

Efficiency Solutions Matrix Applicable On National Residential Building Stock																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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	Vertical closures of national residential building stock										Efficiency solutions		Vertical closure Post operam			Climate zones applicability Limit values [W/m²K]					Satisfying quality and performance standards																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Stratigraphy	Stationary thermal transmittance U = W/m²K	Periodic thermal transmittance Yie = W/m²K	Thickness cm	Code	Thickness cm	Stationary thermal transmittance U = W/m²K	Periodic thermal transmittance Yie = W/m²K	Thickness cm	A-B 0,38	C 0,30	D 0,26	E 0,23	F 0,22	Yie < 0,10 W/m²K	fa < 0,6	φ > 6 h	Cip ≥ 40 kJ/m²K																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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1. Until the 1900	2.from 1901 to 1920	3.from 1921 to 1945	4.from 1946 to 1960	5.from 1961 to 1975	6.from 1976 to 1990	7.from 1991 to 2005	8. After 2005	Isolated Single-family	Duplex	Linear	Tower	Terraced	Balcony access	Building	Block	Load bearing masonry	Stone and brick Clay- brick/block Reinforced concrete	Wood	Reinforced concrete	Steel	Stratigraphy	Stationary thermal transmittance U = W/m²K	Periodic thermal transmittance Yie = W/m²K	Thickness cm	Code	Thickness cm	Stationary thermal transmittance U = W/m²K	Periodic thermal transmittance Yie = W/m²K	Thickness cm	A-B 0,38	C 0,30	D 0,26	E 0,23	F 0,22	Yie < 0,10 W/m²K	fa < 0,6	φ > 6 h	Cip ≥ 40 kJ/m²K					
PS.08		x						x		x		x	x		x	x						1,305	0,229	34	CI.1	13,7	0,220	0,008	47,7	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	CI.2	16	0,230	0,005	50	x	x	x	x	x		x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	VWS.1	14	0,218	0,007	48	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	VWS.2	19,2	0,212	0,007	53,2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.1	6,5	0,241	0,012	40,5	x	x	x																																			
	IIS.2	11,8	0,246	0,015	45,8	x	x	x																																			
PS.09		x						x		x		x	x		x	x						0,893	0,023	55	CI.1	13,7	0,203	0,001	68,7	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	CI.2	16	0,211	0,001	71	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
	VWS.1	14	0,202	0,001	69	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	VWS.2	19,2	0,196	0,001	74,2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.1	6,5	0,220	0,001	61,5	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.2	11,8	0,225	0,002	66,8	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
PS.10		x						x		x		x	x		x	x						2,202	0,144	60	CI.1	13,7	0,236	0,003	73,7	x	x	x				x	x	x	x	x	x	x	
	CI.2	16	0,248	0,002	76	x	x	x				x	x	x				x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
	VWS.1	14	0,234	0,003	74	x	x	x				x	x	x				x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	VWS.2	19,2	0,227	0,003	79,2	x	x	x				x	x	x				x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.1	6,5	0,260	0,007	66,5	x	x					x	x					x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.2	11,8	0,267	0,008	71,8	x	x					x	x					x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
PS.11		x						x		x		x	x		x	x						1,61	0,309	40	CI.1	13,7	0,227	0,010	53,7	x	x	x		x		x	x	x	x	x	x		
	CI.2	16	0,238	0,006	56	x	x	x				x	x	x				x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
	VWS.1	14	0,226	0,009	54	x	x	x		x		x	x	x				x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	VWS.2	19,2	0,218	0,008	59,2	x	x	x		x		x	x	x				x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.1	6,5	0,249	0,016	46,5	x	x	x				x	x					x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.2	11,8	0,255	0,019	51,8	x	x	x				x	x					x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
PS.12		x						x		x		x	x		x	x						1,19	0,065	60	CI.1	13,7	0,216	0,002	73,7	x	x	x		x		x	x	x	x	x	x		
	CI.2	16	0,292	0,002	76	x	x				x	x					x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	VWS.1	14	0,180	0,002	74	x	x	x		x		x	x				x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	VWS.2	19,2	0,240	0,002	79,2	x	x	x				x	x					x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.1	6,5	0,236	0,003	66,5	x	x	x				x	x					x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	IIS.2	11,8	0,242	0,004	71,8	x	x	x				x	x					x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
PS.13		x						x		x		x	x		x							1,95	0,690	25	CI.1	13,7	0,233	0,023	38,7	x	x	x				x	x	x	x	x	x		
	CI.2	16	0,244	0,013	41	x	x	x				x	x	x				x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
	VWS.1	14	0,231	0,020	39	x	x	x				x	x	x				x	x	x					x	x	x	x	x	x	x	x	x										

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	Limit values [W/m²K]										Yie < 0,10 W/m²K					fa < 0,6					φ > 6 h					Cip ≥ 40 kJ/m²K											
1. Until the 1900	2.from 1901 to 1920	3.from 1921 to 1945	4.from 1946 to 1960	5.from 1961 to 1975	6.from 1976 to 1990	7.from 1991 to 2005	8. After 2005	Isolated	Aggregated					Load bearing masonry			Frame structure			Vertical closures of national residential building stock				Efficiency solutions		Vertical closure Post operam			A-B 0,38	C 0,30	D 0,26	E 0,23	F 0,22	Yie < 0,10 W/m²K	fa < 0,6	φ > 6 h	Cip ≥ 40 kJ/m²K
Single-family	Duplex	Linear	Tower	Terraced	Balcony access	Building	Block	Stone	Stone and brick	Clay-brick/block	Reinforced concrete	Wood	Reinforced concrete	Steel	Stratigraphy	Stationary thermal transmittance U = W/m²K	Periodic thermal transmittance Yie = W/m²K	Thickness cm	Code	Thickness cm	Stationary thermal transmittance U = W/m²K	Periodic thermal transmittance Yie = W/m²K	Thickness cm	A-B 0,38	C 0,30	D 0,26	E 0,23	F 0,22	Yie < 0,10 W/m²K	fa < 0,6	φ > 6 h	Cip ≥ 40 kJ/m²K					
PS.15		x						x		x		x	x			VC.07 - Solid brick masonry (50 cm)	1,16	0,063	50	Cl.1	13,7	0,215	0,002	63,7	x	x	x	x	x	x	x	x	x				
PS.16		x						x		x		x	x			VC.08 - Solid brick masonry (62 cm)	0,97	0,020	62	Cl.1	13,7	0,208	0,001	75,7	x	x	x	x	x	x	x	x	x				
PS.17			x					x		x		x	x			VC.01.1 - Plastered tuff masonry (34 cm)	1,305	0,229	34	Cl.1	13,7	0,220	0,008	47,7	x	x	x	x	x	x	x	x	x				
PS.18			x					x		x		x	x			VC.01.2 - Plastered tuff masonry (55 cm)	0,893	0,023	55	Cl.1	13,7	0,203	0,001	68,7	x	x	x	x	x	x	x	x	x				
PS.19			x					x		x		x	x			VC.03 - Brick-lined and stone masonry (40 cm)	1,61	0,309	40	Cl.1	13,7	0,227	0,010	53,7	x	x	x	x	x	x	x	x	x				
PS.20			x					x		x		x	x			VC.04 - Brick-lined and stone masonry (60 cm)	1,19	0,065	60	Cl.1	13,7	0,216	0,002	73,7	x	x	x	x	x	x	x	x	x				

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