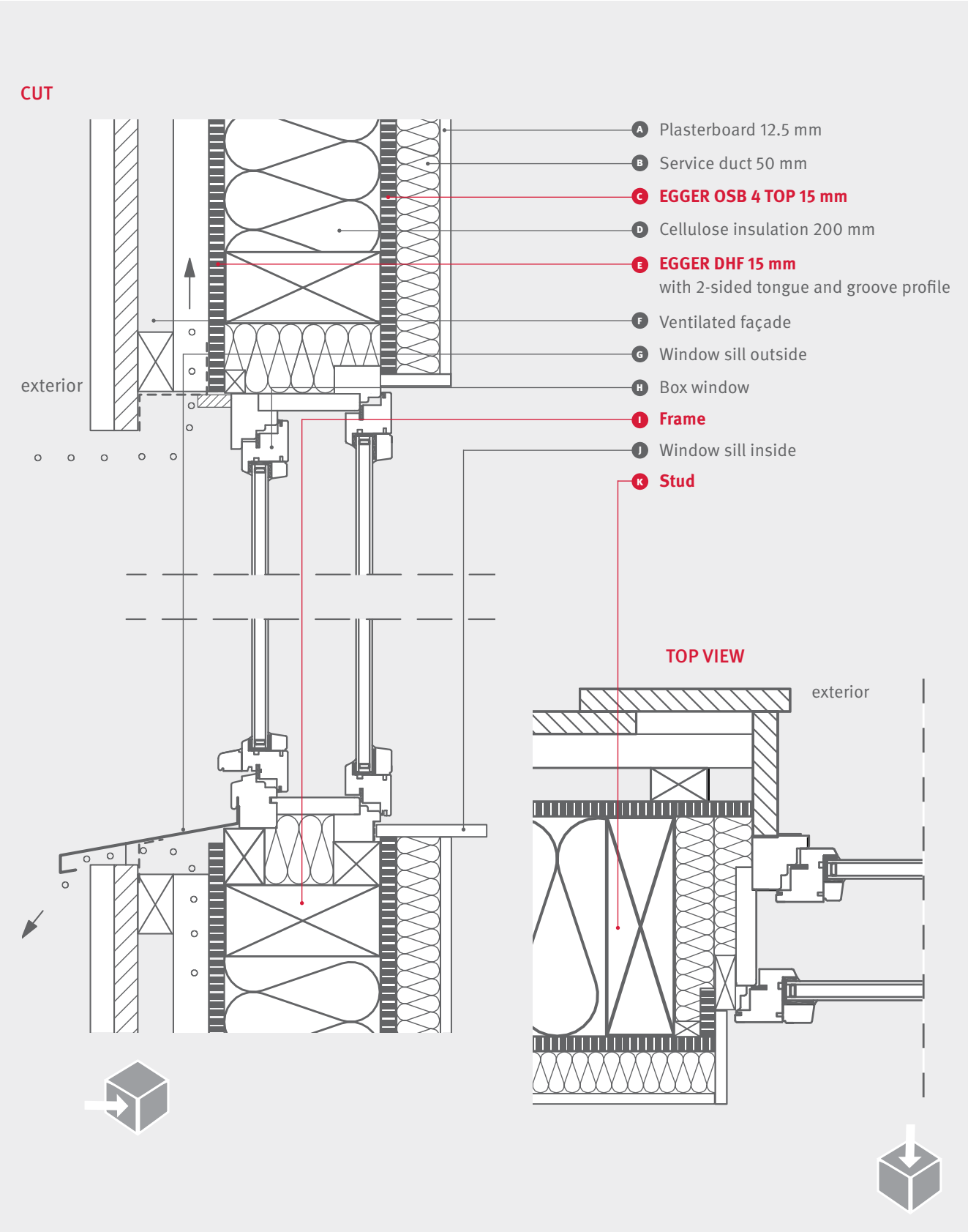


In addition to the **ventilation of the loft** in the ridge, **the air tightness** of the ceiling, incl. trap door to the living room below, should be executed with care.

Possible convection currents from the masonry of interior walls as well as of eaves and verge walls must be taken into account when planning and executing the airtightness concept. For example, this can be achieved by covering with film and taping off with the airtightness layer of the rest of the structure.

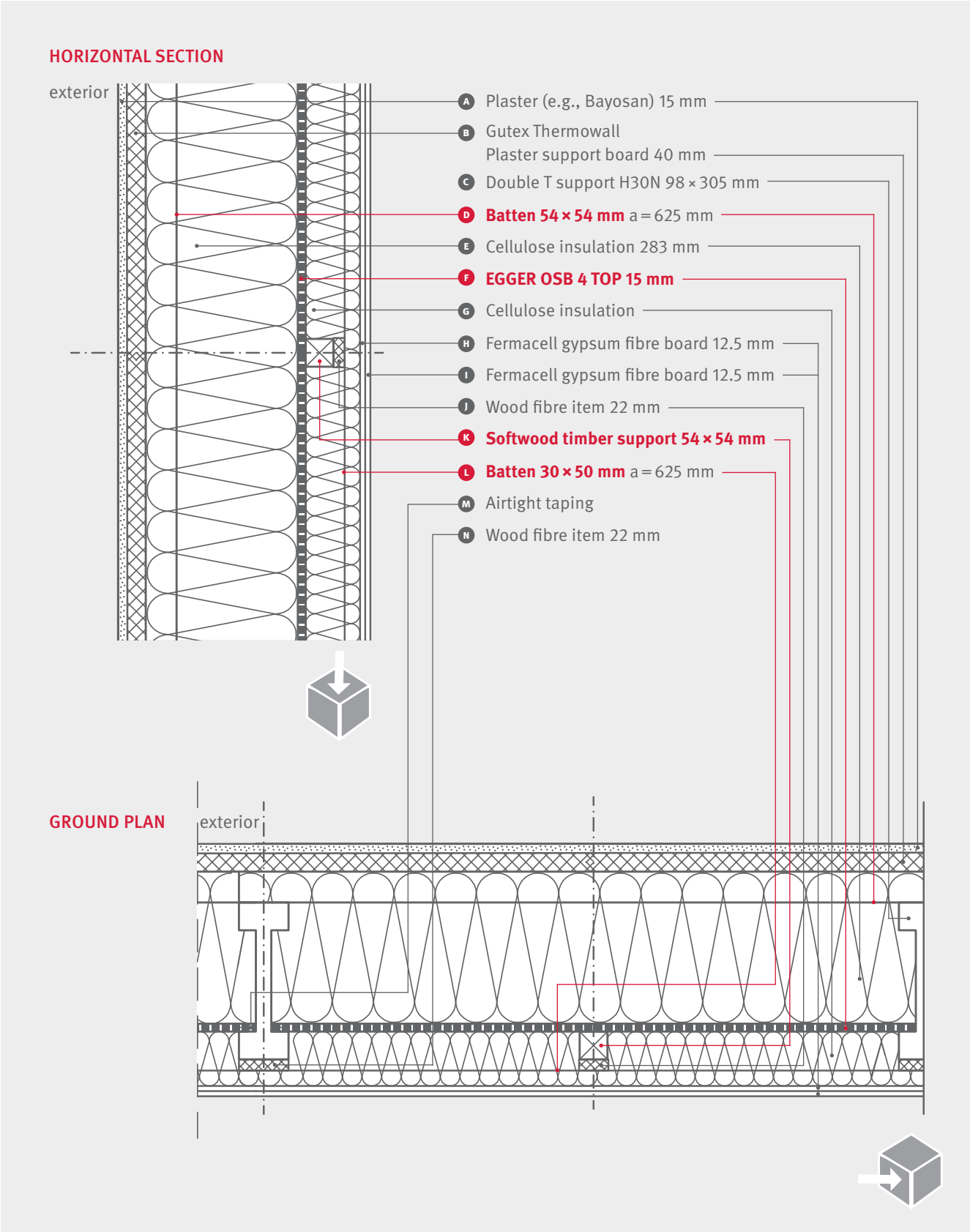


4.3.1 Connection box window on solar wall passive house standard

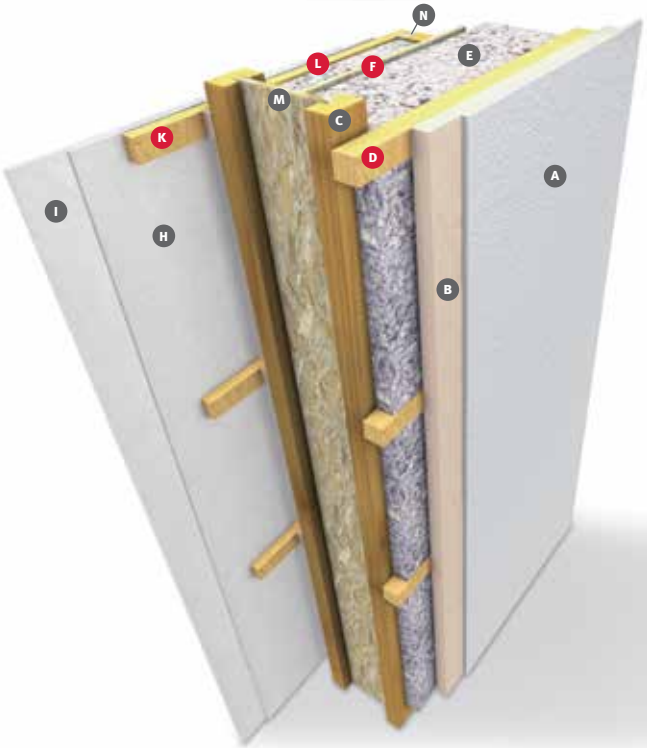


The construction detail refers to the passive house standard of the engineering office Naumann & Stahr and is **certified** by the Passivhausinstitut Feist, Germany. The U-value is 0.681 W/(m²K).

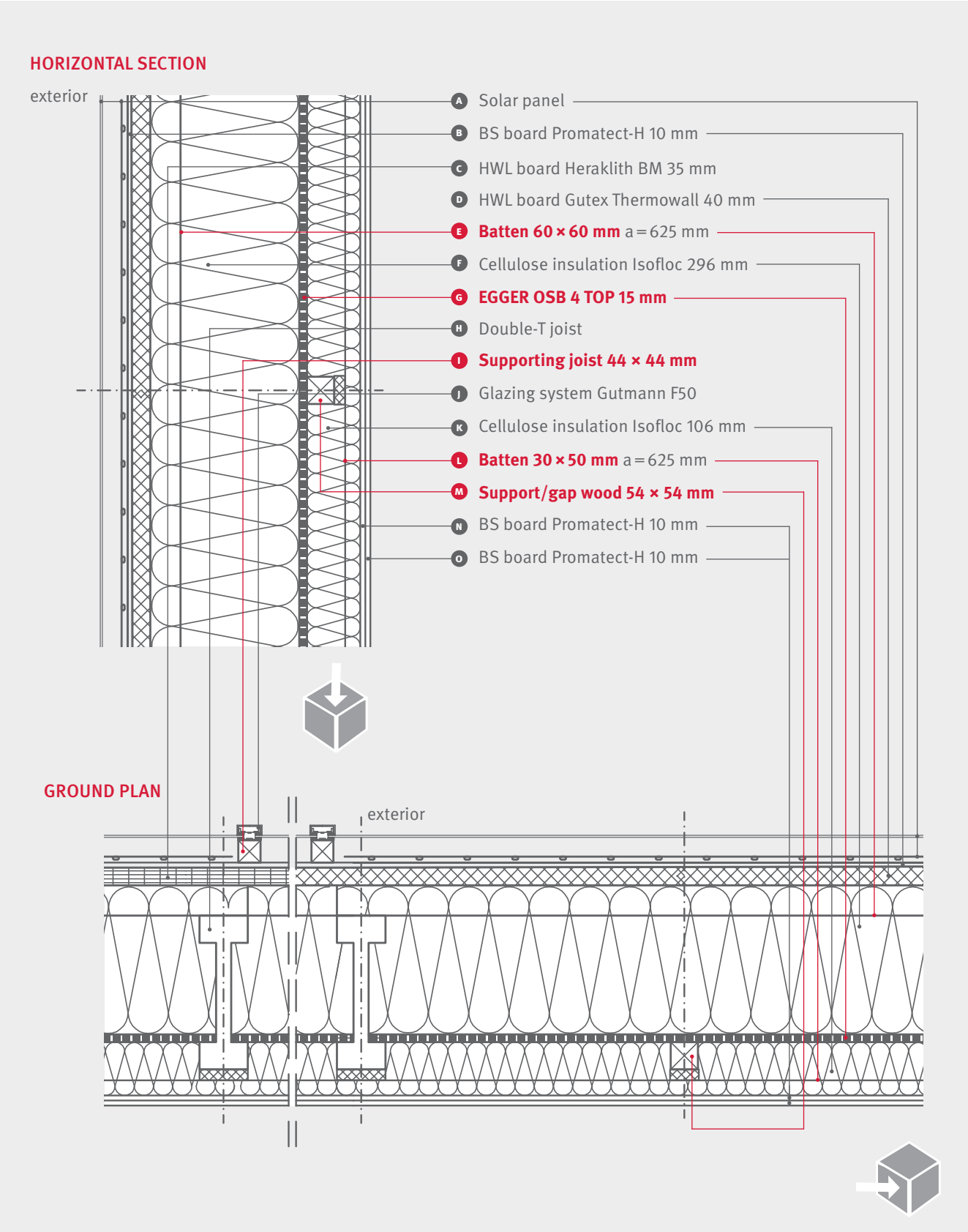
4.3.2 Exterior wall passive house system

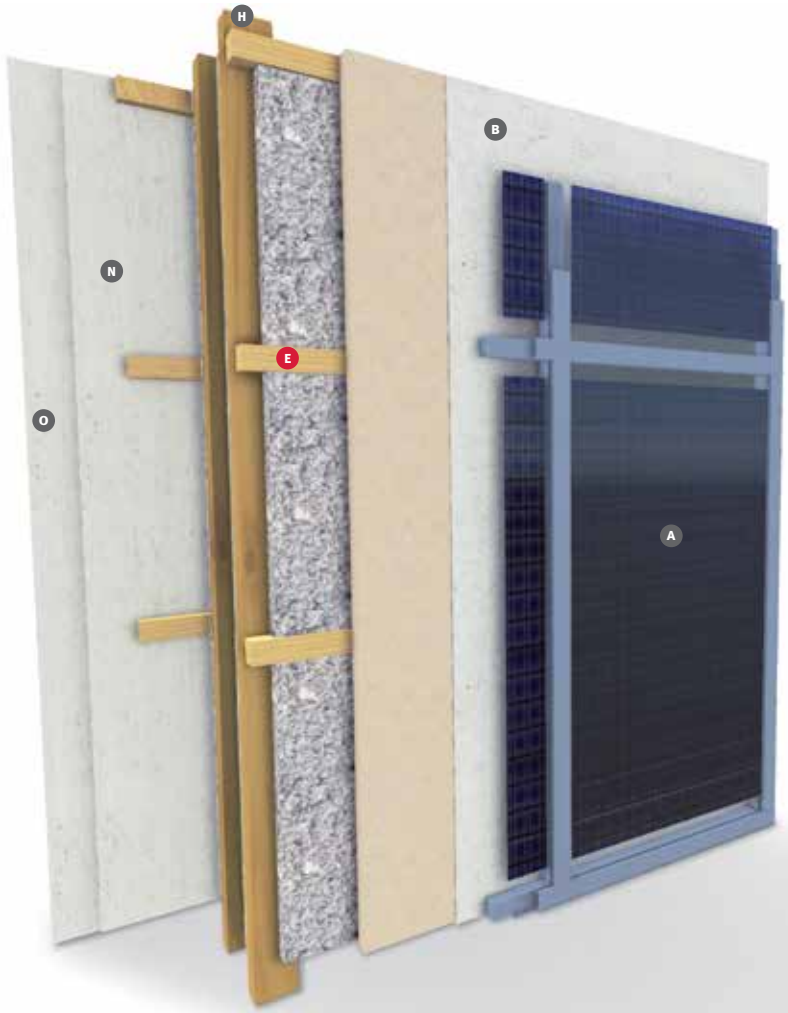


The external wall can be used from the point of view of load bearing for buildings with up to **five full floors**, and provides an exceptional U-value of 0.12 W/m²K.



4.3.3 Solar wall passive house system





From the point of view of fire behaviour, the wall is **classified F90-B and F120-B** as load-bearing wall or outer wall of a building (see Chapter 3.1.2.2).

Notes

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