

## OVERVIEW OF STRUCTURES

### • EXTERNAL WALLS

#### External walls with fire resistance REI 30 (i > o)

Load bearing walls with timber frame 120/60, blown cellulose between studs and OSB Firestop board of thickness 16 mm as internal lining, for vertical load of up to 32 kN/m:

<b>EWU.CMW.BI</b>	-	with mineral wool based external thermal insulation compact system (ETIC)
<b>EWU.CEPS.BI</b>	-	with EPS based ETIC system
<b>EWU.V-WF.BI</b>	-	with wood fibreboard thermal insulation and ventilated wood cladding
<b>EWU.CEPS.BI.IG</b>	-	with EPS based ETIC system and installation gap
<b>EWU.V-MW.BI.IG</b>	-	with mineral wool thermal insulation, ventilated wood cladding and installation gap

#### External walls with fire resistance REI 45 (i > o)

Load bearing walls with timber frame 120/60, mineral insulation between studs and OSB Firestop board of thickness 16 mm as internal lining, for vertical load of up to 32 kN/m:

<b>EWU.CEPS.MW.IG</b>	-	with EPS based ETIC system and installation gap
<b>EWU.V-A.MW.IG</b>	-	with mineral wool thermal insulation, ventilated wood cladding and installation gap
<b>EWU.V-WF.MW.IG</b>	-	with wood fibreboard thermal insulation and ventilated wood cladding and installation gap
<b>EWU.V-WF.MW</b>	-	with wood fibreboard thermal insulation and ventilated wood cladding
<b>EWU.CMW.MW.IG</b>	-	with mineral wool ETIC system and installation gap

#### External walls with fire resistance REI 45 (i > o)

Load bearing walls with timber frame 140/60, rock wool insulation between studs and OSB Firestop board of thickness 16 mm as internal lining, for vertical load of up to 32 kN/m:

<b>EWU.CEPS.MW.IG</b>	-	with EPS based ETIC system and installation gap
<b>EWU.V-A.MW.IG</b>	-	with mineral wool thermal insulation, ventilated wood cladding and installation gap
<b>EWU.V-WF.MW.IG</b>	-	with wood fibreboard thermal insulation and ventilated wood cladding and installation gap
<b>EWU.V-WF.MW</b>	-	with wood fibreboard thermal insulation and ventilated wood cladding
<b>EWU.CMW.MW.IG</b>	-	with mineral wool ETIC system and installation gap

Load bearing walls with timber frame 160/60, rock wool insulation between studs and OSB Firestop board of thickness 2 x 16 mm as internal lining, for vertical load of up to 73 kN/m:

<b>EWU.CEPS.MW.IG.2</b>	-	with EPS based ETIC system and installation gap
<b>EWU.V-A.MW.IG.2</b>	-	with mineral wool thermal insulation, ventilated wood cladding and installation gap
<b>EWU.V-WF.MW.IG.2</b>	-	with wood fibreboard thermal insulation and ventilated wood cladding and installation gap
<b>EWU.V-WF.MW.2</b>	-	with wood fibreboard thermal insulation and ventilated wood cladding
<b>EWU.CMW.MW.IG.2</b>	-	with mineral wool ETIC system and installation gap

## • INTERNAL WALLS

### Internal walls with fire resistance REI 30

Load bearing walls with timber frame 120/60 and OSB Firestop board of thickness 16 mm as internal lining, for vertical load of up to 32 kN/m:

**IW.BI** - with blown cellulose between studs

### Internal walls with fire resistance REI 45

Load bearing walls with timber frame 120/60 and OSB Firestop board of thickness 16 mm as internal lining, for vertical load of up to 32 kN/m:

**IW.MW** - with mineral wool between studs

**IW.MW.IG** - with mineral wool between studs and installation gap

**IW.MW.AKU** - with mineral wool between studs and installation gap and double sheathing

### Internal walls with fire resistance REI 60

Load bearing walls with timber frame 140/60 and OSB Firestop board of thickness 16 mm as internal lining, for vertical load of up to 32 kN/m:

**IW.MW** - with rock wool insulation between studs

**IW.MW.IG** - with rock wool insulation between studs and installation gap

## • ROOF STRUCTURES

### Pitched roof with fire resistance REI 30

**PR.EB.PIR** - with exposed rafters and decking from OSB Firestop boards of thickness 18 mm, thermal insulation from PIR panels and roof cladding

### Flat roof with fire resistance REI 30

**FR.EB.PIR.SEPS** - warm roof construction, with exposed cladding and decking from OSB Firestop of thickness 23 mm, thermal insulation from PIR panels, sloped EPS layer and s EPS and smooth surface roofing

**FR.EB.PIR.V-MET** - cold roof construction, with exposed cladding and decking from OSB Firestop of thickness 23 mm, thermal insulation from PIR panels; double levelled roof with ventilated gap and metal roofing

**FR.EB.PIR.GREEN** - warm roof construction, with exposed cladding and decking from OSB Firestop of thickness 23 mm, thermal insulation from PIR and XPS panels and extensive greenery

## • FLOOR STRUCTURES

### Load bearing beam floors with fire resistance REI 30

**F.C.MW** - with mineral wool between beams, ceiling from OSB Firestop boards of thickness 16 mm and lightweight floating flooring system within dry concrete load

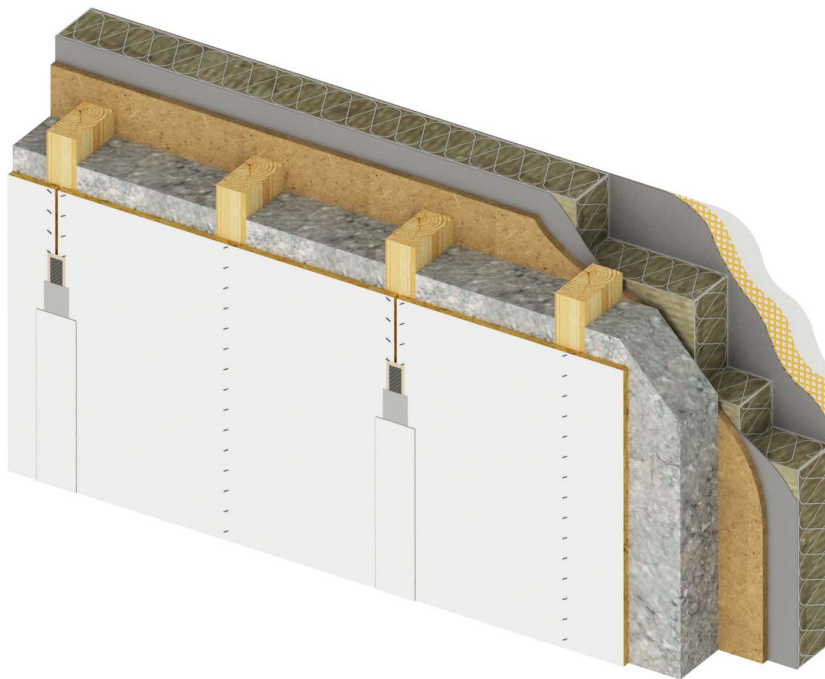
**F.C.MW.IG** - with mineral wool between beams, ceiling from OSB Firestop boards of thickness 16 mm. installation gap and lightweight floating flooring system within dry concrete load

### Load bearing beam floors with fire resistance REI 60

**F.EB.PIR** - with exposed beams and decking from OSB Firestop boards of thickness 23 mm, thermal insulation from PIR panels and lightweight floating flooring system within concrete screed load

**F.EB.PIR.2** - with exposed beams and decking from OSB Firestop boards of thickness 23 mm, thermal insulation from PIR panels and lightweight floating flooring system within dry concrete load

# LOAD-BEARING EXTERNAL WALL



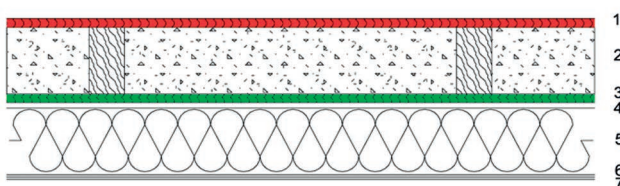
**REI 30**

**FIRE RESISTANCE**

## USUAL USE OF STRUCTURE

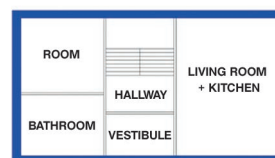
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

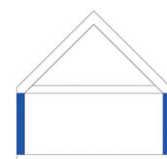


## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs size 120/60 mm by 625 mm, sole and top plates size 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of blown cellulose.		Thermal insulating; blown cellulose thermal insulation ( $\lambda = 0.042 \text{ W/m.K}$ , min. bulk density $60 \text{ kg/m}^3$ )
3	DFP	15	Structural; wood-based board
4	Flexible and filler adhesive	10	Adhesive and leveling; adhesive for flat bonding of thermal insulation to the wood-based substrate
5	Thermal Insulation of MW	See the table below	Thermal insulating; mineral wool insulation may be used ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the substrate
6	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
7	Finish render coat	1.5	Aesthetic; silicate plaster may be used, the substrate must be finished with primer

FIRE PROPERTIES	
Fire Resistance	REI 30
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES(depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/ RECOMMENDED/ RECOM. PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/ RECOMMENDATION/ RECOMMENDATION FOR PASSIVE [mm] *
							MW
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18 -0.12	60 / 120 / 150–320
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18 -0.12	60 / 120 / 150–320
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18 -0.12	60 / 120 / 150–320
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14 -0.10	80 / 120 / 240–430
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14 -0.10	130 / 130 / 240–430
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26 -0.17	60 / 60 / 60–170
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50 -0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the thermal transmittance value, but also moisture behaviour in the structure.

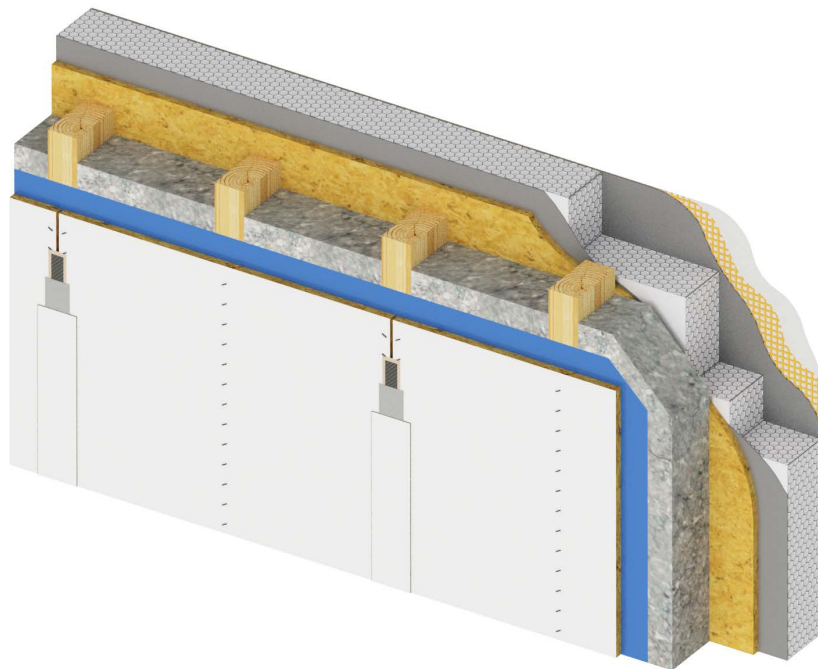
For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 carpenter's screws 6.0 x 120 with a spacing of 70 mm. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO boards need not be filled with putty and it is possible to connect them by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL



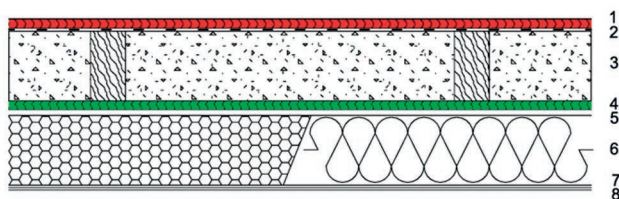
**REI 30**

**FIRE RESISTANCE**

## USUAL USE OF STRUCTURE

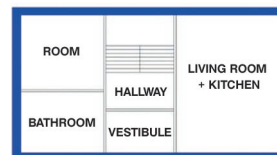
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

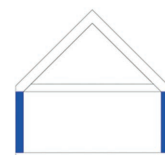


## STRUCTURE USE SCHEME

Ground plan



Section



## STRUCTURE SPECIFICATION

	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION; DESCRIPTION
1	OSB Firestop	16	Fireproof lining; wood-based board with one-side fire-resistant surface finish
2	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
3	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs size 120/60 mm by 625 mm, sole and top plates size 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of blown cellulose between studs.		Thermal insulating; blown cellulose thermal insulation ( $\lambda = 0.042 \text{ W/m.K}$ , min. bulk density $30 \text{ kg/m}^3$ )
4	OSB Superfinish ECO	15	Loadbearing; wood-based board
5	Flexible and filler adhesive	10	Adhesive and leveling; adhesive for flat bonding of thermal insulation to the wood-based substrate
6	Thermal Insulation of EPS, or MW	See the table below	Thermal insulating; EPS 70 F insulation ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral wool insulation ( $\lambda = 0.044 \text{ W/m.K}$ ) may be used, the thermal insulation shall be mechanically anchored to the substrate
7	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
8	Finish render coat	1.5	Aesthetic; silicon, silicate or mineral plaster may be used, the substrate must be finished with primer

FIRE PROPERTIES	
Fire Resistance	REI 30
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)								
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUEST/RECOMMENDATION/RECOMMENDATION FOR PASSIVE [mm]*	
							MW	EPS
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 120 / 150–320	120 / 120 / 140–300
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 120 / 150–320	140 / 140 / 140–300
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	80 / 120 / 150–320	180 / 180 / 180–300
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	80 / 190 / 250–430	140 / 180 / 230–400
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, ambulance stations, large-scale industrial kitchens	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	130 / 190 / 250–430	**
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	80 / 80 / 80–170	200 / 200 / 200
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60	100 / 100 / 100

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

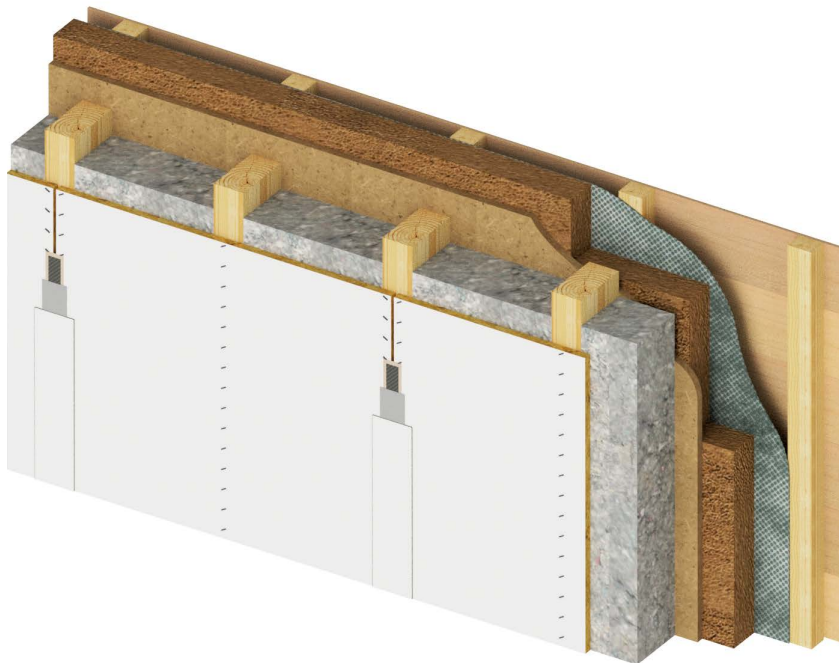
\*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The studs of the wooden frame must be anchored to the sole and to plate at the contact point, always min. 2 carpenter's screws 6.0 x 120 with a spacing of 70 mm. The load-bearing frame sheathing shall be fixed with 50 mm long staples with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO boards need not be filled with putty and it is possible to connect them by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL



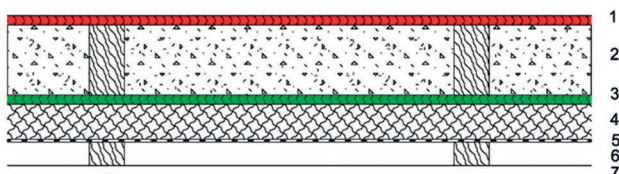
**REI 30**

**FIRE RESISTANCE**

## USUAL USE OF STRUCTURE

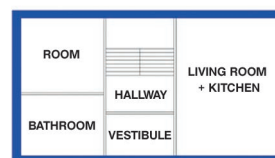
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs size 120/60 mm by 625 mm, sole and top plates size 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of blown cellulose between studs.		Thermal insulating; blown cellulose ( $\lambda = 0.042 \text{ W/m.K}$ , min. bulk density $60 \text{ kg/m}^3$ )
3	DFP	15	Structural; wood-based fibreboard
4	Wood fibreboard thermal insulation, e.g. Steico	60 and above	Thermal insulating; $\lambda = 0.042 \text{ W/m.K}$ , the thermal insulation shall be mechanically anchored to the substrate
5	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
6	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented wood battens 40/60 mm
7	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 30 DP3
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE CONDUCTANCE COEFFICIENT [W/m <sup>2</sup> .K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–300
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–300
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–300
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14-0.10	70 / 180 / 230–400
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14-0.10	120 / 180 / 230–400
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26-0.17	60 / 60 / 60–160
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50-0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

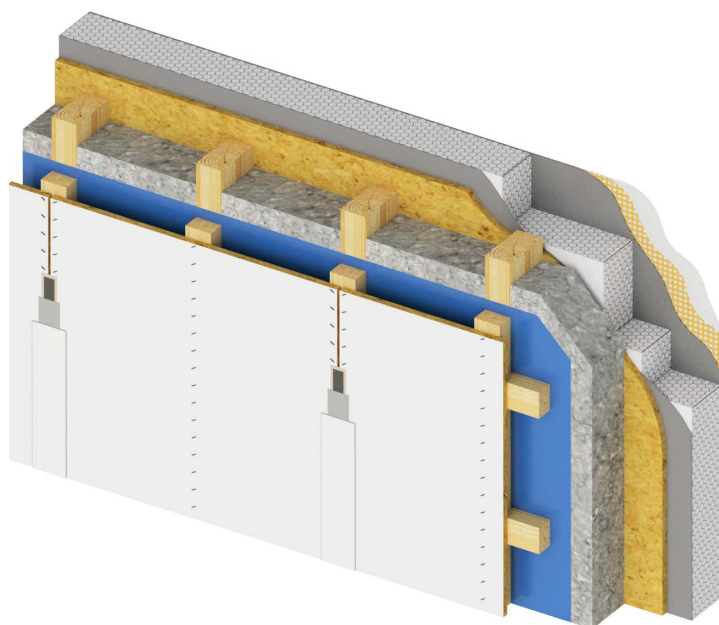
Even when the cladding is tightly constructed, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m<sup>2</sup>.K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 carpenter's screws 6.0 x 120 with a spacing of 70 mm. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO boards need not be filled with putty and it is possible to connect them by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case.
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
The peripheral load-bearing wall may be used for the fire compartments on the aboveground floor with stages I. and II. fire safety (SFS), or for the fire compartments of the top aboveground floor with stages III. and IV. SFS. The wall may be classified as structural part type DP3. Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m.
ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

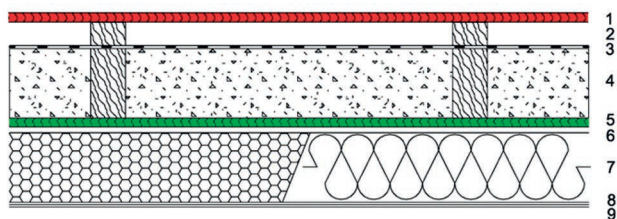
## LOAD-BEARING EXTERNAL WALL

**REI 30**

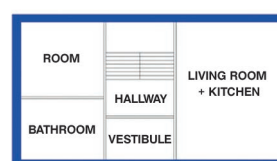
FIRE RESISTANCE

**USUAL USE OF STRUCTURE**

Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

**STRUCTURE SCHEME****STRUCTURE USE SCHEME**

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Bidirectional gridwork	40	Installation gap; horizontally and vertically oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs size 120/60 mm by 625 mm, sole and top plates size 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of blown cellulose.		Thermal insulating; blown cellulose thermal insulation ( $\lambda = 0.042 \text{ W/m.K}$ , min. bulk density $30 \text{ kg/m}^3$ )
5	OSB Superfinish ECO	15	Loadbearing; wood-based load-bearing board
6	Flexible and filler adhesive	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal Insulation of EPS, or MW	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral fibre thermal insulation ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
8	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
9	Finish render coat	1.5	Aesthetic; silicon, silicate or mineral plaster may be used, the substrate must be treated with primer

FIRE PROPERTIES	
Fire Resistance	REI 30

ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night

STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)								
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m <sup>2</sup> .K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUEST/RECOMMENDATION/PASSIVE RECOMMENDATION [mm]*	
							MW	EPS
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 120 / 150–320	140 / 140 / 140–290
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 120 / 150–310	140 / 140 / 140–290
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	100 / 120 / 150–310	200 / 200 / 200–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	80 / 190 / 240–420	160 / 170 / 220–390
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	120 / 190 / 240–420	**
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	100 / 100 / 100–170	200 / 200 / 200
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60	100 / 100 / 100

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

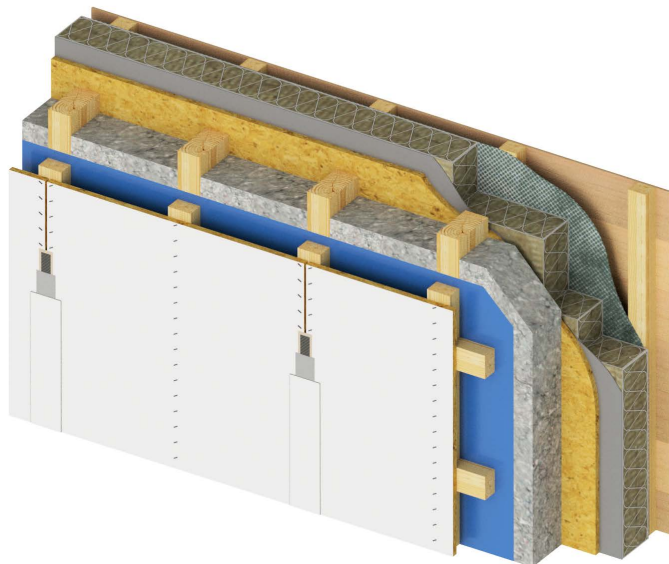
\*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m<sup>2</sup>.K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 carpenter's screws 6.0 x 120 with a spacing of 70 mm. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO boards need not be filled with putty and it is possible to connect them by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

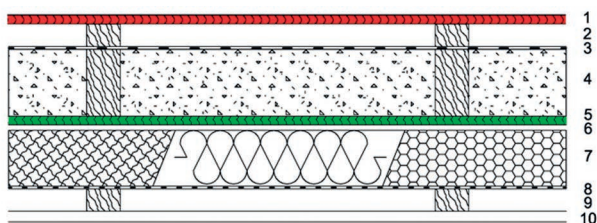


**REI 30**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

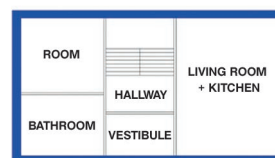
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

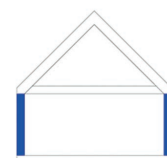


## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Bidirectional gridwork	40	Installation gap; horizontally and vertically oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs size 120/60 mm by 625 mm, sole and top plates size 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of blown cellulose between studs		Thermal insulating; blown cellulose thermal insulation ( $\lambda = 0.042$ W/m.K, min. bulk density 30 kg/m³)
5	OSB Superfinish ECO	15	Loadbearing; wood-based board
6	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal Insulation of MW, fibreboard, respectively. EPS	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041$ W/m.K) or mineral fibre thermal insulation ( $\lambda = 0.044$ W/m.K), fibreboard ( $\lambda = 0.042$ W/m.K), the thermal insulation shall be mechanically anchored to the base
8	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
9	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented laths 40/60 mm
10	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES									
Fire Resistance			REI 30						
ACOUSTIC PROPERTIES									
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)			For residential buildings up to 65 dB during the day / 55 dB at night						
STATIC LOAD-BEARING CAPACITY									
Maximum vertical load			32 kN/m						
HYDROTHERMAL PROPERTIES (depending on interior environment)									
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE CONDUCTANCE COEFFICIENT [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*		
							MW	EPS	Fibre board
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18 -0.12	80 / 110 / 140–310	140 / 140 / 140–290	80 / 110 / 140–290
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18 -0.12	80 / 110 / 140–310	140 / 140 / 140–290	80 / 110 / 140–290
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18 -0.12	100 / 110 / 140–310	200 / 200 / 200–290	100 / 110 / 140–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14 -0.10	80 / 180 / 240–420	160 / 170 / 220–390	80 / 170 / 220–400
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14 -0.10	120 / 180 / 240–420	**	120 / 170 / 220–400
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26 -0.17	100 / 100 / 100–160	200 / 200 / 200	80 / 80 / 80–150
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50 -0.32	60 / 60 / 60	100 / 100 / 100	60 / 60 / 60

Note: \* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure. \*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

In the structure of external fibreboard insulation, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

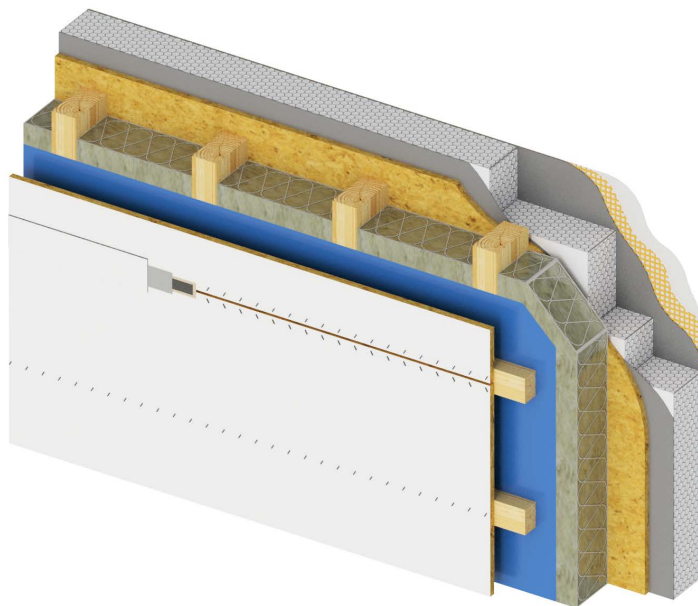
**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 carpenter's screws 6.0 x 120 with a spacing of 70 mm. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO boards need not be filled with putty and it is possible to connect them by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case.

FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m

ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

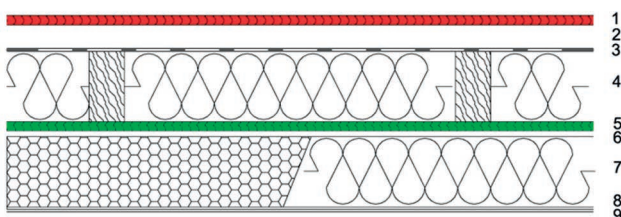


**REI 45**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

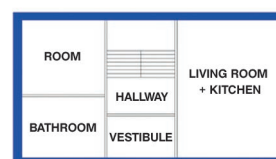
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

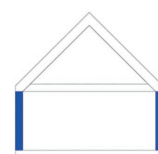


## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 120 mm (min. bulk density 30 kg/m³)
5	OSB Superfinish ECO	15	Loadbearing; wood-based board
6	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal Insulation of EPS, or MW	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral fibre thermal insulation ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
8	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
9	Finish render coat	1.5	Aesthetic; silicon, silicate or mineral plaster may be used, the substrate must be finished with primer

FIRE PROPERTIES	
Fire Resistance	REI 45
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)								
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUEST/RECOMMENDATION/PASSIVE RECOMMENDATION [mm]*	
							MW	EPS
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 120 / 150–320	140 / 140 / 140–290
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 120 / 150–320	140 / 140 / 140–290
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	100 / 120 / 150–320	200 / 200 / 200–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	80 / 190 / 240–430	160 / 180 / 230–400
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	120 / 190 / 240–430	**
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	100 / 100 / 100–170	220 / 220 / 220
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 100	100 / 100 / 100

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

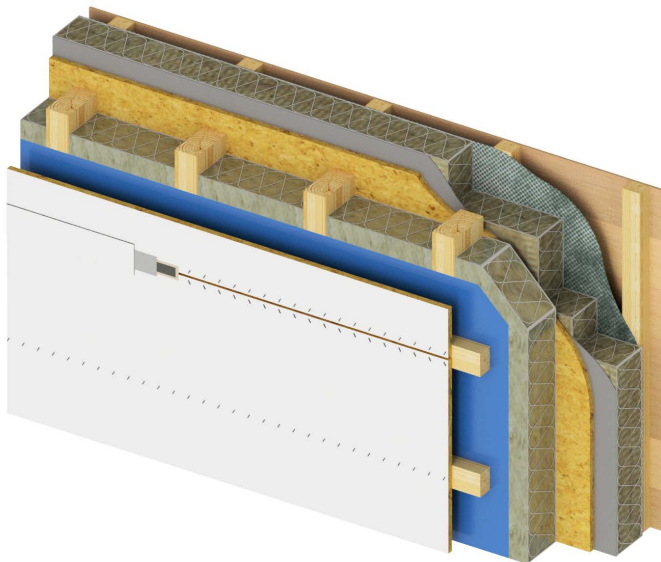
\*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the outer cladding of OSB Superfinish ECO boards need not be filled with putty as the boards may be connected by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between posts is recommended to be applied in 2 layers.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

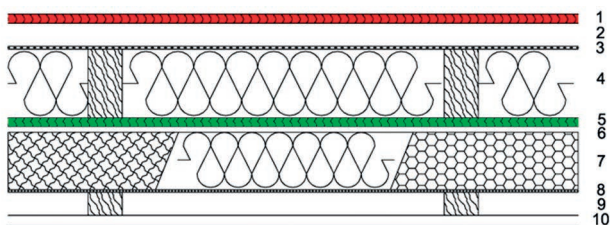


**REI 45**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

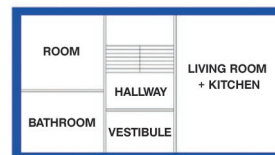
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

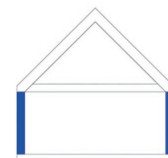


## STRUCTURE USE SCHEME

Ground plan



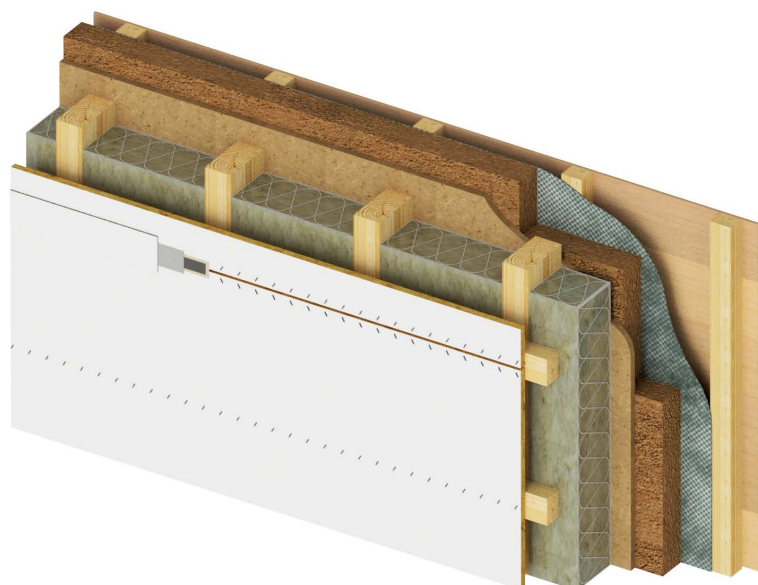
Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally and vertically oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating mineral wool thickness 120 mm (min. bulk density 30 kg/m³)
5	OSB Superfinish ECO	15	Loadbearing; wood-based board
6	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal insulation of MW, fibreboard, respectively. EPS	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral fibre thermal insulation ( $\lambda_D = 0.044 \text{ W/m.K}$ ), fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
8	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
9	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented laths 40/60 mm
10	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES									
Fire Resistance			REI 45						
ACOUSTIC PROPERTIES									
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)			For residential buildings up to 65 dB during the day / 55 dB at night						
STATIC LOAD-BEARING CAPACITY									
Maximum vertical load			32 kN/m						
HYDROTHERMAL PROPERTIES (depending on interior environment)									
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/ RECOMMENDED/ RECOMMENDED PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/ RECOMMENDATION/ RECOMMENDATION PASSIVE [mm]*		
							MW	EPS	Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18 -0.12	80 / 120 / 150–310	140 / 140 / 140–290	80 / 110 / 140–300
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18 -0.12	80 / 120 / 150–310	140 / 140 / 140–290	80 / 110 / 140–300
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18 -0.12	100 / 120 / 150–310	200 / 200 / 200–290	80 / 110 / 140–300
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14 -0.10	80 / 190 / 240–420	160 / 170 / 220–390	80 / 180 / 230–400
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14 -0.10	120 / 190 / 240–420	**	140 / 180 / 230–400
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26 -0.17	100 / 100 / 100–160	220 / 220 / 220	100 / 100 / 100–160
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50 -0.32	60 / 60 / 60	100 / 100 / 100	60 / 60 / 60
Note: * Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure. ** We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.									
In the structure of external fibreboard insulation, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).									
The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.									
In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.									
NOTES:									
CONSTRUCTION TECHNOLOGIES:									
The studs of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the outer cladding of OSB Superfinish ECO boards need not be filled with putty as the boards may be connected by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between posts is recommended to be applied in 2 layers.									
FIRE RESISTANCE PARAMETERS OF STRUCTURE:									
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m									
ACOUSTIC PARAMETERS OF STRUCTURE:									
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.									

# LOAD-BEARING EXTERNAL WALL

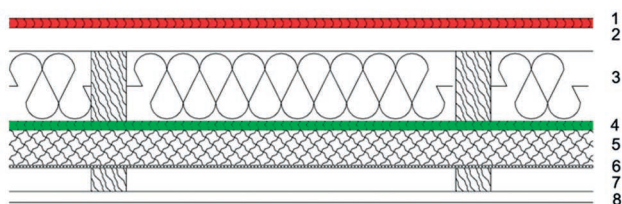


**REI 45**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

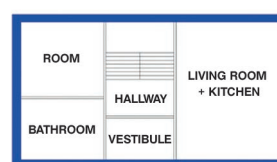
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

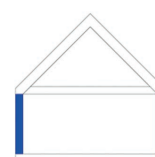


## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	16	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating mineral wool thickness 120 mm (min. bulk density 30 kg/m <sup>3</sup> )
4	DFP	15	Structural; wood-based board
5	Thermal insulation - fibreboard	60 and above	Thermal insulating, fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
6	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
7	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented battens 40/60 mm
8	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 45
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–290
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–290
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14-0.10	70 / 170 / 220–400
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14-0.10	110 / 170 / 220–400
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26-0.17	60 / 60 / 60–150
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50-0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

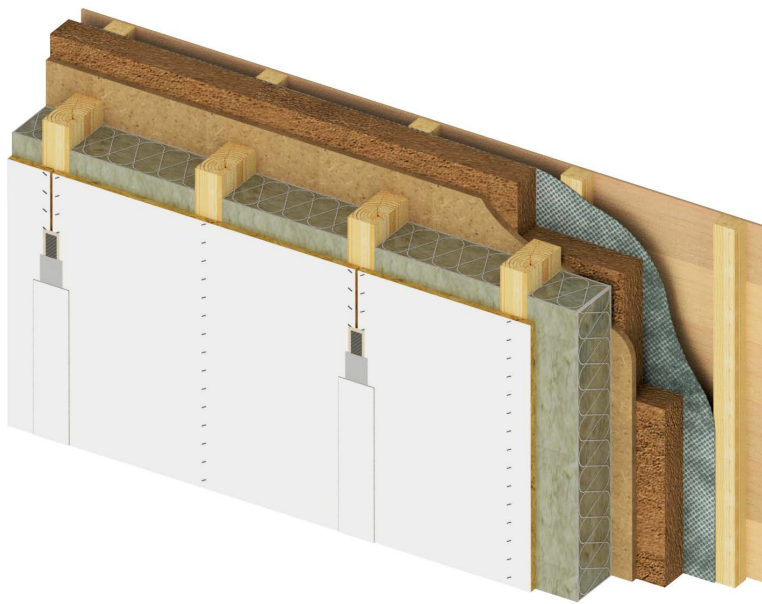
Even when the cladding is tightly constructed, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the outer cladding of OSB Superfinish ECO boards need not be filled with putty as the boards may be connected by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between posts is recommended to be applied in 2 layers.
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

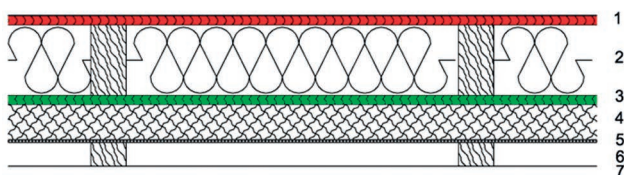


**REI 45**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

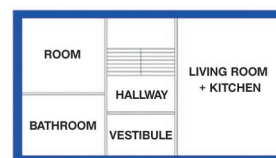
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating mineral wool thickness 120 mm (min. bulk density 30 kg/m³)
3	DFP	15	Structural; wood-based board
4	Thermal insulation - fibreboard	See the table below	Thermal insulating, fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
5	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
6	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented battens 40/60 mm
7	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 45
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–300
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–300
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18-0.12	60 / 110 / 140–300
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14-0.10	80 / 180 / 230–410
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14-0.10	120 / 180 / 230–410
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26-0.17	60 / 60 / 60–140
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50-0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

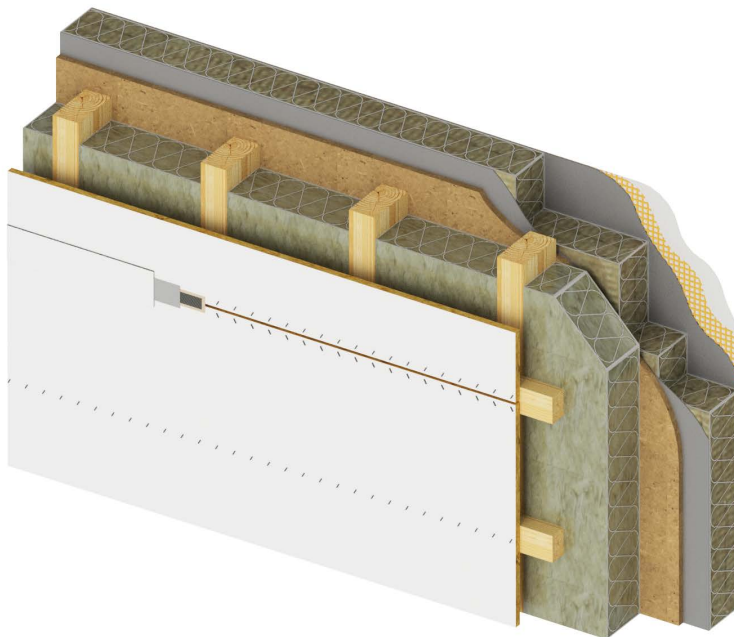
Even when the cladding is tightly constructed, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the outer cladding of OSB Superfinish ECO boards need not be filled with putty as the boards may be connected by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between posts is recommended to be applied in 2 layers.
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m
ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

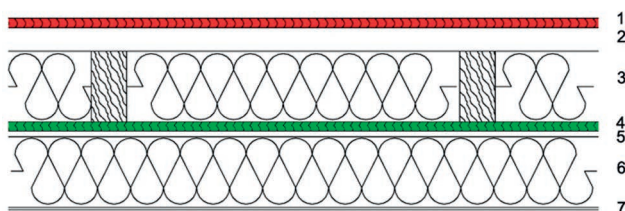


**REI 45**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

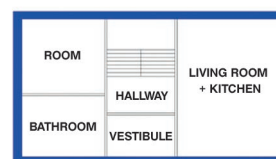
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 120 mm (min. bulk density 30 kg/m³)
4	DFP	15	Structural, timber-based board
5	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
6	Thermal Insulation of MW	See the table below	Thermal insulating; mineral fibre thermal insulation may be used ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
7	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
8	Finish render coat	1.5	Aesthetic; silicate plaster may be used, the substrate must be finished with primer

FIRE PROPERTIES	
Fire Resistance	REI 45
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							MW
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 120 / 150–310
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 120 / 150–310
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	60 / 120 / 150–310
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	80 / 190 / 240–420
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	120 / 190 / 240–420
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	60 / 60 / 60–170
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

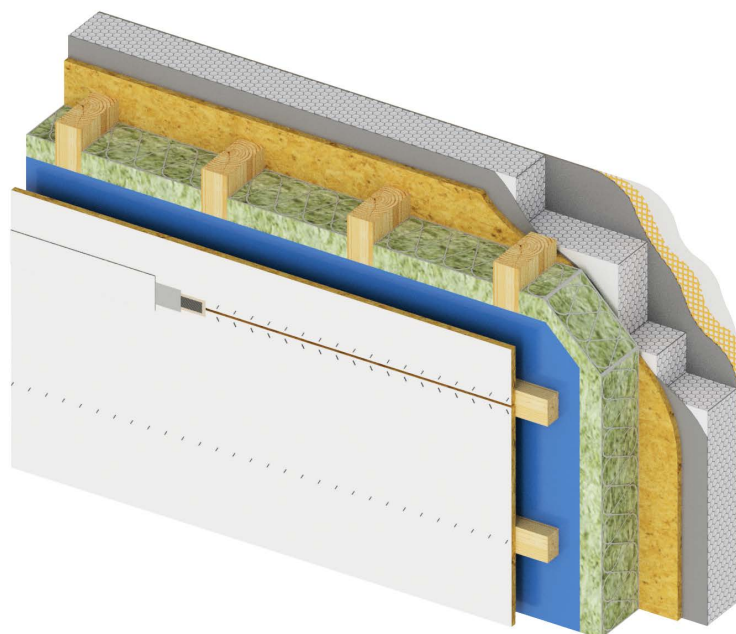
For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -19°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the outer cladding of OSB Superfinish ECO boards need not be filled with putty as the boards may be connected by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between posts is recommended to be applied in 2 layers.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

## LOAD-BEARING EXTERNAL WALL

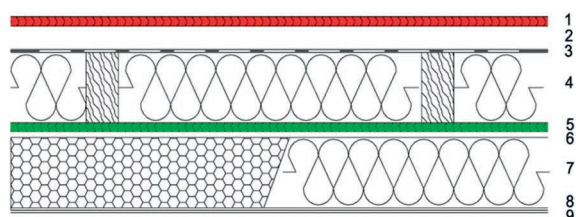


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

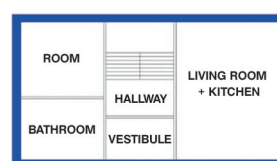
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

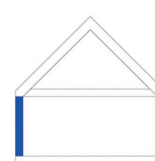


## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	140	Load-bearing; wood frame from structural timber, studs size 140/60 mm by 625 mm, sole and top plates size 140/60 mm, noggins size 140/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating mineral wool thickness 140 mm (min. bulk density 34 kg/m³)
5	OSB Superfinish ECO	15	Loadbearing; wood-based board
6	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal Insulation of EPS, or MW	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral fibre thermal insulation ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
8	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
9	Finish render coat	1.5	Aesthetic; silicon, silicate or mineral plaster may be used, the substrate must be finished with primer

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)								
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUEST/RECOMMENDATION/PASSIVE RECOMMENDATION [mm]*	
							MW	EPS
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 100 / 130–300	160 / 160 / 160–280
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 100 / 130–300	180 / 180 / 180–280
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	100 / 100 / 130–300	240 / 240 / 240–280
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	100 / 170 / 220–410	180 / 180 / 210–380
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	140 / 170 / 220–410	**
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	100 / 100 / 100–150	280 / 280 / 280
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 100	120 / 120 / 120

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

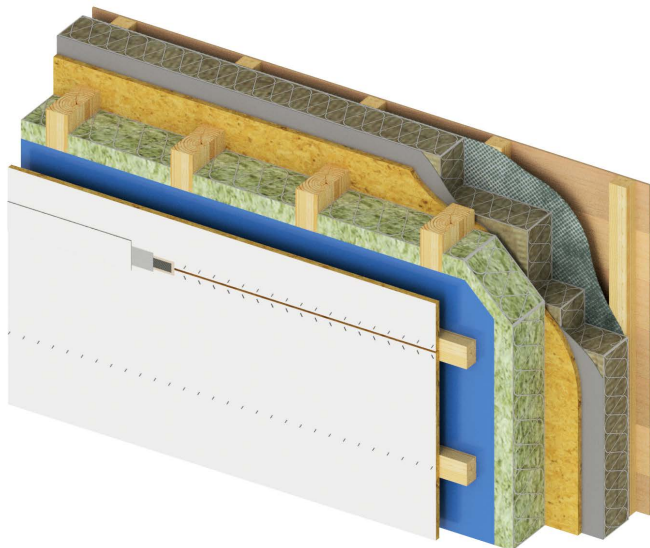
\*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 5.0 x 160 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 140/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 140 mm between posts is recommended to be applied in 2 layers.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

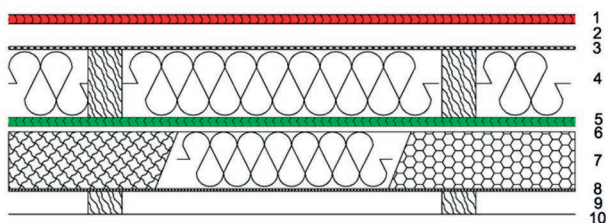


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

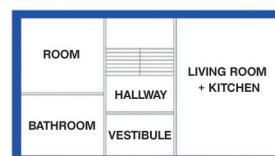
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally and vertically oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	140	Load-bearing; wood frame from structural timber, studs size 140/60 mm by 625 mm, sole and top plates size 140/60 mm, noggins size 140/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating mineral wool thickness 140 mm (min. bulk density 34 kg/m³)
5	OSB Superfinish ECO	15	Loadbearing; wood-based board
6	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal Insulation of MW, fibreboard, respectively. EPS	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral fibre thermal insulation ( $\lambda = 0.044 \text{ W/m.K}$ ), fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
8	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
9	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented battens 40/60 mm
10	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES									
Fire Resistance			REI 60						
ACOUSTIC PROPERTIES									
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)			For residential buildings up to 65 dB during the day / 55 dB at night						
STATIC LOAD-BEARING CAPACITY									
Maximum vertical load			32 kN/m						
HYDROTHERMAL PROPERTIES (depending on interior environment)									
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED / RECOMMENDED / RECOMMENDED PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT / RECOMMENDATION / RECOMMENDATION PASSIVE [mm]*		
							MW	EPS	Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18 -0.12	80 / 100 / 130–290	160 / 160 / 160–270	80 / 90 / 120–280
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18 -0.12	80 / 100 / 130–290	180 / 180 / 180–270	80 / 90 / 120–280
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18 -0.12	100 / 100 / 130–290	240 / 240 / 240–270	100 / 100 / 120–280
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14 -0.10	100 / 170 / 220–400	180 / 180 / 210–380	100 / 160 / 210–390
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14 -0.10	140 / 170 / 220–400	**	160 / 160 / 210–390
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26 -0.17	100 / 100 / 100–150	280 / 280 / 280	100 / 100 / 100–140
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50 -0.32	60 / 60 / 60	120 / 120 / 120	60 / 60 / 60

Note: \* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure. \*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

In the structure of external fibreboard insulation, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

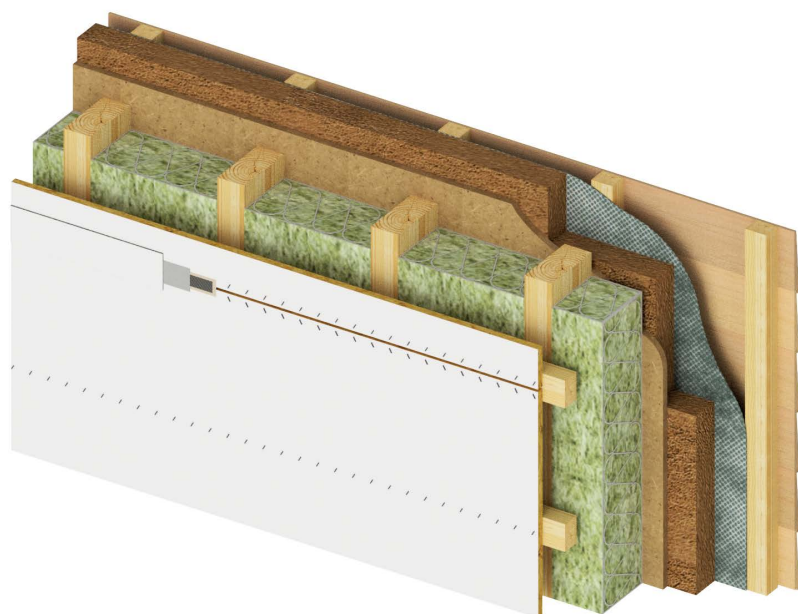
**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 5.0 x 160 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 140/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 140 mm between posts is recommended to be applied in 2 layers.

FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.

ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

## LOAD-BEARING EXTERNAL WALL

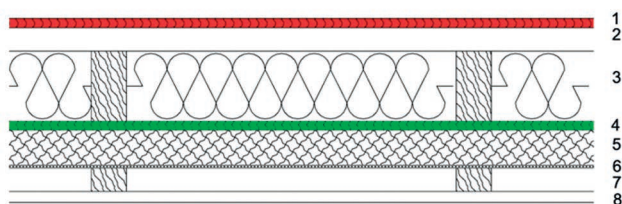


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

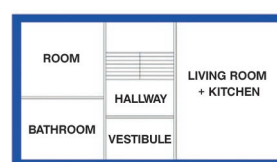
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



## STRUCTURE SPECIFICATION

	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	140	Load-bearing; wood frame from structural timber, studs size 140/60 mm by 625 mm, sole and top plates size 140/60 mm, noggins size 140/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating mineral wool thickness 140 mm (min. bulk density 34 kg/m³)
4	DFP	15	Structural; wood-based board
5	Thermal insulation - fibreboard	60	Thermal insulating; fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
6	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
7	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented battens 40/60 mm
8	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 90 / 120–280
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 90 / 120–280
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	60 / 90 / 120–280
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	60 / 160 / 210–380
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	100 / 160 / 210–380
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	60 / 60 / 60–140
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

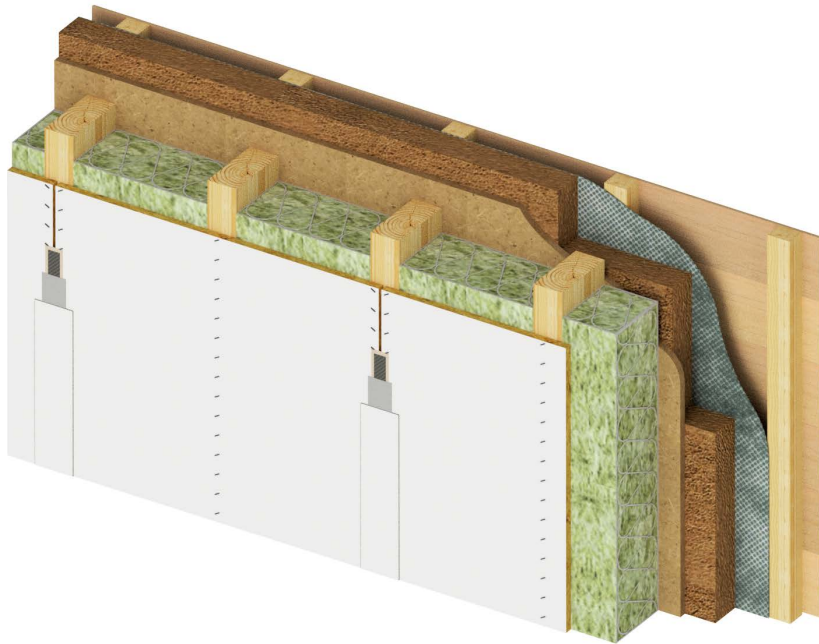
Even when the cladding is tightly constructed, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 5.0 x 160 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the joint is covered Firestop Finish putty. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 140/60 mm must be added in the load-bearing structure in each case.. Thermal insulation of mineral fibre thickness 140 mm between posts is recommended to be applied in 2 layers.
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

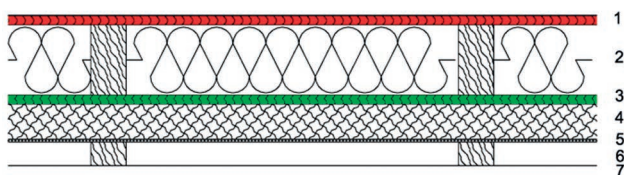


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

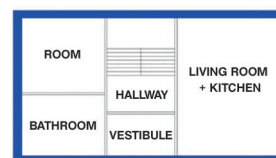
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



## STRUCTURE SPECIFICATION

	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	140	Load-bearing; wood frame from structural timber, studs size 140/60 mm by 625 mm, sole and top plates size 140/60 mm, noggins size 140/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 140 mm (min. bulk density 34 kg/m³)
3	DFP	15	Structural; wood-based board
4	Thermal insulation - fibreboard	60	Thermal insulating; fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
5	Housewraps	-	Weather-resistant, windtight; vapour permeable membrane
6	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented laths 40/60 mm
7	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 100 / 130–280
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 100 / 130–280
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	60 / 100 / 130–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	60 / 160 / 210–390
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	100 / 160 / 210–390
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	60 / 60 / 60–140
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

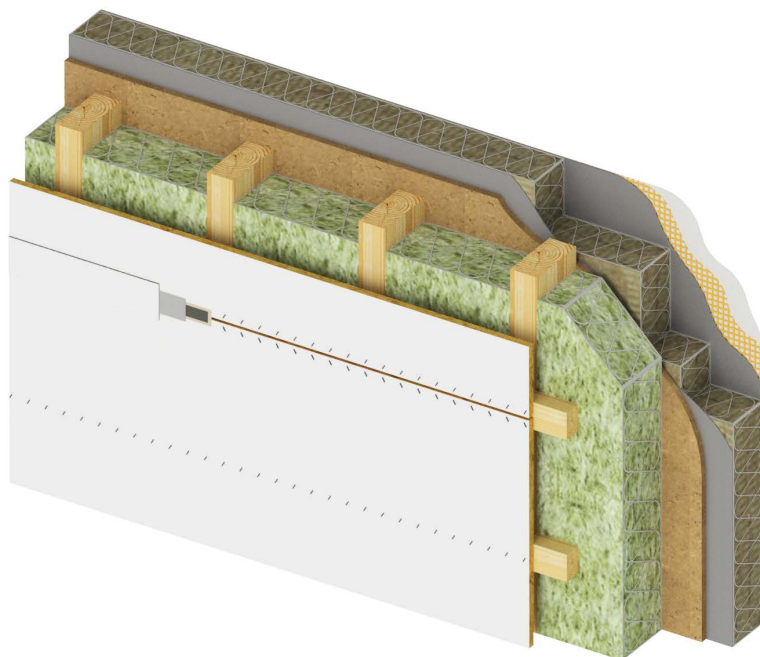
Even when the cladding is tightly constructed, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 5.0 x 160 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 140/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 140 mm between posts is recommended to be applied in 2 layers.
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

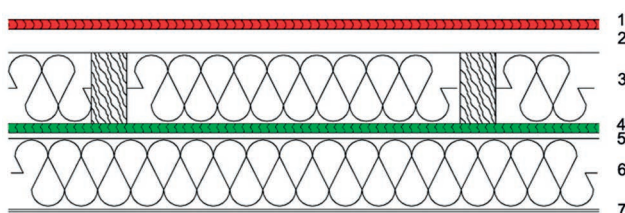


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

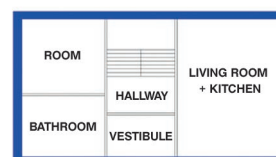
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	140	Load-bearing; wood frame from structural timber, studs size 140/60 mm by 625 mm, sole and top plates size 140/60 mm, noggins size 140/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 140 mm (min. bulk density 34 kg/m³)
4	DFP	15	Structural; wood-based board
5	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
6	Thermal Insulation of MW	See the table below	Thermal insulating, mineral fibre thermal insulation may be used ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
7	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
8	Finish render coat	1.5	Aesthetic; silicate plaster may be used, the substrate must be finished with primer

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							MW
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 100 / 130–290
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 100 / 130–290
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	60 / 100 / 130–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	60 / 170 / 220–400
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	100 / 170 / 220–400
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	60 / 60 / 60–150
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

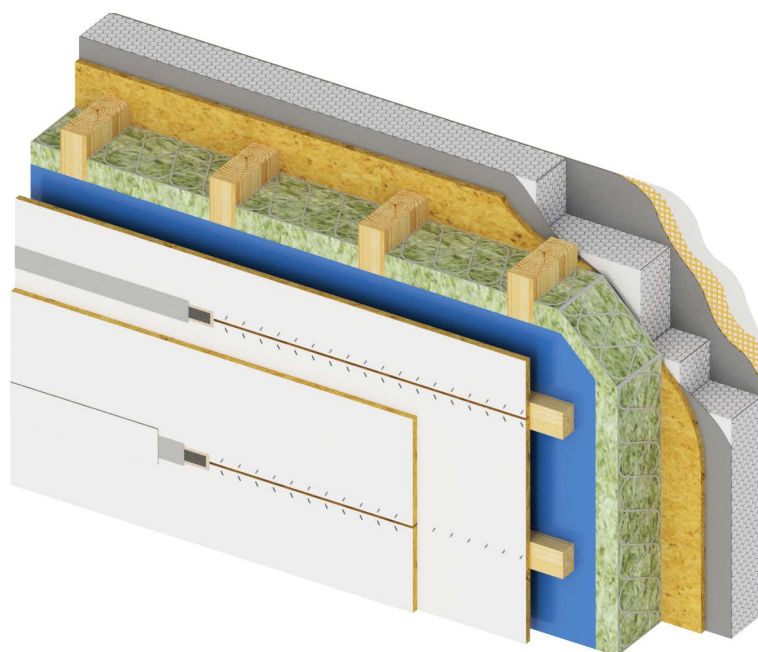
For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -19°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 5.0 x 160 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty (both board layers). After the technological break, the joint of the top board is covered with finishing Firestop Finish putty. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 140/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 140 mm between posts is recommended to be applied in 2 layers.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

## LOAD-BEARING EXTERNAL WALL

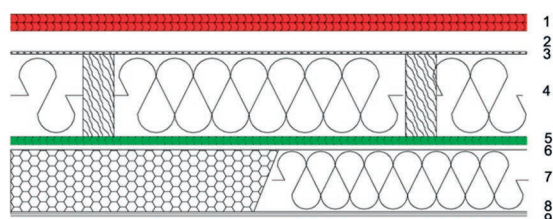


**REI 60**  
FIRE RESISTANCE

### USUAL USE OF STRUCTURE

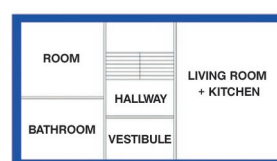
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

### STRUCTURE SCHEME

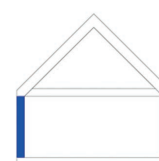


### STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	2x OSB Firestop	32	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	160	Load-bearing; wood frame from structural timber, studs and sole plate size 160/60 mm by 625 mm, top plates size 2x 160/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 160 mm (min. bulk density 38 kg/m³)
5	OSB Superfinish ECO	15	Loadbearing; wood-based board
6	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal Insulation of EPS, or MW	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral fibre thermal insulation ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
8	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
9	Finish render coat	1.5	Aesthetic; silicon, silicate or mineral plaster may be used, the substrate must be treated with primer

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	73 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)								
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUEST/RECOMMENDATION/PASSIVE RECOMMENDATION [mm]*	
							MW	EPS
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 100 / 130–290	120 / 120 / 120–270
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	80 / 100 / 130–290	140 / 140 / 140–270
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	80 / 100 / 130–290	180 / 180 / 180–270
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	80 / 170 / 220–400	140 / 160 / 210–380
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	120 / 170 / 220–400	**
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	80 / 80 / 80–150	200 / 200 / 200
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60	80 / 80 / 80

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

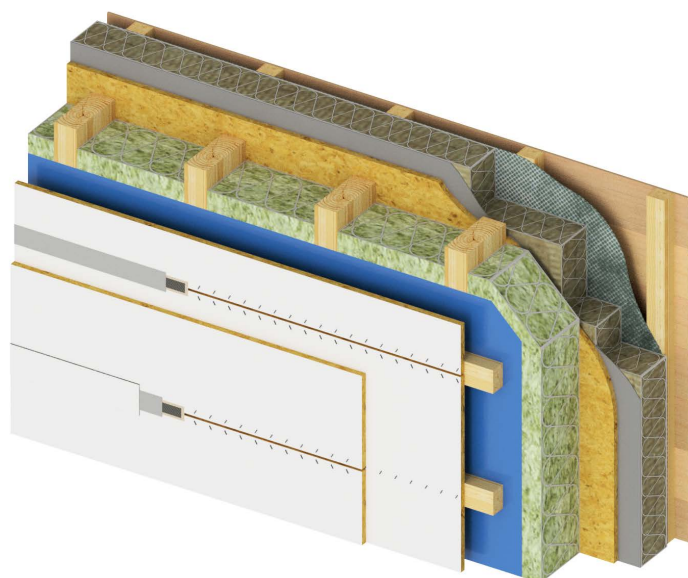
\*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

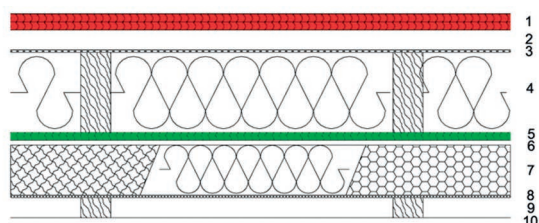
**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 carpenter's screws 6.0 x 120 with a spacing of 70 mm. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty (both board layers). After the technological break, the joint of the top board is covered with finishing Firestop Finish putty. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 160/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 160 mm between posts is recommended to be applied in 2 layers.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

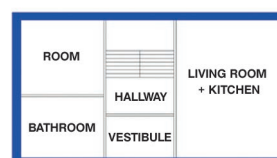
# LOAD-BEARING EXTERNAL WALL

**REI 60****FIRE RESISTANCE****USUAL USE OF STRUCTURE**

Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

**STRUCTURE SCHEME****STRUCTURE USE SCHEME**

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	2x OSB Firestop	32	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally and vertically oriented timber battens 40/60 mm
3	Vapour barrier	-	Vapour control layer (VCL); PE foil with overlapped joints over the timber studs
4	Load-bearing timber studs	160	Load-bearing; wood frame from structural timber, studs and sole plate size 160/60 mm by 625 mm, top plates size 2x 160/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 160 mm (min. bulk density 38 kg/m³)
5	OSB Superfinish ECO	15	Loadbearing; wood-based board
6	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
7	Thermal insulation from EPS, or MW or fibreboard	See the table below	For thermal insulation, it is possible to use EPS 70 F ( $\lambda = 0.041 \text{ W/m.K}$ ) or mineral fibre thermal insulation ( $\lambda = 0.044 \text{ W/m.K}$ ), fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
8	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
9	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented battens 40/60 mm
10	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night

STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	73 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)									
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/ RECOMMENDED/ RECOMMENDED PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/ RECOMMENDATION/ RECOMMENDATION PASSIVE [mm]*		
							MW	EPS	Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18 -0.12	60 / 90 / 120–290	120 / 120 / 120–270	60 / 90 / 120–280
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18 -0.12	80 / 90 / 120–290	140 / 140 / 140–270	80 / 90 / 120–280
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18 -0.12	80 / 90 / 120–290	180 / 180 / 180–270	80 / 90 / 120–280
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14 -0.10	80 / 160 / 220–400	140 / 150 / 200–370	80 / 160 / 210–380
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14 -0.10	120 / 160 / 220–400	**	120 / 160 / 210–380
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26 -0.17	80 / 80 / 80–140	200 / 200 / 200	80 / 80 / 80–140
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50 -0.32	60 / 60 / 60	80 / 80 / 80	60 / 60 / 60

Note: \* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure. \*\* We do not recommend use of the ETICS structure with EPS thermal insulation in these boundary conditions.

In the structure of external fibreboard insulation, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

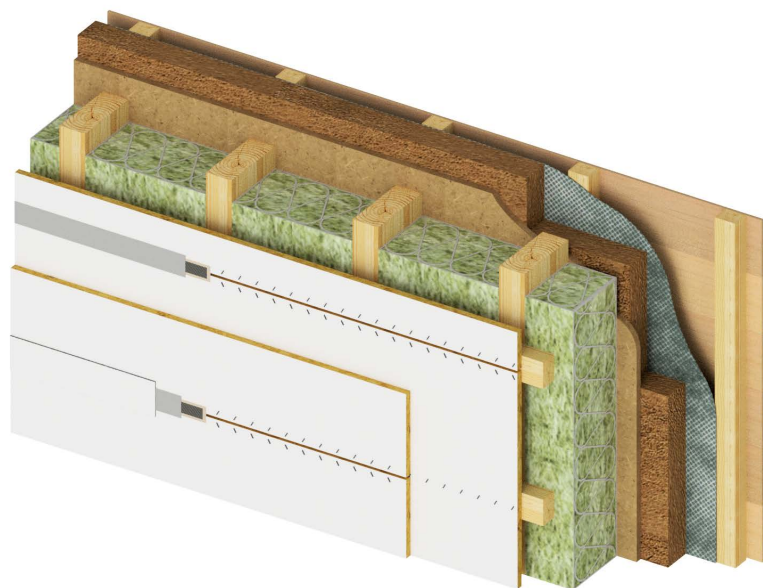
**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 160/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 160 mm between posts is recommended to be applied in 2 layers.

FIRE RESISTANCE PARAMETERS OF STRUCTURE:
The peripheral load-bearing wall may be used for the fire compartments on the aboveground floor with stages I, II, III and IV fire safety (SFS), or for the fire compartments of the top aboveground floor with stages V SFS. Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.

ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING EXTERNAL WALL

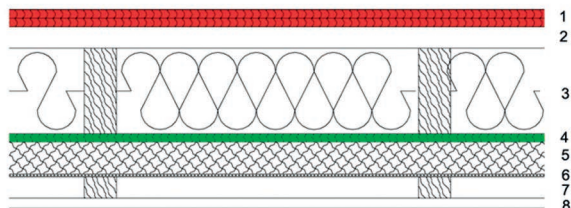


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

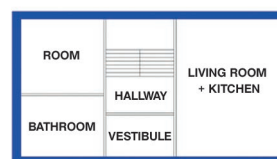
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



## STRUCTURE SPECIFICATION

	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	2x OSB Firestop	32	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	160	Load-bearing; wood frame from structural timber, studs and sole plate size 160/60 mm by 625 mm, top plates size 2x 160/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 160 mm (min. bulk density 38 kg/m³)
4	DFP	15	Structural; wood-based board
5	Thermal insulation - fibreboard	60	Thermal insulating, fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
6	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
7	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented battens 40/60 mm
8	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	73 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED / RECOMMENDED / PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT / RECOMMENDATION / PASSIVE [mm]*
							Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 70 / 100–260
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 70 / 100–260
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	60 / 70 / 100–260
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	60 / 140 / 190–360
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	80 / 140 / 190–360
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	60 / 60 / 60–120
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

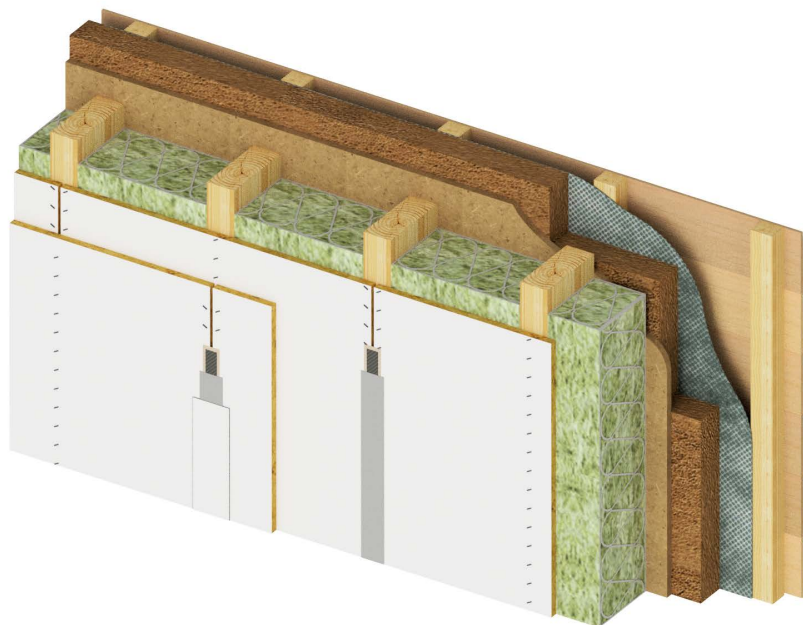
Even when the cladding is tightly constructed, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 160/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 160 mm between posts is recommended to be applied in 2 layers.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

## LOAD-BEARING EXTERNAL WALL

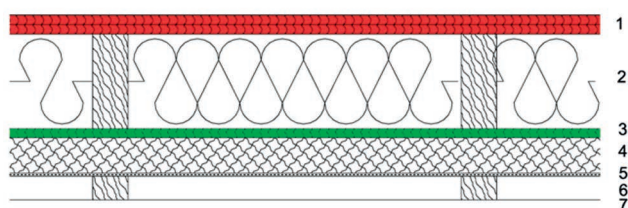


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

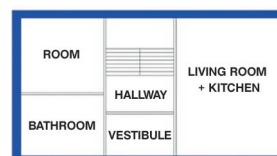
Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	2x OSB Firestop	32	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	160	Load-bearing; wood frame from structural timber, studs and sole plate size 160/60 mm by 625 mm, top plates size 2x 160/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 160 mm (min. bulk density 38 kg/m³)
3	DFP	15	Structural; wood-based board
4	Thermal insulation - fibreboard	60	Thermal insulating; fibreboard ( $\lambda = 0.042 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
5	Housewrap	-	Weather-resistant, windtight; vapour permeable membrane
6	Vertical one-way wooden gridwork + ventilated air spaces	40	Load-bearing, ventilation; vertically oriented battens 40/60 mm
7	Wood cladding	19	Aesthetic; wooden planks

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	73 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUEST/RECOMMENDATION/PASSIVE RECOMMENDATION [mm]*
							Fibreboard
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 80 / 110–260
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18-0.12	60 / 80 / 110–260
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18-0.12	60 / 800 / 110–260
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14-0.10	60 / 140 / 190–370
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14-0.10	80 / 140 / 190–370
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26-0.17	60 / 60 / 60–120
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50-0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

Even when the cladding is tightly constructed, it is not possible in the outer layer of the insulation in case of extreme temperature differences (very low temperature) to computationally eliminate condensation of water vapour and higher risk of degradation of wood-based materials (fibreboard).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

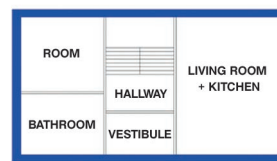
NOTES:
CONSTRUCTION TECHNOLOGIES:
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 160/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 160 mm between posts is recommended to be applied in 2 layers.
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.



A detailed 3D cutaway diagram of a building facade assembly. The assembly consists of several layers: a top metal mesh layer, a thick brown insulation layer, a layer of green insulation blocks held together by wooden spacers, a white structural panel with horizontal grooves, and a bottom metal mesh layer. The diagram illustrates the complex layering and materials used in modern building envelopes.

Load-bearing external wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	2x OSB Firestop	32	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	160	Load-bearing; wood frame from structural timber, studs and sole plate size 160/60 mm by 625 mm, top plates size 2x 160/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 160 mm (min. bulk density 38 kg/m³)
4	DFP	15	Structural; wood-based board
5	Flexible and filler adhesive coat	10	Adhesive and levelling; adhesive for flat bonding of thermal insulation to the wood-based substrate
6	Thermal Insulation of MW	See the table below	Thermal insulating; mineral fibre thermal insulation may be used ( $\lambda = 0.044 \text{ W/m.K}$ ), the thermal insulation shall be mechanically anchored to the base
7	Base render coat	4	Base underlay; dry mortar + glass fibre reinforcing mesh
8	Finish render coat	1.5	Aesthetic; silicate plaster may be used, the substrate must be treated with primer

FIRE PROPERTIES	
Fire Resistance	REI 60
ACOUSTIC PROPERTIES	
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)	For residential buildings up to 65 dB during the day / 55 dB at night
STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	32 kN/m

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF ETICS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]*
							MW
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 70 / 100–270
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.30 / 0.20 / 0.18–0.12	60 / 70 / 100–270
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.30 / 0.20 / 0.18–0.12	60 / 70 / 100–270
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.24 / 0.16 / 0.14–0.10	60 / 140 / 200–380
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.20 / 0.16 / 0.14–0.10	80 / 140 / 200–380
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.38 / 0.29 / 0.26–0.17	60 / 60 / 60–120
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.80 / 0.55 / 0.50–0.32	60 / 60 / 60

Note:

\* Minimum thickness of the thermal insulation in ETICS takes into consideration, not only the requirements (recommendations) of ČSN 73 0540-2 for the heat transmittance coefficient, but also moisture behaviour in the structure.

For proper functioning of the structure, it is required during implementation to ensure the air tightness of the inner cladding, not only on the surface in general but also in detail (e.g. in areas with electrical sockets).

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the wall surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -19°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m².K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The studs of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the external cladding of OSB Superfinish ECO, or DFP boards need not be filled with putty as the boards are connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 160/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 160 mm between posts is recommended to be applied in 2 layers.
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.
<b>ACOUSTIC PARAMETERS OF STRUCTURE:</b>
The structure of the perimeter wall is applicable also to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# LOAD-BEARING INTERNAL WALL

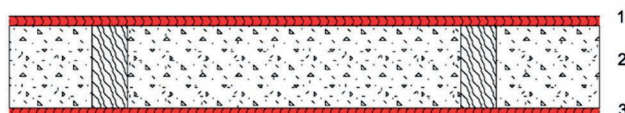


**REI 30**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

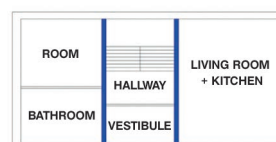
Interior load-bearing (fire) wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

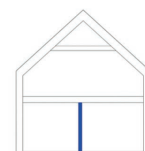


## STRUCTURE USE SCHEME

Ground plan



Section

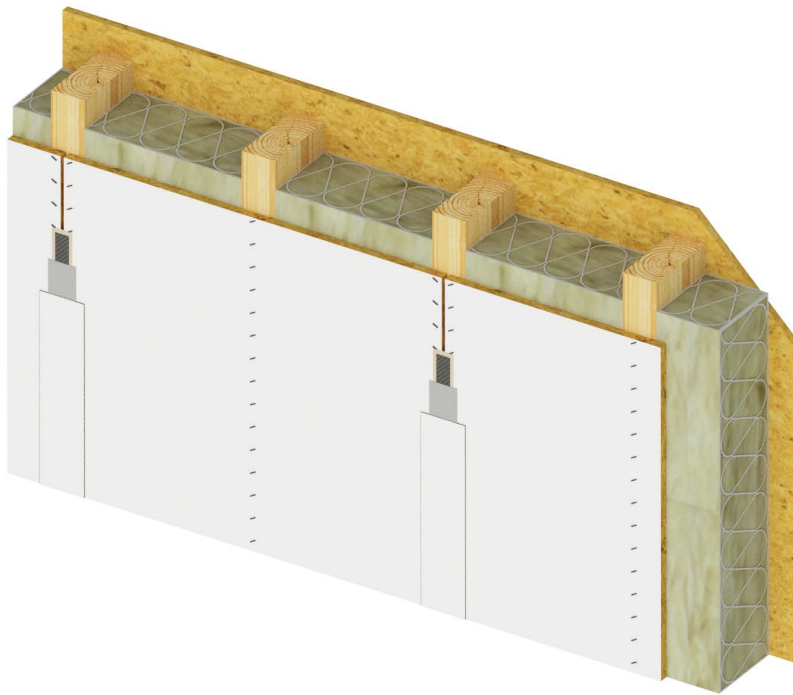


STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs size 120/60 mm by 625 mm, sole and top plates size 120/60 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of blown cellulose between studs		Thermal insulating; blown cellulose ( $\lambda = 0.042 \text{ W/m.K}$ , min. bulk density $30 \text{ kg/m}^3$ )
3	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 30	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		40 dB	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		32 kN/m	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/ RECOMMENDED/ RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.35
NOTES:			
CONSTRUCTION TECHNOLOGIES:			
<p>The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 carpenter's screws 6.0 x 120 with a spacing of 70 mm. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case.</p>			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
<p>Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m.</p>			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

## LOAD-BEARING INTERNAL WALL

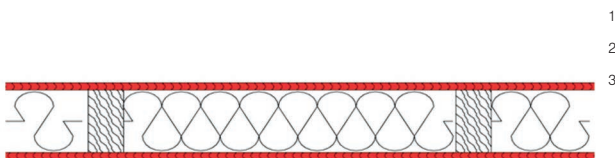


**REI 45**  
FIRE RESISTANCE

### USUAL USE OF STRUCTURE

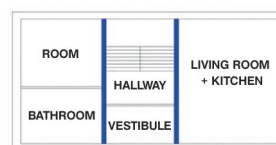
Interior load-bearing (fire) wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

### STRUCTURE SCHEME

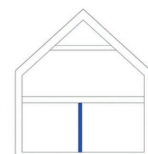


### STRUCTURE USE SCHEME

Ground plan



Section

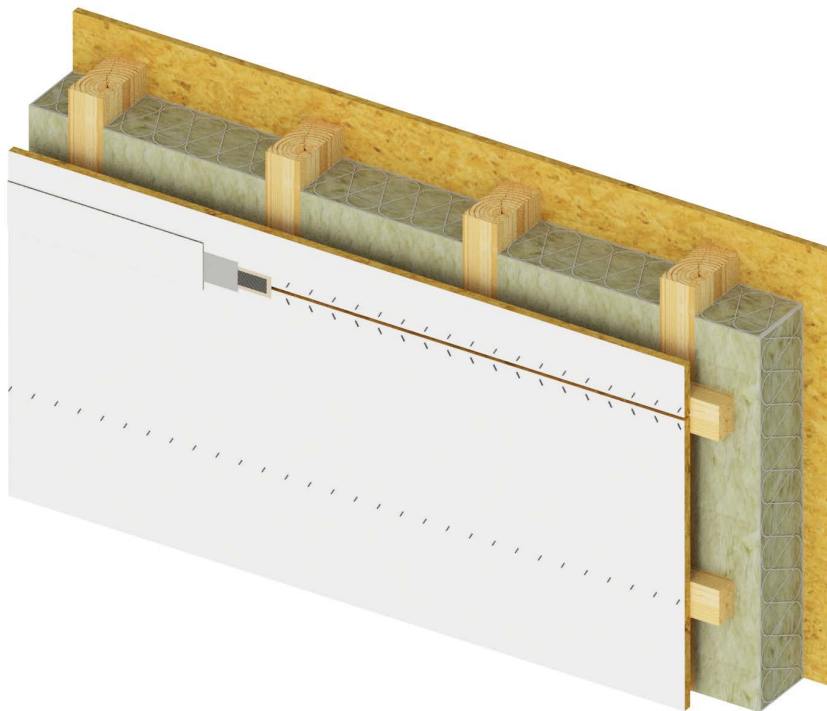


STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/40 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 120 mm (min. bulk density 30 kg/m³)
3	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 45	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		40 dB	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		32 kN/m	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.36
NOTES:			
CONSTRUCTION TECHNOLOGIES:			
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between posts is recommended to be applied in 2 layers.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

# LOAD-BEARING INTERNAL WALL

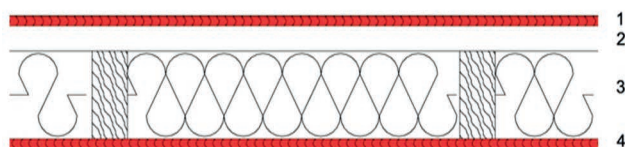


**REI 45**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

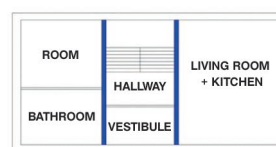
Interior load-bearing (fire) wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

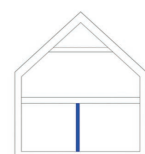


## STRUCTURE USE SCHEME

Ground plan



Section



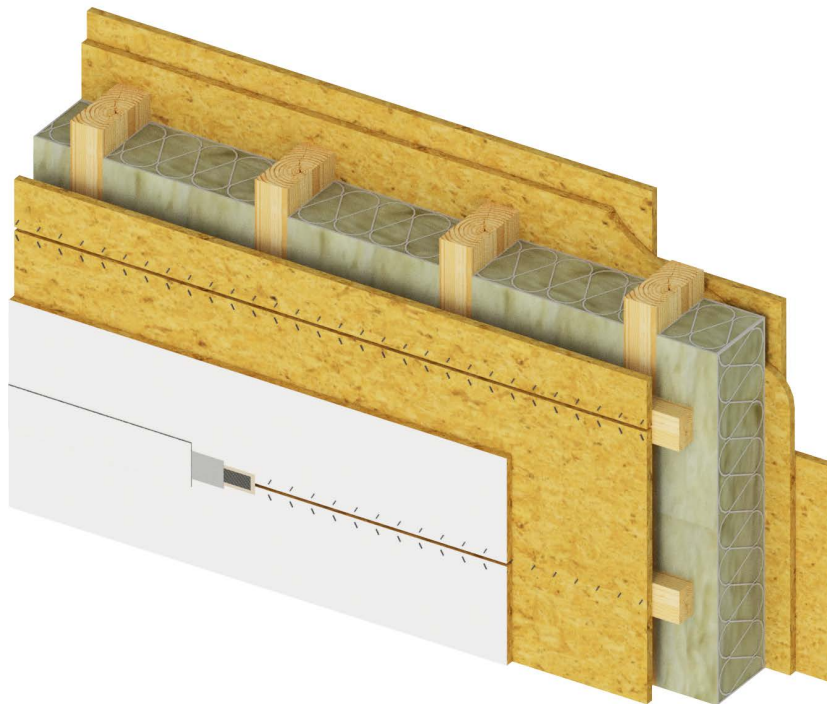
## STRUCTURE SPECIFICATION

	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/40 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 120 mm (min. bulk density 30 kg/m³)
4	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 45	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		40 dB	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		32 kN/m	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.34
NOTES:			
CONSTRUCTION TECHNOLOGIES:			
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between the posts is recommended to be applied in 2 layers.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

# LOAD-BEARING INTERNAL WALL

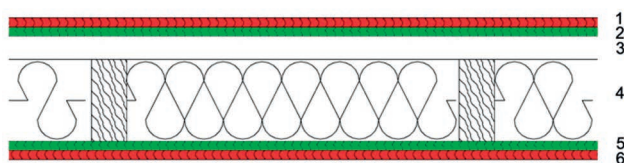


**REI 45**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

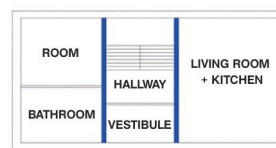
Interior load-bearing (fire) wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

## STRUCTURE SCHEME

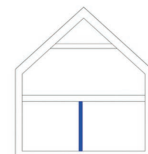


## STRUCTURE USE SCHEME

Ground plan



Section



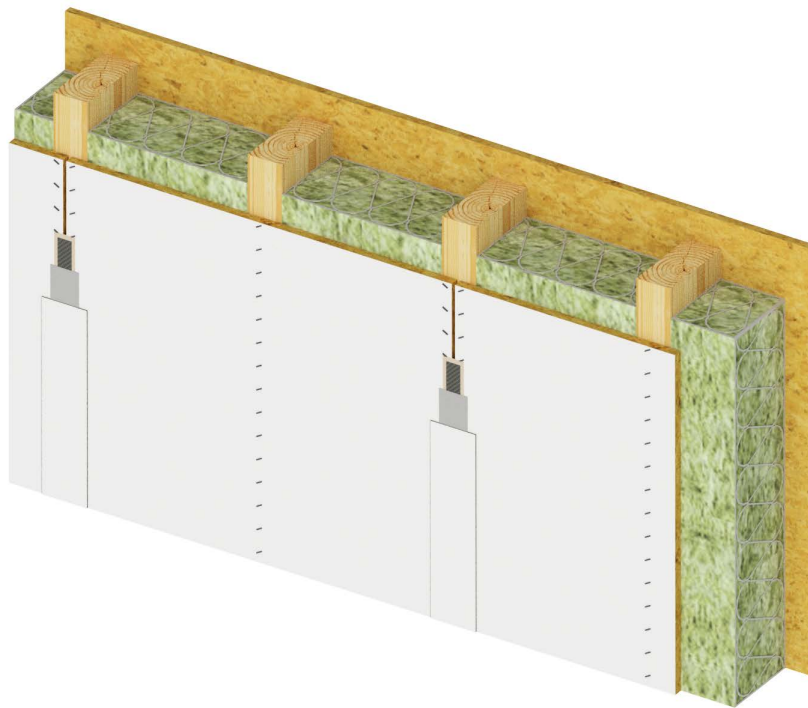
## STRUCTURE SPECIFICATION

	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	OSB Superfinish ECO	40	Acoustic; wood-based board
3	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
5	Load-bearing timber studs	120	Load-bearing; wood frame from structural timber, studs and sole plate size 120/60 mm by 625 mm, top plates size 2x 120/40 mm, noggins size 120/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 120 mm (min. bulk density 30 kg/m³)
5	OSB Superfinish ECO	16	Acoustic; wood-based board
6	OSB Firestop	40	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 45	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		47 dB	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		32 kN/m	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.34
NOTES:			
CONSTRUCTION TECHNOLOGIES:			
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always 2 x carpenter screw 6.0 x 140 in the profile axis. The load-bearing frame cladding will be braced with 50 mm long braces with the diameter of 1.53 mm and maximum spacing 50 mm along the board perimeter and 100 mm in the middle of the board. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. The joints of the internal cladding of OSB Superfinish ECO boards need not be filled with putty as the boards may be connected by straight joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 120/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 120 mm between posts is recommended to be applied in 2 layers.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

## LOAD-BEARING INTERNAL WALL

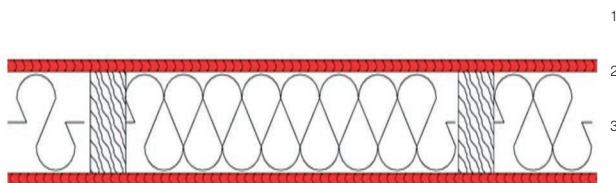


**REI 60**  
FIRE RESISTANCE

### USUAL USE OF STRUCTURE

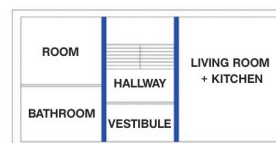
Interior load-bearing (fire) wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

### STRUCTURE SCHEME

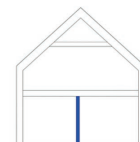


### STRUCTURE USE SCHEME

Ground plan



Section



STRUCTURE SPECIFICATION			
	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	Load-bearing timber studs	140	Load-bearing; wood frame from structural timber, studs size 140/60 mm by 625 mm, sole and top plates size 140/60 mm, noggins size 140/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 140 mm (min. bulk density 34 kg/m³)
3	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 60	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		40 dB	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		32 kN/m	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.32
NOTES:			
CONSTRUCTION TECHNOLOGIES:			
The posts of the wooden frame must be anchored to the horizontal profiles at the contact point, always min. 2 x carpenter screw 5.0 x 160 in the profile axis. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The load-bearing frame cladding shall be braced with 50 mm long braces with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, the gap is covered with finishing Firestop Finish cement. In the places of horizontal joints of exterior cladding a supporting KVH profile 140/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 140 mm between posts is recommended to be applied in 2 layers.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased. Maximum permitted wall height is 3.0 m.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

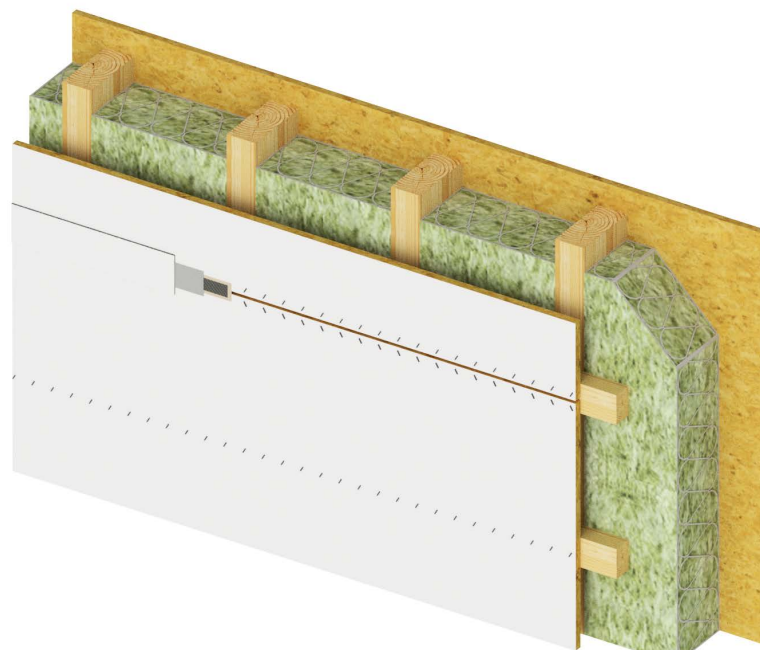
# LOAD-BEARING INTERNAL WALL



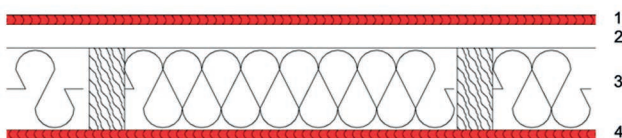
**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

Interior load-bearing (fire) wall in family houses and apartment buildings conceived as timber houses. May also be used for civic amenities buildings.

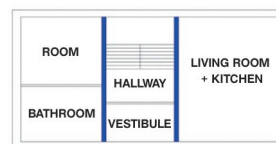


## STRUCTURE SCHEME

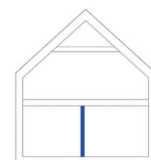


## STRUCTURE USE SCHEME

Ground plan



Section



## STRUCTURE SPECIFICATION

	LAYERS (from the interior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
2	One-way wooden bearing grid	40	Installation gap; horizontally oriented timber battens 40/60 mm
3	Load-bearing timber studs	140	Load-bearing; wood frame from structural timber, studs size 140/60 mm by 625 mm, sole and top plates size 140/60 mm, noggins size 140/60 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating; mineral wool thickness 140 mm (min. bulk density 34 kg/m³)
4	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 60	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		40 dB	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		32 kN/m	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.30
NOTES:			
CONSTRUCTION TECHNOLOGIES:			
The studs of the wooden frame must be anchored to the sole and top plates at the contact point, always min. 2 x carpenter screw 5.0 x 160 in the profile axis. The load-bearing frame cladding shall be fixed with 50 mm long staples with the diameter of 1.53 mm and max. spacing 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. The joints of the external cladding may be connected by straight joints, or with groove & tongue joints. In the places of horizontal joints of exterior cladding a supporting KVH profile 140/60 mm must be added in the load-bearing structure in each case. Thermal insulation of mineral fibre thickness 140 mm between posts is recommended to be applied in 2 layers.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the cladding board thickness. Thickness of thermal insulation inside the structure can also be increased, or extended with thermal insulation with fire response class A1 or A2 in the apron wall area. Maximum permitted wall height is 3.0 m.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

## PITCHED ROOF

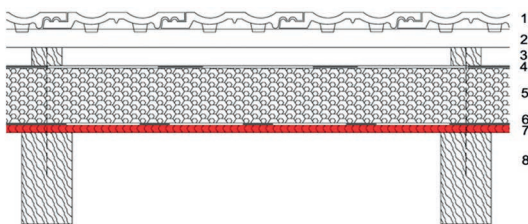


**REI 30**  
FIRE RESISTANCE

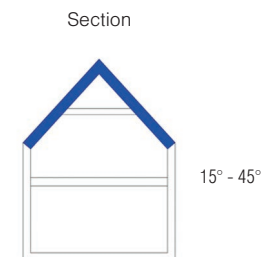
### USUAL USE OF STRUCTURE

Inclined roof with visible load-bearing structure in family houses and apartment buildings. May also be used for civic amenities buildings.

### STRUCTURE SCHEME



### STRUCTURE USE SCHEME



STRUCTURE SPECIFICATION			
	LAYER (from the exterior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Roofing	according to roofing	Weather-resistant; small- and large-format roof tiles
2	Battens, or formwork	~ 40	Wooden battens 40/60 mm, or alternative according to roofing type
3	Contra battens + ventilated layer	~ 40	Ventilating; wooden battens 40/60 mm, axial according to rafter spacing
4	Roof underlay	-	Hydro insulating; e.g. self-adhesive strip of SBS modified bitumen, permeable foil
5	Thermal Insulation of PIR boards	see below min. 100	Thermal insulating; boards on poly-iso-cyanurate basis, groove & tongue joints ( $\lambda = 0.23$ W/m.K), mechanically anchored to the base
6	Vapour barrier	~3	Vapour barrier and air tight and provisional hydro insulating layer, an adhesive strip of SBS modified bitumen with aluminium insert
7	OSB Firestop	18	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
8	Load-bearing timber element – rafter	200	Load-bearing rafter 200/100 mm by 625 mm. Structural timber class C24.

FIRE PROPERTIES							
Fire Resistance			REI 30				
ACOUSTIC PROPERTIES							
Applicability of the structure according to noise in front of the building facade (refer to ČSN 73 0532)			For residential buildings up to 65 dB during the day / 55 dB at night				
STATIC LOAD-BEARING CAPACITY							
Maximum vertical load			2.0 kN/m²				
HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/ RECOMMENDED PASSIVE U-VALUE [W/m².K]	REQUIRED THICKNESS OF THERMAL INSULATION - REQUEST/ RECOMMENDATION/PASSIVE RECOMMENDATION [mm]
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.24 / 0.16 / 0.15 -0.10	100 / 160 / 170–280
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.24 / 0.16 / 0.15 -0.10	100 / 160 / 170–280
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.24 / 0.16 / 0.15 -0.10	100 / 160 / 170–280
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.19 / 0.13 / 0.12 -0.08	130 / 200 / 220–380
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.19 / 0.13 / 0.12 -0.08	130 / 200 / 220–380
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.35 / 0.23 / 0.22 -0.15	100 / 100 / 110–170
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.65 / 0.45 / 0.40 -0.27	100 / 100 / 100

Note:  
The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the roof surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systematic thermal bridges in the amount of 0.02 W/m.².K.

In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.

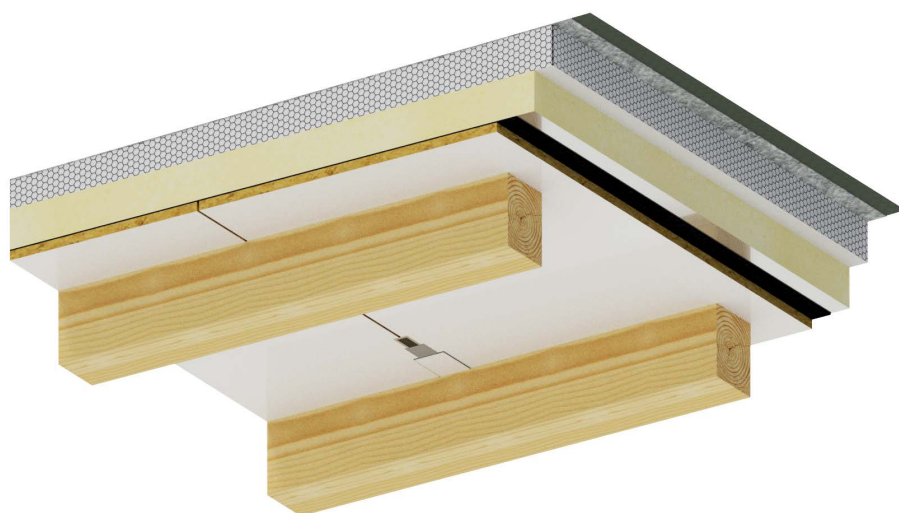
NOTES:
CONSTRUCTION TECHNOLOGIES:
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The transverse joint of the OSB Firestop boards between the rafters of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop Finish cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements. The roof gradient depends on safe inclination of the roofing in combination with DHV and fire resistance specification – see the fire resistance parameters. The adhesive vapour barrier and provisional hydro insulating layer is applied directly on the timber base. Thermal insulation may be laid in multiple layers with mutual overlaps of the joints. The structure is stabilised by anchoring of the contra slats with screws through the thermal insulation, the vapour barrier and the formwork into the rafters.
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the structure described above may be used within the gradient range of 15°to 45°. Regarding fire resistance the timber part dimensions can be increased including the timber cover thickness. Thickness of thermal insulation can also be increased.
ACOUSTIC PARAMETERS OF STRUCTURE:
The structure of the pitched roof is also applicable to other types of objects up to the noise limit in front of the facade: For offices up to 75 dB, for schools up to 70 dB.

# STRUCTURES AND SYSTEMS

## OSB Firestop

Kronobuild®

## FLAT ROOF

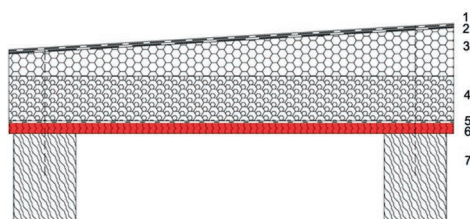


**REI 30**  
FIRE RESISTANCE

### USUAL USE OF STRUCTURE

Flat roof with visible load-bearing structure in family houses.

### STRUCTURE SCHEME



### STRUCTURE USE SCHEME

Section



STRUCTURE SPECIFICATION			
	LAYER (from the exterior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Waterproofing coat	~1.5 / 4	Hydro insulation on PVC-P base, respectively, asphalt strip
2	Separating textiles / base strip	~ - / 4	Separation/securing; according to waterproof coat used
3	Thermal Insulation of EPS 100 S Stabil	see table below (average thickness given)	Thermally insulating; sloped EPS ( $\lambda = 0.41$ W/m.K), board joints staggered, boards mechanically anchored to the base
4	Thermal Insulation of PIR boards	100	Thermally insulating; boards on polyisocyanurate basis, groove & tongue joints ( $\lambda = 0.23$ W/m.K), mechanically anchored to the base
5	Vapour barrier	~ 3.5	Vapour barrier and air tight and provisional hydro insulating layer, e.g. an adhesive strip of SBS modified bitumen with aluminium insert
6	OSB Firestop	23	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
7	Load-bearing timber element – wooden beam	180	Load-bearing; wooden beams 180/140 mm by 625 mm. Structural timber class C24.

FIRE PROPERTIES	
Fire Resistance	REI 30

ACOUSTIC PROPERTIES	
Calculated laboratory sound transmission loss, $R_w$	Not declared

STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	2.56 kN/m <sup>2</sup>

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m <sup>2</sup> .K]	REQUIRED THICKNESS OF EPS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.24 / 0.16 / 0.15 -0.10	60 / 90 / 110–290
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.24 / 0.16 / 0.15 -0.10	60 / 90 / 110–290
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.24 / 0.16 / 0.15 -0.10	60 / 90 / 110–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.19 / 0.13 / 0.12 -0.08	60 / 160 / 200–450
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.19 / 0.13 / 0.12 -0.08	60 / 160 / 200–450
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.35 / 0.23 / 0.22 -0.15	60 / 60 / 60–110
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.65 / 0.45 / 0.40 -0.27	60 / 60 / 60

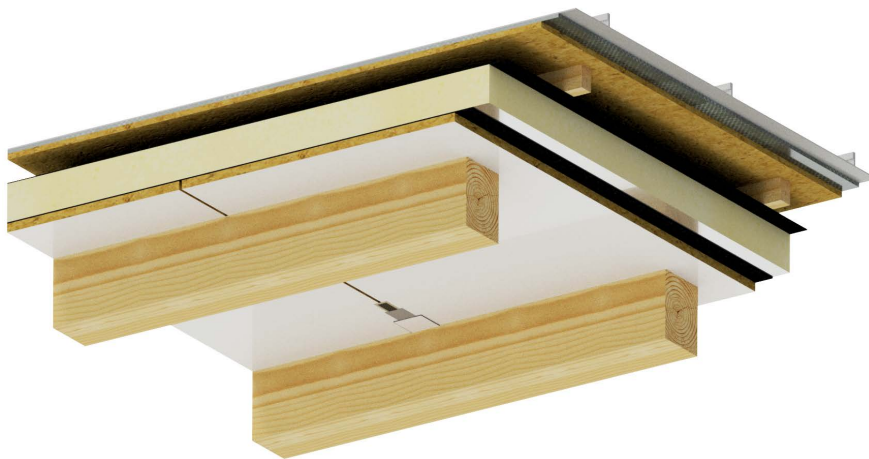
Note:

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the roof surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m<sup>2</sup>.K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The transverse joint of the OSB Firestop boards between the beams of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop Finish cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements. The roof gradient depends on safe inclination of the roofing and fire resistance specification – see the fire resistance parameters. The adhesive vapour barrier and provisional hydro insulating layer is applied directly on the timber base. Thermal insulation may be laid in multiple layers with mutual overlaps of the joints. The structure is stabilised by anchoring of the hydro insulation with over the thermal insulation, the vapour barrier and the formwork into the rafters (beams).
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the structure described above may be used within the gradient range of 15°. Regarding fire resistance the timber part dimensions can be increased including the timber cover thickness. Thickness of thermal insulation can also be increased.

# FLAT ROOF

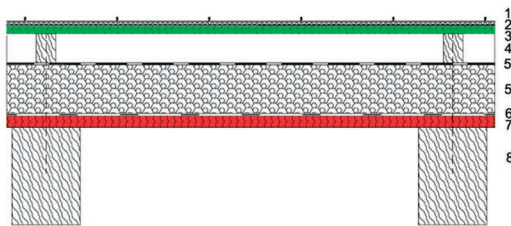


**REI 30**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

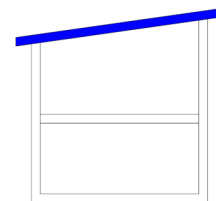
Flat roof with visible load-bearing structure in family houses.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Section



STRUCTURE SPECIFICATION			
	LAYER (from the exterior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Metal roofing	-	Weather-resistant; according to type of sheet metal
2	Dividing structural matting	~ 10	Separating; drainage, diffusion-open strip of laminated polypropylene structural grid work in the shape of studs
3	OSB Superfinish ECO	15	Loadbearing; wood-based board
4	Contra battens + ventilated layer	~ 60	Ventilating wooden battens 60/40 mm, axial according to beam spacing
5	Roof underlay	-	Hydro insulating, e.g. self-adhesive strip of SBS modified bitumen, diffusion-open foil
6	Thermal Insulation of PIR boards	see below min. 100	Thermal insulating; boards on polyisocyanurate basis, groove & tongue joints ( $\lambda = 0.23$ W/m.K), mechanically anchored to the base
7	Vapour barrier	~ 3.5	Vapour barrier and air tight and provisional hydro insulating layer, an adhesive strip of SBS modified bitumen with aluminium insert
8	OSB Firestop	23	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
9	Sloped wooden structures – beams 180 x 140 (slope according to type of roofings used)	180	Load-bearing wooden beams 180/140 mm by 625 mm. Structural timber class C24.

FIRE PROPERTIES							
Fire Resistance			REI 30				
ACOUSTIC PROPERTIES							
Calculated laboratory sound transmission loss, $R_w$			Not declared				
STATIC LOAD-BEARING CAPACITY							
Maximum vertical load			2.56 kN/m <sup>2</sup>				
HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m <sup>2</sup> .K]	REQUIRED THICKNESS OF THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.24 / 0.16 / 0.15 -0.10	100 / 160 / 170–280
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.24 / 0.16 / 0.15 -0.10	100 / 160 / 170–280
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.24 / 0.16 / 0.15 -0.10	100 / 160 / 170–280
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.19 / 0.13 / 0.12 -0.08	130 / 200 / 220–370
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.19 / 0.13 / 0.12 -0.08	130 / 200 / 220–370
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.35 / 0.23 / 0.22 -0.15	100 / 100 / 110–170
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.65 / 0.45 / 0.40 -0.27	100 / 100 / 100

Note:

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the roof surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systematic thermal bridges in the amount of 0.02 W/m.<sup>2</sup>.K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

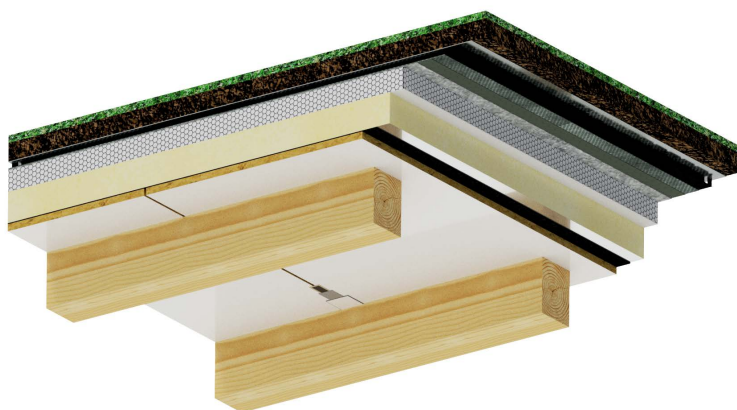
NOTES:
CONSTRUCTION TECHNOLOGIES:
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The transverse joint of the OSB Firestop boards between the beams of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop Finish cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements. The roof gradient depends on safe inclination of the roofing and fire resistance specification – see the fire resistance parameters. The adhesive vapour barrier and provisional hydro insulating layer is applied directly on the timber base. Thermal insulation may be laid in multiple layers with mutual overlaps of the joints. The structure is stabilised by anchoring of the hydro insulation with over the thermal insulation, the vapour barrier and the formwork into the rafters (beams).
FIRE RESISTANCE PARAMETERS OF STRUCTURE:
Regarding fire resistance the structure described above may be used within the gradient range of 15°. Regarding fire resistance the timber part dimensions can be increased including the timber cover thickness. Thickness of thermal insulation can also be increased.

# STRUCTURES AND SYSTEMS

## OSB Firestop

Kronobuild®

## FLAT ROOF

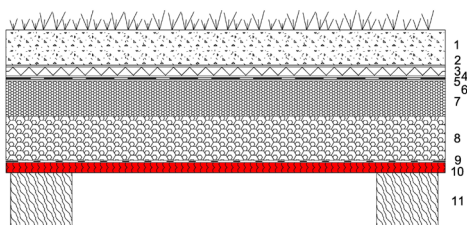


**REI 30**  
FIRE RESISTANCE

### USUAL USE OF STRUCTURE

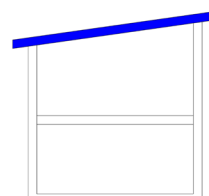
Flat roof with visible load-bearing structure in family houses.

### STRUCTURE SCHEME



### STRUCTURE USE SCHEME

Section



STRUCTURE SPECIFICATION			
	LAYER (from the exterior)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Vegetation substrate	at least 80	Aesthetic; substrate for xerophytes, extensive greenery
2	Separating textiles	-	Separating; 100% polypropylene (non-woven needle-punching reinforced textile)
3	Studded membrane with perforations on the upper surface	~ 20	Drainage and hydro accumulation; structural matting with half-conical high density polyethylene (HDPE) protrusions (studs)
4	Separating textiles	-	Separating; 100% polypropylene (non-woven needle-punching reinforced textile)
5	Hydro insulating PVC-P foil	~ 1.5	Hydro insulating; soft PVC, for used on vegetative roofs
6	Separating textiles	-	Separating; 100% polypropylene (non-woven needle-punching reinforced textile)
7	Thermal insulation from XPS	see table below (average thickness given)	Thermally insulating, boards on extruded base ( $\lambda = 0.42$ W/m.K), mechanically anchored to the base
8	Thermal Insulation of PIR boards	100	Thermally insulating, boards on poly-iso-cyanurate basis, groove & tongue joints ( $\lambda = 0.23$ W/m.K), mechanically anchored to the base
9	Vapour barrier	~ 3.5	Vapour barrier and air tight and provisional hydro insulating layer, an adhesive strip of SBS modified bitumen with aluminium insert
10	OSB Firestop	23	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
11	Sloped wooden structures – beams 180 x 140 (slope according to type of roofings used)	180	Load-bearing; wooden beams 180/140 mm by 625 mm. Structural timber class C24.

FIRE PROPERTIES	
Fire Resistance	REI 30

ACOUSTIC PROPERTIES	
Calculated laboratory sound transmission loss, $R_w$	Not declared

STATIC LOAD-BEARING CAPACITY	
Maximum vertical load	2.56 kN/m <sup>2</sup>

HYDROTHERMAL PROPERTIES (depending on interior environment)							
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	DESIGN AVERAGE MONTHLY RELATIVE HUMIDITY OF INTERIOR AIR	DESIGN INTERIOR TEMPERATURE IN WINTER [°C]	DESIGN RELATIVE HUMIDITY OF INTERIOR AIR [%]	MAXIMUM ALTITUDE [metres above sea level]	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m <sup>2</sup> .K]	REQUIRED THICKNESS OF XPS THERMAL INSULATION - REQUIREMENT/RECOMMENDATION/RECOMMENDATION PASSIVE [mm]
INT 1	Standard environment of residential and civic amenities buildings – lower humidity load, for example family house	humidity class 3	18–20	50–55	1200	0.24 / 0.16 / 0.15 -0.10	80 / 90 / 110–290
INT 2	Standard environment of residential and civic amenities buildings – higher humidity load, for example apartment buildings, office buildings, school buildings, cultural halls	humidity class 4	20–22	50–55	1200	0.24 / 0.16 / 0.15 -0.10	80 / 90 / 110–290
INT 3	Heating and resting rooms in saunas, manufacturing halls with high humidity load	humidity class 5	22	60	1200	0.24 / 0.16 / 0.15 -0.10	80 / 90 / 110–290
INT 4	Warmer operations of civic amenities buildings – doctor's offices and emergency rooms	humidity class 4	24	50–55	1200	0.19 / 0.13 / 0.12 -0.08	80 / 160 / 200–450
INT 5	Warmer operations of residential and civic amenities buildings – bathrooms, emergency rooms, large-scale industrial kitchens.	humidity class 5	24	55–80	1200	0.19 / 0.13 / 0.12 -0.08	80 / 160 / 200–450
INT 6	Heated auxiliary rooms of residential and civic amenities buildings – antechambers, corridors, WCs, gyms	humidity class 3	15	50–70	1200	0.35 / 0.23 / 0.22 -0.15	80 / 80 / 80–110
INT 7	Heated auxiliary staircases, storage areas heated to 10°C	humidity class 2	10	50–55	1200	0.65 / 0.45 / 0.40 -0.27	80 / 80 / 80

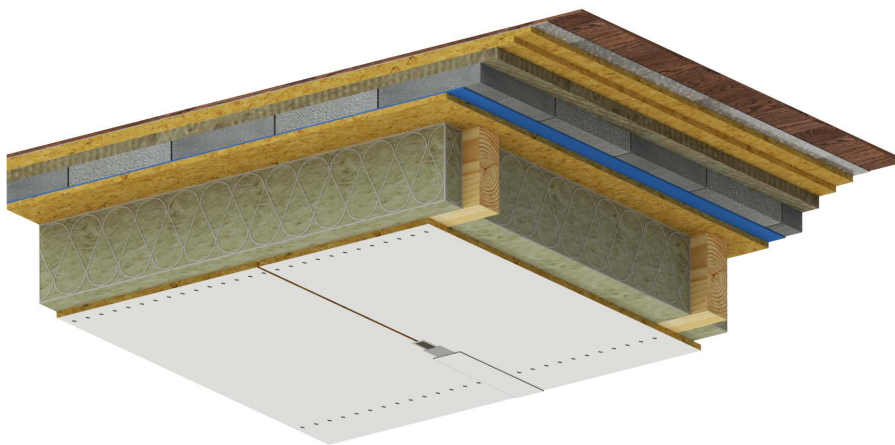
Note:

The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the roof surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment. Thickness of thermal insulation designed for fulfilment of the requirement at an exterior air temperature of -16°C. For warmer areas, the thickness of the thermal insulation may be slightly thinner, for colder areas, thicker to the contrary. Anchoring of the given structure was considered in the calculation by means of correction for systemic thermal bridges in the amount of 0.02 W/m<sup>2</sup>.K.

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

<b>NOTES:</b>
<b>CONSTRUCTION TECHNOLOGIES:</b>
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The transverse joint of the OSB Firestop boards between the beams of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop Finish cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements. The roof gradient depends on safe inclination of the roofing and fire resistance specification – see the fire resistance parameters. The adhesive vapour barrier and provisional hydro insulating layer is applied directly on the timber base. Thermal insulation may be laid in multiple layers with mutual overlaps of the joints. The structure is stabilised by anchoring of the hydro insulation with over the thermal insulation, the vapour barrier and the formwork into the rafters (beams).
<b>FIRE RESISTANCE PARAMETERS OF STRUCTURE:</b>
Regarding fire resistance the timber part dimensions can be increased including the timber cover thickness. Thickness of thermal insulation can also be increased.

# LOAD-BEARING FLOOR

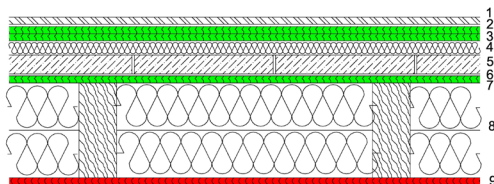


**REI 30**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

Horizontal load-bearing floor with ceiling panels in family houses and apartment buildings. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Section



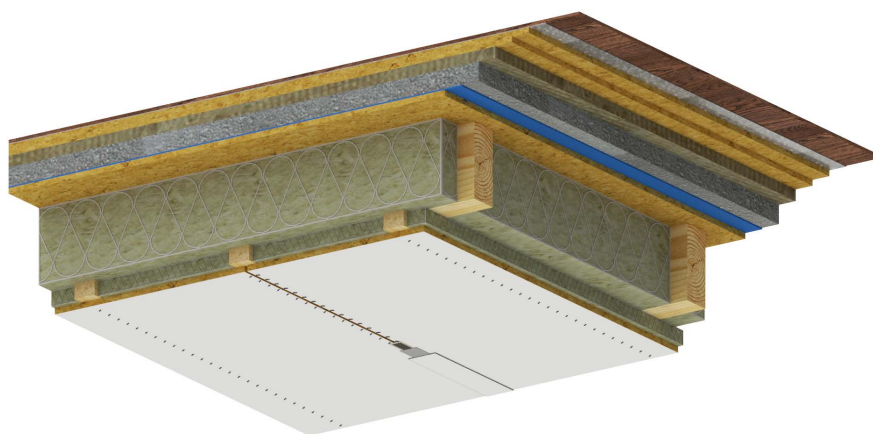
## STRUCTURE SPECIFICATION

	LAYER (from the top)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Flooring covering	according to flooring covering	Walkable, according to type of flooring covering
2	Separation layer	-	Separation; e.g. strips of lightweight polyethylene, hardboard etc.
3	2x OSB Superfinish ECO	~ 30	Load distribution; wood-based boards, layers connected together, board joint staggered
4	Impact sound insulation	~ 30	Acoustic; semi-rigid boards made of stone wool designed for light laminate floors
5	Concrete layer or concrete tiles	~ 50	Load distribution, acoustic
6	Separation layer	-	Separation; e.g. PE foil
7	OSB Superfinish ECO	15	Loadbearing decking; wood-based board
8	Load-bearing timber element – horizontal beam	200	Load-bearing, beam 200/80 mm by 625 mm. Structural timber class C24.
	Thermal insulation of mineral wool between beams		Thermal insulating; mineral wool thickness 200 mm in two layers (min. bulk density 15 kg/m³)
9	One-sided gridwork	40	Creates space for building technology installations, horizontally oriented slats 40/60 mm
10	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 30	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		54 dB, determined according to the measured structure, see test report 141/07 CSI Zlín	
Impact sound transmission loss $L_{n,w}$		61 dB, determined according to the measured structure, see test report 141/07 CSI Zlín	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		2.1 kN/m <sup>2</sup>	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m <sup>2</sup> .K]	CALCULATED U-VALUE [W/m <sup>2</sup> .K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.25
NOTES:			
STRUCTURE THERMAL TECHNOLOGY:			
The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the structure surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment.			
CONSTRUCTION TECHNOLOGIES:			
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop Finish cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements. The joints of the OSB Superfinish ECO are not filled with putty as the boards are connected by straight joints, or with groove & tongue joints.. Mineral wool thermal insulation of thickness 200 mm between the beams is applied in 2 layers.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the timber cladding thickness. Thickness of thermal insulation inside the structure can also be increased.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

# LOAD-BEARING FLOOR

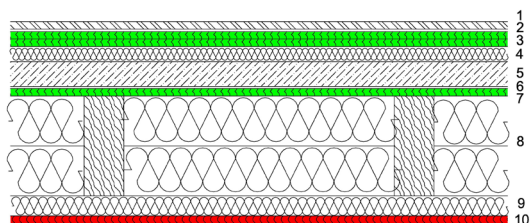


**REI 30**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

Horizontal load-bearing floor with ceiling panels in family houses and apartment buildings. May also be used for civic amenities buildings.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Section

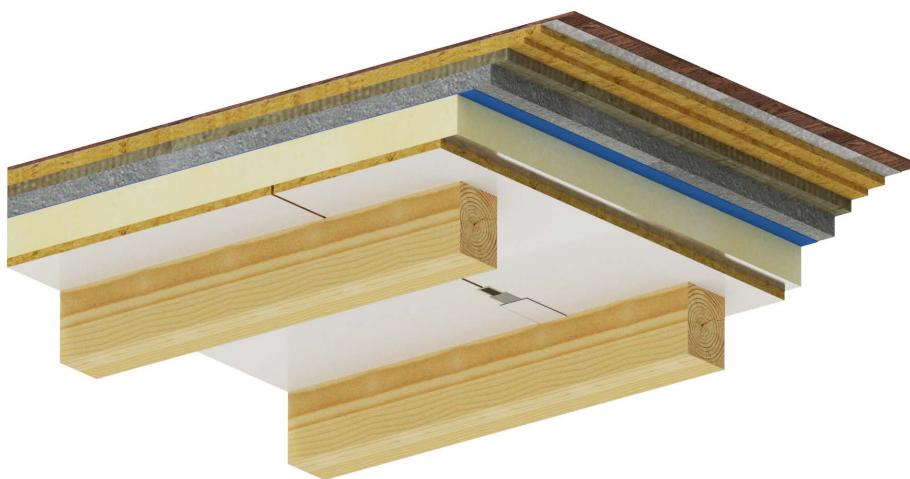


STRUCTURE SPECIFICATION			
	LAYER (from the top)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Flooring covering	according to flooring covering	Walkable, according to type of flooring covering
2	Separation layer	-	Separation; e.g. strips of lightweight polyethylene, hardboard etc.
3	2x OSB Superfinish ECO	30	Load distribution; wood-based boards, layers connected together, board joint staggered
4	Impact sound insulation	~ 30	Acoustic; semi-rigid boards made of stone wool designed for light floating floors
5	Concrete layer	~ 50	Load distribution acoustic
6	Separation layer	-	Separation, e.g. PE foil
7	OSB Superfinish ECO	22	Loadbearing decking; wood-based board
8	Load-bearing timber element – horizontal beam	200	Load-bearing; beam 200/80 mm by 625 mm. Structural timber class C24.
	Thermal insulation of mineral wool between studs		Thermal insulating mineral wool thickness 200 mm in two layers (min. bulk density 15 kg/m³)
9	One-sided gridwork + mineral wool thermal insulation	40	Creates space for building technology installations, horizontally oriented slats 40/60 mm, mineral wool of thickness 40 mm (min. bulk density 15 kg/m³)
10	OSB Firestop	16	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish

FIRE PROPERTIES			
Fire Resistance		REI 30	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, R <sub>w</sub>		56 dB determined according to the measured structure, see test report 141/07 CSI Zlín	
Impact sound transmission loss L <sub>n,w</sub>		59 dB determined according to the measured structure, see test report 141/07 CSI Zlín	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		2.1 kN/m <sup>2</sup>	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m <sup>2</sup> .K]	CALCULATED HEAT U-VALUE [W/m <sup>2</sup> .K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30-0.20	0.23
NOTES:			
STRUCTURE THERMAL TECHNOLOGY:			
The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the structure surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment.			
CONSTRUCTION TECHNOLOGIES:			
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements. The joints of the OSB Superfinish ECO are not filled with putty as the boards are connected by straight joints, or with groove & tongue joints. Thermal insulation from mineral fibres of thickness 200 mm between the beams is applied in 2 layers.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the timber cladding thickness. Thickness of thermal insulation inside the structure can also be increased.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

# LOAD-BEARING FLOOR

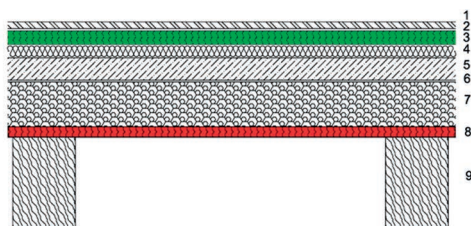


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

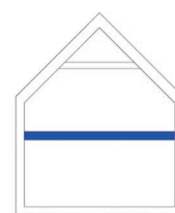
Horizontal load-bearing floor with visible load bearing structures.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Section

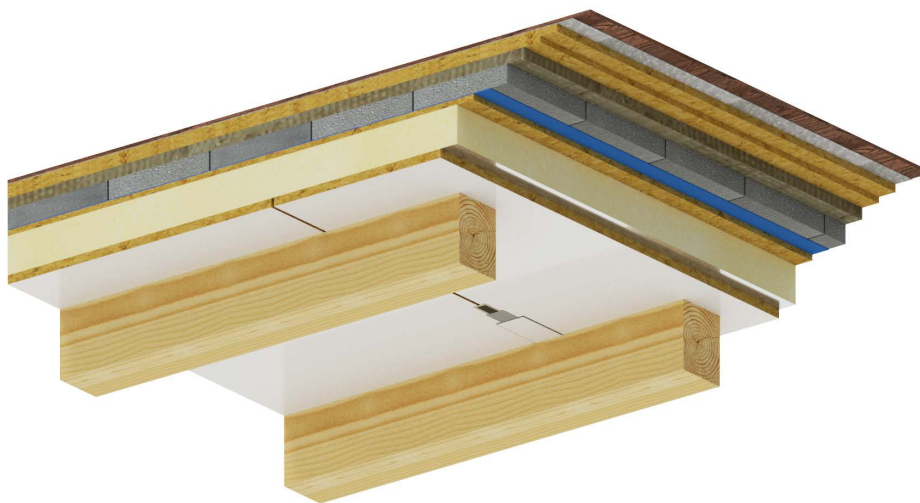


STRUCTURE SPECIFICATION			
	LAYER (from the top)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Flooring covering	according to flooring covering	Walkable, according to type of flooring covering
2	Separation layer	-	Separation; e.g. strips of lightweight polyethylene, hardboard etc.
3	2x OSB Superfinish ECO	~ 30	Load distribution; wood-based boards, layers connected together, board joint staggered
4	Impact sound insulation	~ 30	Acoustic; semi-rigid boards made of stone wool designed for light floating floors
5	Concrete layer	~ 50	Load distribution, acoustic
6	Separation layer	-	Separation; e.g. PE foil
7	Thermal insulation of PIR boards	100	Thermally insulating; boards on poly-iso-cyanurate basis, groove & tongue joints ( $\lambda = 0.23$ W/m.K), mechanically anchored to the base
8	OSB Firestop	23	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
9	Load-bearing wooden beam	180	Load-bearing; wood beams 180/140 mm by 625 mm, structural timber class C24.

FIRE PROPERTIES			
Fire Resistance		REI 60	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		Not declared	
Impact sound transmission loss $L_{n,w}$		Not declared	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		2.56 kN/m²	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.21
NOTES:			
STRUCTURE THERMAL TECHNOLOGY:			
The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the structure surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment.			
CONSTRUCTION TECHNOLOGIES:			
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop Finish cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the timber cladding thickness. Thickness of thermal insulation inside the structure can also be increased.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**

# LOAD-BEARING FLOOR

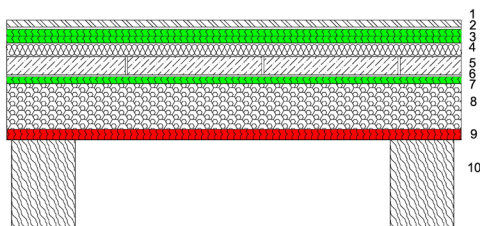


**REI 60**  
FIRE RESISTANCE

## USUAL USE OF STRUCTURE

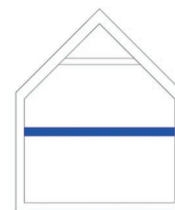
Horizontal load-bearing floor with visible load bearing structures.

## STRUCTURE SCHEME



## STRUCTURE USE SCHEME

Section



STRUCTURE SPECIFICATION			
	LAYER (from the top)	THICKNESS [mm]	FUNCTION and DESCRIPTION
1	Flooring covering	according to flooring covering	Walkable; according to type of flooring covering
2	Separation layer	-	Separation; e.g. strips of lightweight polyethylene, hardboard etc.
3	2x OSB Superfinish ECO	30	Load distribution; wood-based boards, layers connected together, board joint staggered
4	Impact sound insulation	~ 30	Acoustic; semi-rigid boards made of stone wool designed for light floating floors
5	Concrete slabs	~ 40	Load distribution, acoustic; 300 x 300 x 40 mm
6	Separation layer	-	Separation; e.g. PE foil
7	OSB Superfinish ECO	15	Timber-based backer-board
8	Thermal insulation of PIR boards	100	Thermal insulating; boards on polyisocyanurate basis, groove & tongue joints ( $\lambda = 0.23$ W/m.K), mechanically anchored to the base
9	OSB Firestop	23	Fireproof finish lining; wood-based board with one-side fire-resistant surface finish
10	Load-bearing wooden beam	180	Load-bearing; wood beams 180/140 mm by 625 mm, structural timber class C24.

FIRE PROPERTIES			
Fire Resistance		REI 60	
ACOUSTIC PROPERTIES			
Calculated laboratory sound transmission loss, $R_w$		Not declared	
Impact sound transmission loss $L_{n,w}$		Not declared	
STATIC LOAD-BEARING CAPACITY			
Maximum vertical load		2.56 kN/m²	
HYDROTHERMAL PROPERTIES (depending on interior environment)			
INTERIOR ENVIRONMENT IDENTIFICATION	INTERIOR ENVIRONMENT DESCRIPTION	REQUIRED/RECOMMENDED/RECOMMENDED PASSIVE U-VALUE [W/m².K]	CALCULATED U-VALUE [W/m².K]
INT 1	Structures between heated and non-heated spaces	0.60 / 0.40 / 0.30–0.20	0.21
NOTES:			
STRUCTURE THERMAL TECHNOLOGY:			
The specified thermal insulation thicknesses for compliance with the recommended and the required conductance coefficient are specified for the structure surface as a whole. In the case of individual details functionality test by detailed 2D, or 3D thermal technical assessment.			
CONSTRUCTION TECHNOLOGIES:			
The OSB Firestop boards must be fixed to the load-bearing structure using staples of length 50 mm, diameter 1.53 mm with a maximum spacing of 70 mm. The joint between the straight edges of the OSB Firestop boards of size 3-5 mm must be filled with fire retardant Firestop Basic Putty, and subsequently covered with reinforcing tape applied into the putty. After the technological break, it is possible to cover the joint with finishing Firestop Finish cement. The shorter edges of the OSB Firestop boards end at the point of the load-bearing elements.			
FIRE RESISTANCE PARAMETERS OF STRUCTURE:			
Regarding fire resistance the timber part dimensions can be increased including the timber decking thickness. Thickness of thermal insulation inside the structure can also be increased.			

**In the case of substitution of any of the materials included in the structure the above parameters and features of the described structure will not apply.**