Okna_Var 1

Window (transparent element): in residential buildings exposed to outside air, 1 wing (BG1) **project:** Beispiel **client:** EIV

U_w:[2]	width x height:	ΔOI3:	PENRT:	GWP100 S:	AP:
0,824W/m²K	2 x 1,5 m	104 pts/m²	1.282,39 MJ/m²	69,5367 kg CO_2 equ./m²	0,375935 kg SO_2 equ./m²

component	title	indicator(s)	ΔOI3
glazing	UNITOP A 0,6 P (4-14-4-14-4 Ar) Ug=0,6	U_g = 0,600 W/m²K	49
window frame	Plastic frame <=88 block frame depth	U_f = 1,150 W/m²K frame width = 0,12 m	56
ψ (linear heat transfer coefficient)	reference (Plastic/butyl (3-IV; Ug <0.9; Uf <1.4))	ψ = 0,040 W/mK	

OI-Klasse (BG1)[1]

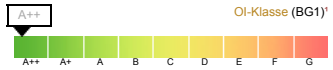
Okna_Var 2

Window (transparent element): in residential buildings exposed to outside air, 1 wing (BG1) **project:** Beispiel **client:** EIV

U_w:[2]	width x height:	ΔOI3:	PENRT:	GWP100 S:	AP:
0,863W/m²K	2 x 1,5 m	68 pts/m²	702,08 MJ/m²	16,2249 kg CO_2 equ./m²	0,315876 kg SO_2 equ./m²

component	title	indicator(s)	ΔOI3
glazing	UNITOP A 0,6 P (4-14-4-14-4 Ar) Ug=0,6	U_g = 0,600 W/m²K	49
window frame	Larch wood frame <= 91 block frame depth < 109	U_f = 1,300 W/m²K frame width = 0,12 m	19
ψ (linear heat transfer coefficient)	reference (Plastic/butyl (3-IV; Ug <0.9; Uf <1.4))	ψ = 0,040 W/mK	

OI-Klasse (BG1)[1]



[1] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures [2] calculated according to ÖNORM EN ISO 10077

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Okna_Var 3

Window (transparent element): in residential buildings exposed to outside air, 1 wing (BG1) **project:** Beispiel **client:** EIV

U_w:[2]	width x height:	ΔOI3:	PENRT:	GWP100 S:	AP:
0,837W/m²K	2 x 1,5 m	96 pts/m²	1.059,94 MJ/m²	43,9718 kg CO_2 equ./m²	0,399959 kg SO_2 equ./m²

component	title	indicator(s)	ΔOI3
glazing	UNITOP A 0,6 P (4-14-4-14-4 Ar) Ug=0,6	U_g = 0,600 W/m²K	45
window frame	Highly heat-insulating aluminium frame	U_f = 1,100 W/m²K frame width = 0,15 m	51
ψ (linear heat transfer coefficient)	reference (Plastic/butyl (3-IV; Ug <0.9; Uf <1.4))	ψ = 0,040 W/mK	

OI-Klasse (BG1)[1]

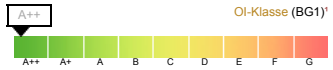
Okna_Var 4

Window (transparent element): in residential buildings exposed to outside air, 1 wing (BG1) **project:** Beispiel **client:** EIV

U_w:[2]	width x height:	ΔOI3:	PENRT:	GWP100 S:	AP:
1,298W/m²K	2 x 1,5 m	49 pts/m²	519,25 MJ/m²	9,8319 kg CO_2 equ./m²	0,221966 kg SO_2 equ./m²

component	title	indicator(s)	ΔOI3
glazing	UNITOP 1.1 Premium (4-16-4 Ar 90%)	U_g = 1,100 W/m²K	30
window frame	Larch wood frame <= 74 block frame depth < 91	U_f = 1,550 W/m²K frame width = 0,12 m	19
ψ (linear heat transfer coefficient)	reference (Plastic/butyl (2-IV; Ug <1.4; Uf 1.4 - 2.1))	ψ = 0,040 W/mK	

OI-Klasse (BG1)[1]



[1] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures [2] calculated according to ÖNORM EN ISO 10077

Okno_Puvodni navrh

Window (transparent element): in residential buildings exposed to outside air, 1 wing (BG1) **project:** Beispiel **client:** EIV

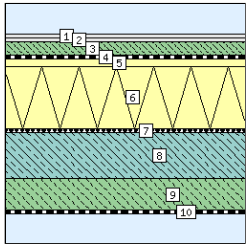
U_w: [2]	width x height:	ΔOI3:	PENRT:	GWP100 S:	AP:
1,370W/m²K	2 x 1,5 m	85 pts/m²	1.119,56 MJ/m²	57,8427 kg CO_2 equ./m²	0,288272 kg SO_2 equ./m²

component	title	indicator(s)	ΔOI3
glazing	Double-glazed heat-protection glass, Argon, pane thickness >= 24 mm	U_g = 1,150 W/m²K	30
window frame	Plastic frame <=71 block frame depth < 88	U_f = 1,300 W/m²K frame width = 0,12 m	56
ψ (linear heat transfer coefficient)	reference (Aluminium (2-IV; Ug 1.4 - 1.9; Uf >2.1))	ψ = 0,090 W/mK	

OI-Klasse (BG1)[1]: C (A++ A+ A B C D E F G)

Podlaha_Var 1 Anhydrit

Floor: in contact with ground – heat flow descending (BG1)



0,149 W/m²K — U value [5] (A++ … RL6)

OI-Klasse (BG1)[1]: C (A++ A+ A B C D E F G)

no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Ceramic tiles (2300 kg/m³)	1,00	1,300	0,01	22
2		codex Power CX 4 | Flex-Dünnbettmörtel	0,30	1,000	0,00	[3] 2
3		Wico Naturanhydritfließestrich 420FP	4,50	1,870	0,02	9
4		Polyethylene (PE) vapour brake	0,04	[4]	[4]	[3] 1
5		FLAPORplus Trittschall-Dämmplatte EPS-T1000	2,30	0,032	0,72	2
6		steinodur PSN - Perimeterdämmplatte	20,00	0,035	5,71	36
7		Aluminium bitumen sealing membrane	0,40	[4]	[4]	[3] 14
8		Normal concrete with reinforcement 1 % (2300 kg/m³)	15,00	[4]	[4]	[3] 34
9		Normal concrete without reinforcement (2000 kg/m³)	10,00	1,350	0,07	12
10		PP fleece	0,02	[4]	[4]	[3] 0
		R_{si} / R_{se} =			0,170 / 0,000	
		R' / R'' (max. relative error: 0,0%) =			6,712 / 6,712	
		building element	**53,56**		**6,712**	**133**

mass	**672,3 kg/m²**
PENRT	1845 MJ/m²
GWP100 total	125 kg CO_2/m²
AP	0,378 kg SO_2/m²

[1] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures [2] calculated according to ÖNORM EN ISO 10077 [3] layer is OI-relevant from BG1 [4] not relevant [5] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. **A++:** U-Werte im Bereich der Markierung A++ (0,15 W/m²K) sind notwendig, um derartige Gebäude zu errichten. **RL6:** OIB Richtlinie 6 (April 2007); In ganz Österreich seit 1.1.08 verbindlich festgelegter max. U-Wert (0,40 W/m²K) für alle Neubauten sowie instandgesetzte bzw. erneuerte Bauteile.

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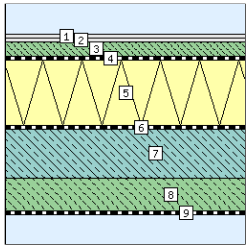
Podlaha_Var 2 Lity cementovy poter

Floor: in contact with ground – heat flow descending (BG1)



0,148 W/m²K — U value [3] (A++ … RL6)

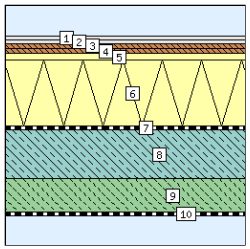
OI-Klasse (BG1)[4]: C (A++ A+ A B C D E F G)

no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Ceramic tiles (2300 kg/m³)	1,00	1,300	0,01	22
2		codex Power CX 4 | Flex-Dünnbettmörtel	0,30	1,000	0,00	[1] 2
3		Cement and cement flowing screed (2000 kg/m³)	4,50	1,330	0,03	8
4		Polyethylene (PE) vapour brake	0,04	[2]	[2]	[1] 1
5		steinopor EPS-F plus WDVS-Dämmplatte	20,00	0,031	6,45	18
6		PVC sealing sheeting	0,40	[2]	[2]	[1] 16
7		Normal concrete with reinforcement 1 % (2300 kg/m³)	15,00	[2]	[2]	[1] 34
8		Normal concrete without reinforcement (2000 kg/m³)	10,00	1,350	0,07	12
9		PP fleece	0,02	[2]	[2]	[1] 0
		R_{si} / R_{se} =			0,170 / 0,000	
		R' / R'' (max. relative error: 0,0%) =			6,740 / 6,740	
		building element	**51,26**		**6,740**	**114**

mass	**671,5 kg/m²**
PENRT	1533 MJ/m²
GWP100 total	117 kg CO_2/m²
AP	0,325 kg SO_2/m²

Podlaha_Var 3 Lity OSB desky

Floor: in contact with ground – heat flow descending (BG1)



0,147 W/m²K — U value [3] (A++ … RL6)

OI-Klasse (BG1)[4]: D (A++ A+ A B C D E F G)

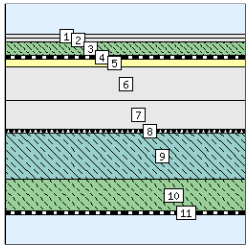
no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Ceramic tiles (2300 kg/m³)	1,00	1,300	0,01	22
2		codex Power CX 4 | Flex-Dünnbettmörtel	0,30	1,000	0,00	[1] 2
3		AGEPAN® OSB/3 PUR	1,50	0,130	0,12	3
4		AGEPAN® OSB/3 PUR	1,50	0,130	0,12	3
5		ISOVER TRITTSCHALL-DÄMMPLATTE T	2,00	0,033	0,61	8
6		austyrol EPS 150-W30	20,00	0,035	5,71	33
7		PVC sealing sheeting	0,40	[2]	[2]	[1] 16
8		Normal concrete with reinforcement 1 % (2300 kg/m³)	15,00	[2]	[2]	[1] 34
9		Normal concrete without reinforcement (2000 kg/m³)	10,00	1,350	0,07	12
10		PP fleece	0,02	[2]	[2]	[1] 0
		R_{si} / R_{se} =			0,170 / 0,000	
		R' / R'' (max. relative error: 0,0%) =			6,806 / 6,806	
		building element	**51,72**		**6,806**	**135**

mass	**603,9 kg/m²**
PENRT	1916 MJ/m²
GWP100 total	101 kg CO_2/m²
AP	0,405 kg SO_2/m²

[1] layer is OI-relevant from BG1 [2] not relevant [3] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. **A++:** U-Werte im Bereich der Markierung A++ (0,15 W/m²K) sind notwendig, um derartige Gebäude zu errichten. **RL6:** OIB Richtlinie 6 (April 2007); In ganz Österreich seit 1.1.08 verbindlich festgelegter max. U-Wert (0,40 W/m²K) für alle Neubauten sowie instandgesetzte bzw. erneuerte Bauteile. [4] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures

Podlaha_Var 4 Anhydrit+PIR

Floor: in contact with ground – heat flow descending (BG1)



no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Ceramic tiles (2300 kg/m³)	1,00	1,300	0,01	22
2		codex Power CX 4 | Flex-Dünnbettmörtel	0,30	1,000	0,00	[1] 2
3		Wico Naturanhydritfließestrich 420FP	4,50	1,870	0,02	9
4		Polyethylene (PE) vapour brake	0,04	[2]	[2]	[1] 1
5		FLAPORplus Trittschall-Dämmplatte EPS-T1000	2,30	0,032	0,72	2
6		BauderPIR DHW 11cm	11,00	0,025	4,40	22
7		BauderPIR DGF 9cm	9,00	0,026	3,46	20
8		Aluminium bitumen sealing membrane	0,40	[2]	[2]	[1] 14
9		Normal concrete with reinforcement 1 % (2300 kg/m³)	15,00	[2]	[2]	[1] 34
10		Normal concrete without reinforcement (2000 kg/m³)	10,00	1,350	0,07	12
11		PP fleece	0,02	[2]	[2]	[1] 0
				R_{si} / R_{se} =		0,170 / 0,000
				R' / R" (max. relative error: 0,0%) =		8,859 / 8,859
		building element	**53,56**		**8,859**	**139**

0,113 W/m²K — U value [3]

A++ RL6

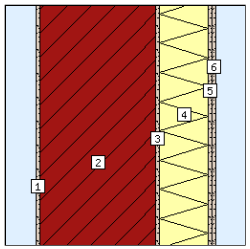
OI-Klasse (BG1)[4]: D

A++ A+ A B C D E F G

mass	**689,6 kg/m²**
PENRT	1908 MJ/m²
GWP100 total	118 kg CO_2/m²
AP	0,420 kg SO_2/m²

Stena_Var 4 Heluz + GreyWall

Wall: exposed to outside air – not back-ventilated (BG1)



no.	type	layer (from inside to outside)	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Normal plastering mortar GP lime (1300 kg/m³)	1,00	0,490	0,02	2
2		HELUZ FAMILY 38 2in1 Plan	38,00	0,220	1,73	43
3		Normal plastering mortar GP lime (1300 kg/m³)	0,80	0,490	0,02	2
4		EPS-F grey/black (15.8 kg/m³) - HBCD-free	16,00	0,032	5,00	15
5		Normal plastering mortar GP lime (1300 kg/m³)	0,60	0,490	0,01	1
6		Silicate plaster (without synthetic resin additive), reinforced	0,30	0,800	0,00	3
				R_{si} / R_{se} =		0,130 / 0,040
				R' / R" (max. relative error: 0,0%) =		6,950 / 6,950
		building element	**56,70**		**6,950**	**66**

0,144 W/m²K — U value [5]

B — OI-Klasse (BG1)[4]

A++ A+ A B C D E F G

mass	**286,1 kg/m²**
PENRT	914 MJ/m²
GWP100 total	62,9 kg CO_2/m²
AP	0,190 kg SO_2/m²

[1] layer is OI-relevant from BG1 [2] not relevant [3] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. **A++:** U-Werte im Bereich der Markierung A++ (0,15 W/m²K) sind notwendig, um derartige Gebäude zu errichten. **RL6:** OIB Richtlinie 6 (April 2007); In ganz Österreich seit 1.1.08 verbindlich festgelegter max. U-Wert (0,40 W/m²K) für alle Neubauten sowie instandgesetzte bzw. erneuerte Bauteile. [4] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures [5] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946.

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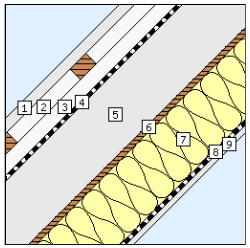
Stecha Var4_ mezikrokevni a PIR

Ceiling, roof, 45°: Flat or pitched roof exposed to outside air – back-ventilated – heat flow ascending (BG1)

project: Althaussanierung - Variante

client: Energieinstitut



no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Cement roofing tile / concrete roofing tile (2100 kg/m³)	3,00	[1]	[1]	[2] 10
2		*inhomogeneous (parts parallel to the eaves)*	4,00			
		24 cm (80%) Vertical air layer, heat flow down 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (20%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, air-dried	4,00	[1]	[1]	[2] 0
3		*inhomogeneous (parts normal to the eaves)*	4,00			
		56,5 cm (90%) Vertical air layer, heat flow up 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (10%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, technically dried	4,00	[1]	[1]	[2] 0
4		Polyethylene (PE) roof underlay - open to diffusion	0,02	0,500	0,00	[2] 1
5		BauderPIR MDE 16,2cm	16,20	0,026	6,23	33
6		SterlingOSB/3-Zero	1,50	0,130	0,12	3
7		*inhomogeneous (parts normal to the eaves)*	16,00			
		90 cm (88%) ISOVER UNIROLL PLUS	16,00	0,035	4,57	11
		12 cm (12%) Laminated timber, glued external use (475 kg/m³ - e.g. spruce/f	16,00	0,120	1,33	4
8		Polyethylene (PE) vapour brake	0,10	0,500	0,00	[2] 3
9		Holztäfer *(Rigips Bauplatte)*	1,50	0,250	0,06	2
				R_{si} / R_{se} =		0,100 / 0,100
				R' / R" (max. relative error: 2,4%) =		10,668 / 10,164
		building element	**46,32**		**10,416**	**67**

0,096 W/m²K — U value [3]

A++ RL6

A — OI-Klasse (BG1)[4]

A++ A+ A B C D E F G

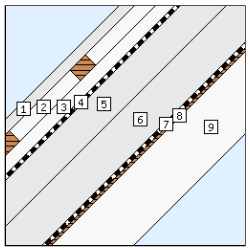
mass	**120,0 kg/m²**
PENRT	1066 MJ/m²
GWP100 total	-0,146 kg CO_2/m²
AP	0,237 kg SO_2/m²

Strecha_Var 1 PIR

Ceiling, roof, 45°: Flat or pitched roof exposed to outside air – back-ventilated – heat flow ascending (BG1)

project: Althaussanierung - Variante

client: Energieinstitut



no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Clay roof tiles (2000 kg/m³)	3,00	[1]	[1]	[2] 17
2		*inhomogeneous (parts parallel to the eaves)*	4,00			
		24 cm (80%) Vertical air layer, heat flow down 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (20%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, air-dried	4,00	[1]	[1]	[2] 0
3		*inhomogeneous (parts normal to the eaves)*	4,00			
		56,5 cm (90%) Vertical air layer, heat flow up 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (10%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, technically dried	4,00	[1]	[1]	[2] 0
4		Polyethylene (PE) roof underlay - open to diffusion	0,02	0,500	0,00	[2] 1
5		BauderPIR DGF 9cm	9,00	0,026	3,46	20
6		BauderPIR DHW 11cm	11,00	0,025	4,40	22
7		Polyethylene (PE) vapour brake	0,10	0,500	0,00	[2] 3
8		Laminated timber, glued internal use (475 kg/m³ - e.g. spruce/fir)	0,15	0,120	0,01	0
9		*inhomogeneous (parts normal to the eaves)*	16,00			
		90 cm (88%) Vertical air layer, heat flow up 156 < d <= 160 mm	16,00	1,000	0,16	0
		12 cm (12%) Laminated timber, glued external use (475 kg/m³ - e.g. spruce/f	16,00	0,120	1,33	4
				R_{si} / R_{se} =		0,100 / 0,100
				R' / R" (max. relative error: 0,6%) =		8,359 / 8,255
		building element	**47,27**		**8,307**	**67**

0,120 W/m²K — U value [3]

A++ RL6

A — OI-Klasse (BG1)[4]

A++ A+ A B C D E F G

mass	**99,7 kg/m²**
PENRT	1088 MJ/m²
GWP100 total	16,9 kg CO_2/m²
AP	0,210 kg SO_2/m²

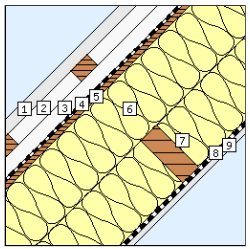
[1] not relevant [2] layer is OI-relevant from BG1 [3] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. **A++:** U-Werte im Bereich der Markierung A++ (0,12 W/m²K) sind notwendig, um derartige Gebäude zu errichten. **RL6:** OIB Richtlinie 6 (April 2007); In ganz Österreich seit 1.1.08 verbindlich festgelegter max. U-Wert (0,20 W/m²K) für alle Neubauten sowie instandgesetzte bzw. erneuerte Bauteile. [4] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures

Strecha_Var 2 Meziktokevni a podkrokevni

Ceiling, roof, 45°: Flat or pitched roof exposed to outside air – back-ventilated – heat flow ascending (BG1)

project: Althaussanierung - Variante

client: Energieinstitut



0,128 W/m²K — U value [3]

A++ RL6

A+ — OI-Klasse (BG1)[4]

A++ A+ A B C D E F G

no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Cement roofing tile / concrete roofing tile (2100 kg/m³)	3,00	[1]	[1]	[2] 10
2		*inhomogeneous (parts parallel to the eaves)*	4,00			
		24 cm (80%) Vertical air layer, heat flow down 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (20%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, air-dried	4,00	[1]	[1]	[2] 0
3		*inhomogeneous (parts normal to the eaves)*	4,00			
		56,5 cm (90%) Vertical air layer, heat flow up 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (10%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, technically dried	4,00	[1]	[1]	[2] 0
4		Polyethylene (PE) roof underlay - open to diffusion	0,02	0,500	0,00	[2] 1
5		SterlingOSB/3-Zero	1,50	0,130	0,12	3
6		*inhomogeneous (parts normal to the eaves)*	16,00			
		90 cm (88%) ISOVER UNIROLL PLUS	16,00	0,035	4,57	11
		12 cm (12%) Laminated timber, glued external use (475 kg/m³ - e.g. spruce/f	16,00	0,120	1,33	4
7		*inhomogeneous (parts parallel to the eaves)*	16,00			
		56,5 cm (90%) ISOVER ORSIK	16,00	0,038	4,21	13
		6 cm (10%) Laminated timber, glued external use (475 kg/m³ - e.g. spruce/fir	16,00	0,120	1,33	3
8		Polyethylene (PE) vapour brake	0,10	0,500	0,00	[2] 3
9		Holztäfer *(Rigips Bauplatte)*	1,50	0,250	0,06	2
		R_{si} / R_{se} =		0,100 / 0,100		
		R' / R'' (max. relative error: 4,9%) =		8,181 / 7,421		
		building element	**46,12**		**7,801**	**50**

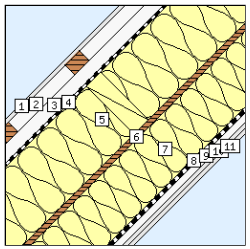
mass	**113,7 kg/m²**
PENRT	681 MJ/m²
GWP100 total	-4,29 kg CO_2/m²
AP	0,210 kg SO_2/m²

Strecha_Var 3 Meziktokevni a nadkrokevni

Ceiling, roof, 45°: Flat or pitched roof exposed to outside air – back-ventilated – heat flow ascending (BG1)

project: Althaussanierung - Variante

client: Energieinstitut



0,103 W/m²K — U value [3]

A++ RL6

A — OI-Klasse (BG1)[4]

A++ A+ A B C D E F G

no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Stahl verzinkt	0,10	50,000	0,00	22
2		*inhomogeneous (parts parallel to the eaves)*	4,00			
		24 cm (80%) Vertical air layer, heat flow down 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (20%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, air-dried	4,00	[1]	[1]	[2] 0
3		*inhomogeneous (parts normal to the eaves)*	4,00			
		56,5 cm (90%) Vertical air layer, heat flow up 36 < d <= 40 mm	4,00	[1]	[1]	[2] 0
		6 cm (10%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, technically dried	4,00	[1]	[1]	[2] 0
4		Polyethylene (PE) roof underlay - open to diffusion	0,02	0,500	0,00	[2] 1
5		*inhomogeneous (parts parallel to the eaves)*	20,00			
		56,5 cm (90%) ISOVER ORSIK	20,00	0,038	5,26	16
		6 cm (10%) austyrol EPS 150-W30/profi	20,00	0,030	6,67	3
6		SterlingOSB/3-Zero	1,50	0,130	0,12	3
7		*inhomogeneous (parts normal to the eaves)*	16,00			
		90 cm (88%) ISOVER UNIROLL PLUS	16,00	0,035	4,57	11
		12 cm (12%) Laminated timber, glued external use (475 kg/m³ - e.g. spruce/f	16,00	0,120	1,33	4
8		Polyethylene (PE) vapour brake	0,10	0,500	0,00	[2] 3
9		*inhomogeneous (parts normal to the eaves)*	2,00			
		60 cm (99%) Vertical air layer, heat flow up 16 < d <= 20 mm	2,00	0,133	0,15	0
		0,5 cm (1%) Steel sheet, galvanised	2,00	50,000	0,00	4
10		Holztäfer *(Rigips Bauplatte)*	1,25	0,250	0,05	2
11		Holztäfer *(Rigips Bauplatte)*	1,25	0,250	0,05	2
		R_{si} / R_{se} =		0,100 / 0,100		
		R' / R'' (max. relative error: 3,2%) =		9,997 / 9,377		
		building element	**50,22**		**9,687**	**70**

mass	**62,0 kg/m²**
PENRT	886 MJ/m²
GWP100 total	15,1 kg CO_2/m²
AP	0,286 kg SO_2/m²

[1] not relevant [2] layer is OI-relevant from BG1 [3] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. **A++:** U-Werte im Bereich der Markierung A++ (0,12 W/m²K) sind notwendig, um derartige Gebäude zu errichten. **RL6:** OIB Richtlinie 6 (April 2007). In ganz Österreich seit 1.1.08 verbindlich festgelegter max. U-Wert (0,20 W/m²K) für alle Neubauten sowie instandgesetzte bzw. erneuerte Bauteile. [4] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures

Jan 5, 2020
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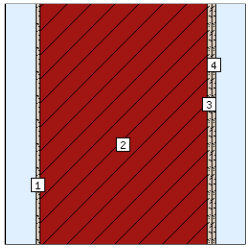
Stena_puvodni navrh

Wall: exposed to outside air – not back-ventilated (BG1)



0,182 W/m²K — U value [1]

B — OI-Klasse (BG1)[2]

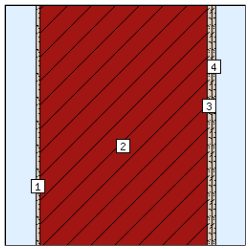
A++ A+ A B C D E F G

no.	type	layer (from inside to outside)	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		One-layer plastering mortar for external OC lime (1300 kg/m³)	1,00	0,490	0,02	2
2		POROTHERM 50 H.i N+F	50,00	0,095	5,26	57
3		Lightweight plastering mortar LW EPS (1300 kg/m³) - HBCD-free	1,50	0,490	0,03	13
4		Silicon resin plaster	0,30	0,700	0,00	4
		R_{si} / R_{se} =		0,130 / 0,040		
		R' / R'' (max. relative error: 0,0%) =		5,488 / 5,488		
		building element	**52,80**		**5,488**	**77**

mass	**363,6 kg/m²**
PENRT	999 MJ/m²
GWP100 total	80,5 kg CO_2/m²
AP	0,226 kg SO_2/m²

Stena_Var 1 Heluz 2in1

Wall: exposed to outside air – not back-ventilated (BG1)



0,213 W/m²K — U value [1]

C — OI-Klasse (BG1)[2]

A++ A+ A B C D E F G

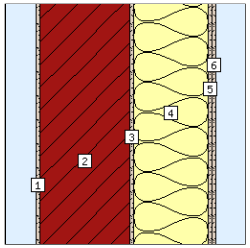
no.	type	layer (from inside to outside)	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		One-layer plastering mortar for external OC lime (1300 kg/m³)	1,00	0,490	0,02	2
2		HELUZ FAMILY 50 2in1 Plan	50,00	0,112	4,46	57
3		Lightweight plastering mortar LW EPS (1300 kg/m³) - HBCD-free	1,50	0,490	0,03	13
4		Silicon resin plaster	0,30	0,700	0,00	4
		R_{si} / R_{se} =		0,130 / 0,040		
		R' / R'' (max. relative error: 0,0%) =		4,690 / 4,690		
		building element	**52,80**		**4,690**	**77**

mass	**362,6 kg/m²**
PENRT	997 MJ/m²
GWP100 total	80,3 kg CO_2/m²
AP	0,225 kg SO_2/m²

[1] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. [2] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures

Stena_Var 2 vapenopisek

Wall: exposed to outside air – not back-ventilated (BG1)



no.	type	layer (from inside to outside)	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Normal plastering mortar GP lime (1300 kg/m³)	1,00	0,490	0,02	2
2		Masonry made of lime sand brick (1600 kg/m³)	24,00	0,790	0,30	33
3		Normal plastering mortar GP lime (1300 kg/m³)	0,80	0,490	0,02	2
4		ISOVER PREMIUM Fassadendämmplatte SV	20,00	0,031	6,45	19
5		Normal plastering mortar GP lime (1300 kg/m³)	0,60	0,490	0,01	1
6		Silicate plaster (without synthetic resin additive), reinforced	0,30	0,800	0,00	3
		R_{si} / R_{se} =			0,130 / 0,040	
		R' / R'' (max. relative error: 0,0%) =			6,978 / 6,978	
		building element	**46,70**		**6,978**	**60**

0,143 W/m²K — U value [1]

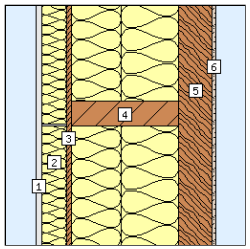
A — OI-Klasse (BG1)[2]

A++ A+ A B C D E F G

mass	**425,4 kg/m²**
PENRT	798 MJ/m²
GWP100 total	46,2 kg CO_2/m²
AP	0,193 kg SO_2/m²

Stena_Var 3 dreveny sendvic

Wall: exposed to outside air – not back-ventilated (BG1)



no.	type	layer (from inside to outside)	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Knauf Gipskarton Bauplatte	1,25	0,250	0,05	2
2		*inhomogeneous (parts horizontal)*	6,00			
		39,5 cm (99%) ISOVER ORSIK	6,00	0,038	1,58	5
		0,5 cm (1%) Steel sheet, galvanised	6,00	50,000	0,00	16
3		OSB boards (650 kg/m³)	1,25	0,130	0,10	3
4		*inhomogeneous (parts horizontal)*	26,00			
		54 cm (42%) ISOVER ORSIK	12,00	0,038	3,16	9
		54 cm (48%) ISOVER ORSIK	14,00	0,038	3,68	11
		6 cm (10%) Timber (675 kg/m³ - e.g. oak) - rough, technically dried	26,00	0,160	1,63	-2
5		Plywood and veneer timber for exterior use (< 350 kg/m³)	8,00	0,090	0,89	28
6		Silicate plaster (without synthetic resin additive)	0,30	0,800	0,00	2
		R_{si} / R_{se} =			0,130 / 0,040	
		R' / R'' (max. relative error: 13,8%) =			8,560 / 6,479	
		building element	**42,80**		**7,520**	**75**

0,133 W/m²K — U value [1]

B — OI-Klasse (BG1)[2]

A++ A+ A B C D E F G

mass	**82,2 kg/m²**
PENRT	960 MJ/m²
GWP100 total	-22,9 kg CO_2/m²
AP	0,349 kg SO_2/m²

[1] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. [2] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures

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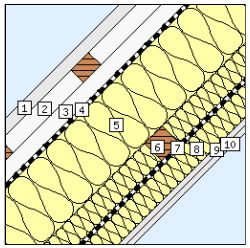
Strecha_puvodni navhr

Ceiling, roof, 45°: Flat or pitched roof exposed to outside air – back-ventilated – heat flow ascending (BG1)

project: Althaussanierung - Variante

client: Energieinstitut



no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Cement roofing tile / concrete roofing tile (2100 kg/m³)	3,00		[1]	[2] 10
2		*inhomogeneous (parts parallel to the eaves)*	4,00			
		24 cm (80%) Vertical air layer, heat flow down 36 < d <= 40 mm	4,00		[1]	[2] 0
		6 cm (20%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, air-dried	4,00		[1]	[2] 0
3		*inhomogeneous (parts normal to the eaves)*	4,00			
		56,5 cm (90%) Vertical air layer, heat flow up 36 < d <= 40 mm	4,00		[1]	[2] 0
		6 cm (10%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, technically dried	4,00		[1]	[2] 0
4		Polyethylene (PE) roof underlay - open to diffusion	0,02	0,500	0,00	[2] 1
5		*inhomogeneous (parts normal to the eaves)*	16,00			
		90 cm (88%) ISOVER ORSIK	16,00	0,038	4,21	12
		12 cm (12%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, technically dried	16,00	0,120	1,33	0
6		*inhomogeneous (parts parallel to the eaves)*	6,00			
		56,5 cm (90%) ISOVER ORSIK	6,00	0,038	1,58	5
		6 cm (10%) Timber (475 kg/m³ - e.g. spruce/fir) - rough, technically dried	6,00	0,120	0,50	0
7		Polyethylene (PE) vapour brake	0,10	0,500	0,00	[2] 3
8		*inhomogeneous (parts normal to the eaves)*	6,00			
		60 cm (99%) ISOVER ORSIK	6,00	0,038	1,58	5
		0,5 cm (1%) Steel sheet, galvanised	6,00	50,000	0,00	11
9		Holztäfer *(Rigips Bauplatte)*	1,25	0,250	0,05	2
10		Holztäfer *(Rigips Bauplatte)*	1,25	0,250	0,05	2
		R_{si} / R_{se} =			0,100 / 0,100	
		R' / R'' (max. relative error: 16,0%) =			7,013 / 5,082	
		building element	**41,62**		**6,048**	**50**

0,165 W/m²K — U value [3]

A++ RL6

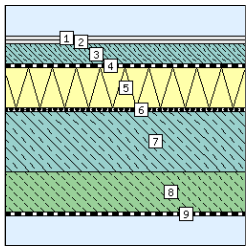
A — OI-Klasse (BG1)[4]

A++ A+ A B C D E F G

mass	**112,4 kg/m²**
PENRT	590 MJ/m²
GWP100 total	16,9 kg CO_2/m²
AP	0,208 kg SO_2/m²

Podlaha_puvodni navrh

Floor: in contact with ground – heat flow descending (BG1)



no.	type	layer	d cm	λ W/mK	R m²K/W	ΔOI3 pts/m²
1		Ceramic tiles (2300 kg/m³)	1,00	1,300	0,01	22
2		codex Power CX 4 | Flex-Dünnbettmörtel	0,30	1,000	0,00	[2] 2
3		Normal concrete with reinforcement 1 % (2300 kg/m³)	5,00	2,300	0,02	11
4		Polyethylene (PE) vapour brake	0,04		[1]	[2] 1
5		austyrol EPS 100-W20	10,00	0,038	2,63	12
6		Aluminium bitumen sealing membrane	0,78		[1]	[2] 27
7		Normal concrete with reinforcement 1 % (2300 kg/m³)	15,00		[1]	[2] 34
8		Normal concrete without reinforcement (2000 kg/m³)	10,00	1,350	0,07	12
9		PP fleece	0,02		[1]	[2] 0
		R_{si} / R_{se} =			0,170 / 0,000	
		R' / R'' (max. relative error: 0,0%) =			2,908 / 2,908	
		building element	**42,14**		**2,908**	**121**

U value [5] — 0,344 W/m²K

A++ RL6

OI-Klasse (BG1)[4] — D

A++ A+ A B C D E F G

mass	**699,3 kg/m²**
PENRT	1637 MJ/m²
GWP100 total	120 kg CO_2/m²
AP	0,352 kg SO_2/m²

[1] not relevant [2] layer is OI-relevant from BG1 [3] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. **A++:** U-Werte im Bereich der Markierung A++ (0,12 W/m²K) sind notwendig, um derartige Gebäude zu errichten. **RL6:** OIB Richtlinie 6 (April 2007); In ganz Österreich seit 1.1.08 verbindlich festgelegter max. U-Wert (0,20 W/m²K) für alle Neubauten sowie instandgesetzte bzw. erneuerte Bauteile. [4] For the OI class, the U-value of the component is taken into account in addition to the ecological key figures [5] U value (Heat transfer coefficient) calculated according to ÖNORM EN ISO 6946. **A++:** U-Werte im Bereich der Markierung A++ (0,15 W/m²K) sind notwendig, um derartige Gebäude zu errichten. **RL6:** OIB Richtlinie 6 (April 2007); In ganz Österreich seit 1.1.08 verbindlich festgelegter max. U-Wert (0,40 W/m²K) für alle Neubauten sowie instandgesetzte bzw. erneuerte Bauteile.