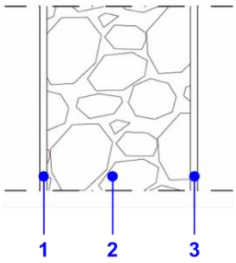
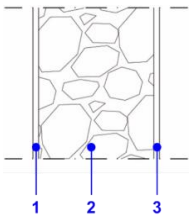
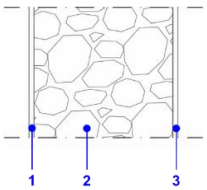
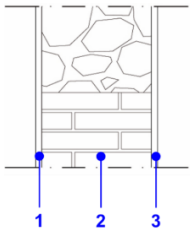
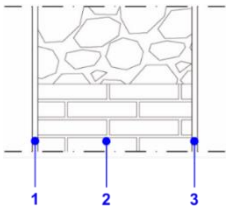
Supplement 1

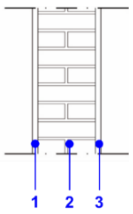
Construction year class	EW.01.1 - Plastered tuff masonry		
Until now			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Tuff: 30 cm 3. Interior plaster: 2 cm Total thickness: 34 cm	**Winter**	Thermal transmittance (U) = 1,305 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 0,229 W/m²K	
		Internal areal heat capacity (Cip) = 61,9 kJ/m²K	
		Thermal phase shift (Φ) (h) = 12,33	
		Attenuation factor (fa) = 0,176	
		Surface mass (Ms)= 544 kg/m²	

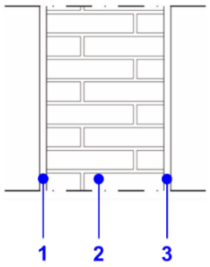
Construction year class	EW.01.2 - Plastered tuff masonry		
Until now			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Tuff: 60 cm 3. Interior plaster: 2 cm Total thickness: 64 cm	**Winter**	Thermal transmittance (U) = 0,76 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 0,010 W/m²K	
		Internal areal heat capacity (Cip) = 58,9 kJ/m²K	
		Thermal phase shift (Φ) (h) = 24,11	
		Attenuation factor (fa) = 0,014	
		Surface mass (Ms)= 1024 kg/m²	

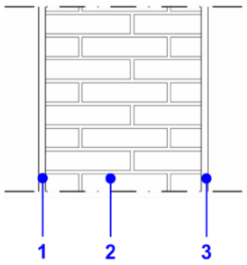
Construction year class	EW.02 - Plastered stone masonry		
Until 1920			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Stone: 56 cm 3. Interior plaster: 2 cm Total thickness: 60 cm	**Winter**	Thermal transmittance (U) = 2,202 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 0,144 W/m²K	
		Internal areal heat capacity (Cip) = 73,8 kJ/m²K	
		Thermal phase shift (Φ) (h) = 14,76	
		Attenuation factor (fa) = 0,065	
		Surface mass (Ms)= 1464 kg/m²	

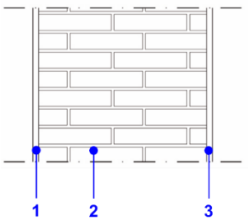
Construction year class	EW.03 – Masonry with lists of stones and bricks		
Until 1930			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Stone-Bricks: 36 cm 3. Interior plaster: 2 cm Total thickness: 40 cm	**Winter**	Thermal transmittance (U) = 1,61 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,309 W/m²K	
		Internal areal heat capacity (Cip) = 6,66 kJ/m²K	
		Thermal phase shift (Φ) (h) = 11,49	
		Attenuation factor (fa) = 0,192	
		Surface mass (Ms)= 604 kg/m²	

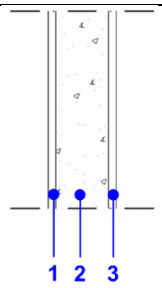
Construction year class	EW.04 – Masonry with lists of stones and bricks		
Until 1930			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Stone-Bricks: 56 cm 3. Interior plaster: 2 cm Total thickness: 60 cm	**Winter**	Thermal transmittance (U) = 1,19 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,065 W/m²K	
		Internal areal heat capacity (Cip) = 62,3 kJ/m²K	
		Thermal phase shift (Φ) (h) = 17,43	
		Attenuation factor (fa) = 0,055	
		Surface mass (Ms)= 904 kg/m²	

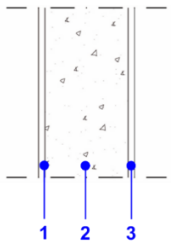
Construction year class	EW.05 - Solid brick masonry		
From 1900 to 1950			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Bricks: 21 cm 3. Interior plaster: 2 cm Total thickness: 25 cm	**Winter**	Thermal transmittance (U) = 1,95 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,690 W/m²K	
		Internal areal heat capacity (Cip) = 70,4 kJ/m²K	
		Thermal phase shift (Φ) (h) = 8,41	
		Attenuation factor (fa) = 0,353	
		Surface mass (Ms)= 442 kg/m²	

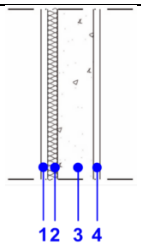
Construction year class	EW.06 - Solid brick masonry		
From 1900 to 1950			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Bricks: 34 cm 3. Interior plaster: 2 cm Total thickness: 38 cm	**Winter**	Thermal transmittance (U) = 1,44 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,199 W/m²K	
		Internal areal heat capacity (Cip) = 64,3 kJ/m²K	
		Thermal phase shift (Φ) (h) = 13,14	
		Attenuation factor (fa) = 0,138	
		Surface mass (Ms)= 676 kg/m²	

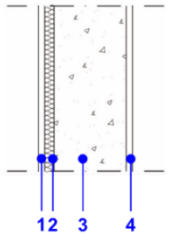
Construction year class	EW.07 - Solid brick masonry		
From 1900 to 1950			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Bricks: 46 cm 3. Interior plaster: 2 cm Total thickness: 50 cm	**Winter**	Thermal transmittance (U) = 1,16 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,063 W/m²K	
		Internal areal heat capacity (Cip) = 61,9 kJ/m²K	
		Thermal phase shift (Φ) (h) = 17,51	
		Attenuation factor (fa) = 0,055	
		Surface mass (Ms)= 892 kg/m²	

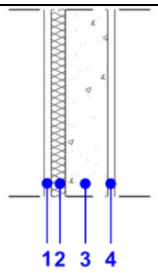
Construction year class	EW.08 - Solid brick masonry		
From 1900 to 1950			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Bricks: 58 cm 3. Interior plaster: 2 cm Total thickness: 62 cm	**Winter**	Thermal transmittance (U) = 0,97 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,020 W/m²K	
		Internal areal heat capacity (Cip) = 61,8 kJ/m²K	
		Thermal phase shift (Φ) (h) = 21,88	
		Attenuation factor (fa) = 0,021	
		Surface mass (Ms)= 1108 kg/m²	

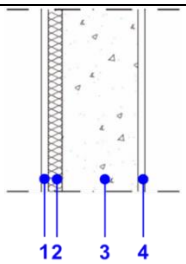
Construction year class	EW .09 – In-situ concrete masonry		
From 1955 to 1975			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Concrete: 14 cm 3. Interior plaster: 2 cm Total thickness: 18 cm	**Winter**	Thermal transmittance (U) = 3,24 W/m2K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 2,334 W/m²K	
		Internal areal heat capacity (Cip) = 64,1 kJ/m²K	
		Thermal phase shift (Φ) (h) = 3,98	
		Attenuation factor (fa) = 0,719	
		Surface mass (Ms)= 260 kg/m²	

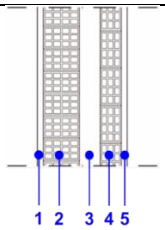
Construction year class	EW .10 - In-situ concrete masonry		
From 1955 to 1975			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Concrete: 26 cm 3. Interior plaster: 2 cm Total thickness: 30 cm	**Winter**	Thermal transmittance (U) = 2,61 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 1,174 W/m²K	
		Internal areal heat capacity (Cip) = 75 kJ/m²K	
		Thermal phase shift (Φ) (h) = 6,68	
		Attenuation factor (fa) = 0,45	
		Surface mass (Ms)= 428 kg/m²	

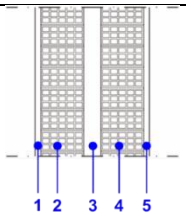
Construction year class	EW .11 – In-situ or prefabricated concrete masonry, low insulation		
From 1976 to 1990			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 3 cm 3. Concrete: 11 cm 4. Interior plaster: 2 cm Total thickness: 18 cm	**Winter**	Thermal transmittance (U) = 0,82 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 0,374 W/m²K	
		Internal areal heat capacity (Cip) = 72,7 kJ/m²K	
		Thermal phase shift (Φ) (h) = 5,34	
		Attenuation factor (fa) = 0,46	
		Surface mass (Ms)= 219 kg/m²	

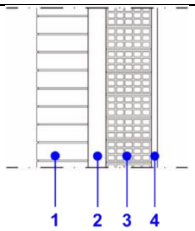
Construction year class	EW .12 - In-situ or prefabricated concrete masonry, low insulation		
From 1976 to 1990			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 3 cm 3. Concrete: 23 cm 4. Interior plaster: 2 cm Total thickness: 30 cm	**Winter**	Thermal transmittance (U) = 0,79 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,176 W/m²K	
		Internal areal heat capacity (Cip) = 70,5 kJ/m²K	
		Thermal phase shift (Φ) (h) = 7,79	
		Attenuation factor (fa) = 0,224	
		Surface mass (Ms)= 387 kg/m²	

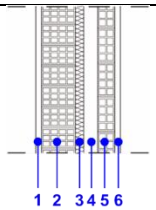
Construction year class	EW .13 - In-situ or prefabricated concrete masonry, medium insulation		
From 1991 to 2005			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 4 cm 3. Concrete: 12 cm 4. Interior plaster: 2 cm Total thickness: 20 cm	**Winter**	Thermal transmittance (U) = 0,61 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,253 W/m²K	
		Internal areal heat capacity (Cip) = 73,1 kJ/m²K	
		Thermal phase shift (Φ) (h) = 5,67	
		Attenuation factor (fa) = 0,412	
		Surface mass (Ms)= 233 kg/m²	

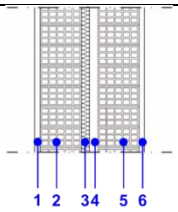
Construction year class	EW .14 - In-situ or prefabricated concrete masonry, medium insulation		
From 1991 to 2005			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 4 cm 3. Concrete: 22 cm 4. Interior plaster: 2 cm Total thickness: 30 cm	**Winter**	Thermal transmittance (U) = 0,59 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,132 W/m²K	
		Internal areal heat capacity (Cip) = 70,5 kJ/m²K	
		Thermal phase shift (Φ) (h) = 7,69	
		Attenuation factor (fa) = 0,223	
		Surface mass (Ms)= 373 kg/m²	

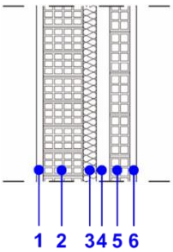
Construction year class	EW .15 - Hollow brick masonry		
From 1930 to 1975			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Hollow brick: 12 cm 3. Air gap: 6 cm 4. Hollow brick: 8 cm 5. Interior plaster: 2 cm Total thickness: 30 cm	**Winter**	Thermal transmittance (U) = 1,11 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,605 W/m²K	
		Internal areal heat capacity (Cip) = 57,9 kJ/m²K	
		Thermal phase shift (Φ) (h) = 7,21	
		Attenuation factor (fa) = 0,545	
		Surface mass (Ms)= 302 kg/m²	

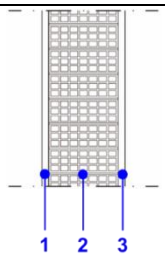
Construction year class	EW .16 - Hollow brick masonry		
From 1930 to 1975			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Hollow brick: 15 cm 3. Air gap: 6 cm 4. Hollow brick: 15 cm 5. Interior plaster: 2 cm Total thickness: 40 cm	**Winter**	Thermal transmittance (U) = 0,87 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,259 W/m²K	
		Internal areal heat capacity (Cip) = 55,5 kJ/m²K	
		Thermal phase shift (Φ) (h) = 10,63	
		Attenuation factor (fa) = 0,298	
		Surface mass (Ms)= 382 kg/m²	

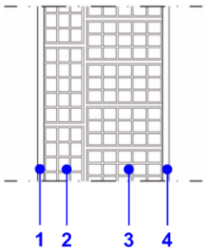
Construction year class	EW .17 - Hollow brick and solid brick masonry		
From 1930 to 1975			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Solid brick: 17 cm 2. Air gap: 6 cm 3. Hollow brick: 15 cm 4. Interior plaster: 2 cm Total thickness: 40 cm	**Winter**	Thermal transmittance (U) = 1,01 W/m²K	**A - B C D E F**
	Summer	Periodic thermal transmittance (Yie) = 0,216 W/m²K	
		Internal areal heat capacity (Cip) = 54 kJ/m²K	
		Thermal phase shift (Φ) (h) = 11,92	
		Attenuation factor (fa) = 0,214	
		Surface mass (Ms)= 532 kg/m²	

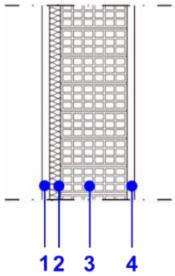
Construction year class	EW .18 - Hollow brick masonry, low insulation		
From 1976 to 1990			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Hollow brick: 12 cm 3. Insulation: 3 cm 4. Air gap: 3 cm 5. Hollow brick: 8 cm 6. Interior plaster: 2 cm Total thickness: 30 cm	**Winter**	Thermal transmittance (U) = 0,64 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,299 W/m²K	
		Internal areal heat capacity (Cip) = 57,5 kJ/m²K	
		Thermal phase shift (Φ) (h) = 8,24	
		Attenuation factor (fa) = 0,469	
		Surface mass (Ms)= 264 kg/m²	

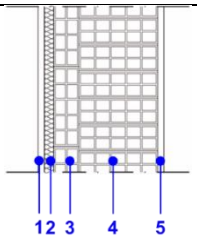
Construction year class	EW .19 - Hollow brick masonry, low insulation		
From 1976 to 1990			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Hollow brick: 15 cm 3. Insulation: 3 cm 4. Air gap: 3 cm 5. Hollow brick: 15 cm 6. Interior plaster: 2 cm Total thickness: 40 cm	**Winter**	Thermal transmittance (U) = 0,55 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,126 W/m²K	
		Internal areal heat capacity (Cip) = 54,8 kJ/m²K	
		Thermal phase shift (Φ) (h) = 11,83	
		Attenuation factor (fa) = 0,228	
		Surface mass (Ms)= 344 kg/m²	

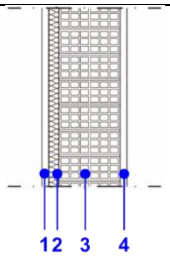
Construction year class	EW .20 - Hollow brick masonry, medium insulation		
From 1991 to 2005			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Hollow brick: 12 cm 3. Insulation: 4 cm 4. Air gap: 4 cm 5. Hollow brick: 6 cm 6. Interior plaster: 2 cm Total thickness: 30 cm	**Winter**	Thermal transmittance (U) = 0,575 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,269 W/m²K	
		Internal areal heat capacity (Cip) = 57,8 kJ/m²K	
		Thermal phase shift (Φ) (h) = 7,53	
		Attenuation factor (fa) = 0,469	
		Surface mass (Ms)= 261 kg/m²	

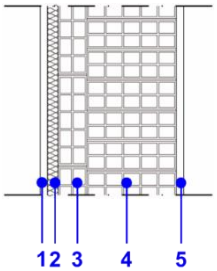
Construction year class	EW .21 - Hollow brick masonry		
From 1950 to 1975			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Hollow brick: 21 cm 3. Interior plaster: 2 cm Total thickness: 25 cm	**Winter**	Thermal transmittance (U) = 1,34 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 0,735 W/m²K	
		Internal areal heat capacity (Cip) = 58,3 kJ/m²K	
		Attenuation factor (fa) = 0,548	
		Thermal phase shift (Φ) (h) = 6,84	
		Surface mass (Ms)= 232 kg/m²	

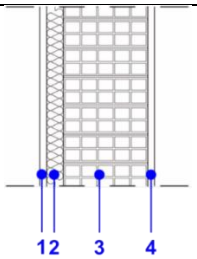
Construction year class	EW .22 - Hollow brick masonry		
From 1950 to 1975			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Hollow brick: 12 cm 3. Hollow brick: 23 cm 4. Interior plaster: 2 cm Total thickness: 40 cm	**Winter**	Thermal transmittance (U) = 0,91 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 0,223 W/m²K	
		Internal areal heat capacity (Cip) = 53,7 kJ/m²K	
		Thermal phase shift (Φ) (h) = 11,42	
		Attenuation factor (fa) = 0,244	
		Surface mass (Ms)= 344 kg/m²	

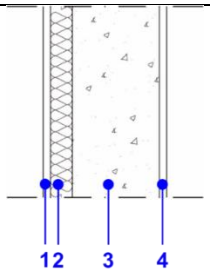
Construction year class	EW .23 - Hollow brick masonry, low insulation		
From 1976 to 1990			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 3 cm 3. Hollow brick: 18 cm 4. Interior plaster: 2 cm Total thickness: 25 cm	**Winter**	Thermal transmittance (U) = 0,70 W/m²K	**A - B** **C** **D** **E** **F**
	Summer	Periodic thermal transmittance (Yie) = 0,254 W/m²K	
		Internal areal heat capacity (Cip) = 55,1 kJ/m²K	
		Thermal phase shift (Φ) (h) = 7,76	
		Attenuation factor (fa) = 0,361	
		Surface mass (Ms)= 209 kg/m²	

Construction year class	EW .24 - Hollow brick masonry, low insulation		
From 1976 to 1990			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 3 cm 3. Hollow brick: 8 cm 4. Hollow brick: 25 cm 5. Interior plaster: 2 cm Total thickness: 40 cm	**Winter**	Thermal transmittance (U) = 0,60 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,082 W/m²K	
		Internal areal heat capacity (Cip) = 51,6 kJ/m²K	
		Thermal phase shift (Φ) (h) = 12,52	
		Attenuation factor (fa) = 0,135	
		Surface mass (Ms)= 329 kg/m²	

Construction year class	EW .25 - Hollow brick masonry, medium insulation		
From 1991 to 2005			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 3 cm 3. Hollow brick: 18 cm 4. Interior plaster: 2 cm Total thickness: 25 cm	**Winter**	Thermal transmittance (U) = 0,55 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,180 W/m²K	
		Internal areal heat capacity (Cip) = 54,4 kJ/m²K	
		Thermal phase shift (Φ) (h) = 7,96	
		Attenuation factor (fa) = 0,329	
		Surface mass (Ms)= 209 kg/m²	

Construction year class	EW .26 - Hollow brick masonry, medium insulation		
From 1991 to 2005			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 3 cm 3. Hollow brick: 8 cm 4. Hollow brick: 25 cm 5. Interior plaster: 2 cm Total thickness: 40cm	**Winter**	Thermal transmittance (U) = 0,49 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,056 W/m²K	
		Internal areal heat capacity (Cip) = 51,3 kJ/m²K	
		Thermal phase shift (Φ) (h) = 12,75	
		Attenuation factor (fa) = 0,114	
		Surface mass (Ms)= 329 kg/m²	

Construction year class	EW .27 - Honeycomb bricks masonry (high thermal resistance), high insulation		
From 2006			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 5 cm 3. Honeycomb brick: 25 cm 4. Interior plaster: 2 cm Total thickness: 34 cm	**Winter**	Thermal transmittance (U) = 0,31 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,042 W/m²K	
		Internal areal heat capacity (Cip) = 44,1 kJ/m²K	
		Thermal phase shift (Φ) (h) = 12,51	
		Attenuation factor (fa) = 0,134	
		Surface mass (Ms)= 228 kg/m²	

Construction year class	EW .28 - In-situ or prefabricated concrete masonry, high insulation		
From 2006			
Stratigraphy	**Thermal performance**		**Level of performance**
 1. Exterior plaster: 2 cm 2. Insulation: 6 cm 3. Concrete: 24 cm 4. Interior plaster: 2 cm Total thickness: 34 cm	**Winter**	Thermal transmittance (U) = 0,34 W/m²K	A - B C D E F
	Summer	Periodic thermal transmittance (Yie) = 0,039 W/m²K	
		Internal areal heat capacity (Cip) = 58,7 kJ/m²K	
		Thermal phase shift (Φ) (h) = 11,27	
		Attenuation factor (fa) = 0,114	
		Surface mass (Ms)= 402 kg/m²	

Supplement 2

Category	Type of insulation	Diffusion resistance factor μ	Indicators comfort conditions			Environmental impact indicators			Directions for use	
			Winter regime	Summer regime		Origin of the raw material	LCA (Life Cycle Assessment)		Applications	Formats
			Thermal conductivity (W/mK)	Specific gravity (kg/m³)	Specific heat capacity (J/kgK)		PEI (MJ/kg)	Recyclability		
Natural organic	Hemp	1,5-5	0,045	20-40	2100	Renewable: hemp, polyester fibres, soda or boric salts	15	yes	External and internal insulation wall	Panel Mat
Natural organic	Reed	2-4	0,055	180-225	1200	Renewable: reeds, iron or polyester wire	0,54	low	External insulation wall	Panel Mat
Natural organic	Cellulose	1-2	0,045	70-100	1944	Renewable: waste paper, lignin sulphonate, jute, resin, aluminium sulphonate, boric salts	4,24	yes	External insulation wall	Panel Granular Flake
Natural organic	Coconut fiber	1-5	0,045	70-125	2000	Renewable: fruit fibre	4,9	yes	External and internal insulation wall	Panel Roll Sheet
Natural organic	Wood fiber	4-8	0,040	130-280	2100	Renewable: wood, paraffin, ammonium sulphate	17	yes	External and internal insulation wall Ventilated facade	Panel Felt

Natural organic	Sheep's wool	1-2	0,040	20-30	1720	Renewable: Sheep's wool, polyester fibres, borax salt, urea-based derivatives	12,6	yes	External and internal insulation wall	Panel Roll Mattress
Natural organic	Flax	1	0,040 – 0,045	20-41	1660	Renewable: flax, polyester fibres, ammonium phosphate, ammonium sulphate, borax salt	33,12	yes	External and internal insulation wall	Panel Roll Mattress
Natural organic	Straw	2-4	0,06	100-340	1900	Renewable: straw, iron or polypropylene wire, fire-fighting additives	1,38	yes	External and internal insulation wall	Panel
Natural organic	Cork	5-30	0,045-0,05	80-180	210	Renewable: bark fighting additives	2,16	yes	External and internal insulation wall	Panel Mat
Synthetic organic	Expanded Polystyrene (EPS)	20-70	0,031-0,044	10-20	1450	Non renewable: oil, blowing agents and flame retardants	99,20	yes but in few cases	External and internal insulation wall Ventilated facade	Panel
Synthetic organic	Extruded polystyrene (XPS)	80-150	0,031 - 0,035	20-65	1450	Non renewable: oil, blowing agents and flame retardants	107,15 – 110,20	yes but in few cases	External and internal insulation wall Ventilated facade	Panel

Synthetic organic	Rigid expanded polyurethane	30-150	0,022	38	1400	Non renewable: oil, blowing agents and flame retardants	80-90	yes but in few cases	External and internal insulation wall Ventilated facade	Panel
Synthetic organic	Polyethylene foam	>2000	0,035-0,04	30	2000	Non renewable: oil, blowing agents and flame retardants	107,2	yes but in few cases	External and internal insulation wall Ventilated facade	Panel
Synthetic inorganic	Rock wool	1	0,032-0,04	25-200	1030	Recycling of bricks, diabase, dolomite, synthetic resin and water-repellent agents	22,12	yes but in few cases	External and internal insulation wall Ventilated facade	Panel
Synthetic inorganic	Glass wool	1	0,032-0,039	30	1030	Mixture of glass and sand	30,8 – 43,2	yes	External and internal insulation wall Ventilated facade	Panel Roll
Synthetic inorganic	Calcium silicate	3	0,06	200-260	710	Silicon oxide, calcium, cellulose	52	yes but in few cases	External insulation wall	Panel
Synthetic inorganic	Cellular glass	∞	0,05	120-165	840	Recycled glass, quartz sand, feldspar, soda, potash	67	yes but in few cases	External insulation wall	Panel

Synthetic inorganic	Aerogel	5	0,015	11	1000	98% air and 2% amorphous silica	35,5	yes but in few cases	Internal insulation wall	Panel

EXISTING VERTICAL ENVELOPE			INSULATION COATING - SOLUTION EIS.01																						RESPECTED PARAMETERS	
			INSULATION - Semi-rigid rock wool insulation panel				CALCIUM SILICATE SLAB				CLADDING - RENDER				FINAL VALUES AFTER EFFICIENCY IMPROVEMENT					WINTER REGIME					SUMMER REGIME					
																				CLIMATIC ZONES									
	Thermal transmittance	Periodic thermal transmittance	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thermal transmittance	Periodic thermal transmittance	Attenuation factor	Thermal phase shift	Internal areal heat capacity	A-B	C	D	E	F	Yie < 0,10	fa < 0,6	φ > 6	Cip ≥ 40		
	(U)	(Yie)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(U)	(Yie)	(fa)	(φ)	(Cip)	Limit values [W/m²K]					[W/m²K]		[h]	[kJ/m²K]		
UdM	[W/m²K]	[W/m²K]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[W/m²K]	[W/m²K]		[h]	[kJ/m²K]	0,38	0,3	0,26	0,23	0,22	0,1	0,60	6,00	40,00	n	%
EW.01	2,55	0,362	**0,12**				0,012				0,005				0,24	0,009	0,037	13,64	72,52	1	1	1	0	0	1	1	1	1	4	100%
EW.01.1	1,305	0,229	0,12				0,012				0,005				0,22	0,008	0,037	15,72	59,03	1	1	1	1	1	1	1	1	1	4	100%
EW.01.2	0,76	0,01	0,12				0,012				0,005				0,20	0,000	0,002	3,50	59,03	1	1	1	1	1	1	1	0	1	3	75%
EW.02	2,2	0,144	0,12				0,012				0,005				0,24	0,003	0,015	17,18	72,58	1	1	1	0	0	1	1	1	1	4	100%
EW.03	1,61	0,309	0,12				0,012				0,005				0,23	0,010	0,044	14,64	62,40	1	1	1	1	0	1	1	1	1	4	100%
EW.04	1,19	0,065	0,12				0,012				0,005				0,22	0,002	0,010	20,59	62,41	1	1	1	1	1	1	1	1	1	4	100%
EW.05	1,95	0,69	0,12				0,012				0,005				0,23	0,023	0,097	11,58	62,21	1	1	1	0	0	1	1	1	1	4	100%
EW.06	1,44	0,199	0,12				0,012				0,005				0,22	0,007	0,029	16,32	62,11	1	1	1	1	0	1	1	1	1	4	100%
EW.07	1,16	0,063	0,12				0,012				0,005				0,22	0,002	0,010	20,69	62,09	1	1	1	1	1	1	1	1	1	4	100%
EW.08	0,97	0,02	0,12				0,012				0,005				0,21	0,001	0,003	1,06	62,10	1	1	1	1	1	1	1	0	1	3	75%
EW.09	3,24	2,334	0,12				0,012				0,005				0,24	0,068	0,279	7,20	72,18	1	1	1	0	0	1	1	1	1	4	100%
EW.10	2,61	1,174	0,12				0,012				0,005				0,24	0,034	0,140	9,59	67,68	1	1	1	0	0	1	1	1	1	4	100%
EW.11	0,815	0,374	0,12				0,012				0,005				0,20	0,033	0,168	10,25	71,98	1	1	1	1	1	1	1	1	1	4	100%
EW.12	0,785	0,176	0,12				0,012				0,005				0,20	0,016	0,080	12,65	68,93	1	1	1	1	1	1	1	1	1	4	100%
EW.13	0,61	0,253	0,12	0,032	1030	30	0,012	0,39	900	1200	0,005	0,9	1000	1800	0,18	0,023	0,126	10,89	72,38	1	1	1	1	1	1	1	1	1	4	100%
EW.14	0,59	0,132	0,12				0,012				0,005				0,18	0,012	0,067	12,90	69,35	1	1	1	1	1	1	1	1	1	4	100%
EW.15	1,11	0,605	0,12				0,012				0,005				0,21	0,027	0,125	11,31	50,96	1	1	1	1	1	1	1	1	1	4	100%
EW.16	0,87	0,259	0,12				0,012				0,005				0,20	0,011	0,056	14,81	51,87	1	1	1	1	1	1	1	1	1	4	100%
EW.17	1,01	0,216	0,12				0,012				0,005				0,21	0,007	0,034	15,03	51,40	1	1	1	1	1	1	1	1	1	4	100%
EW.18	0,64	0,299	0,12				0,012				0,005				0,19	0,013	0,068	12,44	53,53	1	1	1	1	1	1	1	1	1	4	100%
EW.19	0,55	0,126	0,12				0,012				0,005				0,18	0,005	0,030	15,82	53,29	1	1	1	1	1	1	1	1	1	4	100%
EW.20	0,575	0,269	0,12				0,012				0,005				0,18	0,013	0,071	12,49	54,70	1	1	1	1	1	1	1	1	1	4	100%
EW.21	1,34	0,735	0,12				0,012				0,005				0,22	0,033	0,150	10,80	51,06	1	1	1	1	0	1	1	1	1	4	100%
EW.22	0,91	0,223	0,12				0,012				0,005				0,20	0,010	0,049	15,35	50,84	1	1	1	1	1	1	1	1	1	4	100%
EW.23	0,7	0,254	0,12				0,012				0,005				0,19	0,022	0,114	12,61	52,19	1	1	1	1	1	1	1	1	1	4	100%
EW.24	0,6	0,082	0,12				0,012				0,005				0,18	0,007	0,037	17,20	50,72	1	1	1	1	1	1	1	1	1	4	100%
EW.25	0,55	0,18	0,12				0,012				0,005				0,18	0,016	0,091	13,14	52,29	1	1	1	1	1	1	1	1	1	4	100%
EW.26	0,49	0,056	0,12				0,012				0,005				0,17	0,005	0,029	17,83	50,69	1	1	1	1	1	1	1	1	1	4	100%
EW.27	0,31	0,042	0,12				0,012				0,005				0,14	0,004	0,027	17,98	43,66	1	1	1	1	1	1	1	1	1	4	100%
EW.28	0,34	0,039	0,12				0,012				0,005				0,15	0,004	0,024	16,86	58,17	1	1	1	1	1	1	1	1	1	4	100%
																		EVALUATION RESULTS		100%	100%	100%	83%	73%	100%	100%	93%	100%	98%	
																		% of residential buildings by climatic zone		5,74	22,1	22,9	43,1	6,2						
																		% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement		5,74	22,1	22,9	35,92	4,547						

91%	Total % of national residential buildings on which the solution is suitable to comply with the winter regime limit values required by the current law, after the efficiency improvement
11.115.587	Number of national residential buildings that comply with the limit values after the efficiency improvement
90%	Total % of national residential buildings that comply with both winter and summer regime limit values, after the efficiency improvement

SUMMARY
INSULATION COATING - SOLUTION EIS.01

INSULATION - Semi-rigid rock wool insulation panel		
Thickness	[m]	**0,12**
Conductivity	[W/mK]	**0,032**
Specific heat	[J/kgK]	1030
Density	[kg/m³]	30
CALCIUM SILICATE SLAB		
Thickness	[m]	0,012
Conductivity	[W/mK]	0,39
Specific heat	[J/kgK]	900
Density	[kg/m³]	1200
CLADDING - RENDER		
Thickness	[m]	0,005
Conductivity	[W/mK]	0,9
Specific heat	[J/kgK]	1000
Density	[kg/m³]	1800
THICKNESS TOT		**0,137**

EVALUATION RESULTS
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement

A-B	**100%**
C	**100%**
D	**100%**
E	**83%**
F	**73%**

Total % of national residential buildings on which the solution is suitable to comply with limit values required by the current law, after the efficiency improvement

91%	**winter regime**
100%	**summer regime**

EXISTING VERTICAL ENVELOPE			INSULATION COATING - SOLUTION EIS.02																								RESPECTED PARAMETERS	
			INSULATION - Semi-rigid wood fiber insulation panel				CLADDING - RENDER				EXTERIOR PLASTER				FINAL VALUES AFTER EFFICIENCY IMPROVEMENT					WINTER REGIME					SUMMER REGIME					
																				CLIMATIC ZONES									
	Thermal transmittance	Periodic thermal transmittance	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thermal transmittance	Periodic thermal transmittance	Attenuation factor	Thermal phase shift	Internal areal heat capacity	A-B	C	D	E	F	Yie < 0,10	fa < 0,6	φ > 6	Cip ≥ 40		
	(U)	(Yie)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(U)	(Yie)	(fa)	(φ)	(Cip)	Limit values [W/m²K]					[W/m²K]		[h]	[kJ/m²K]		
UdM	[W/m²K]	[W/m²K]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[W/m²K]	[W/m²K]		[h]	[kJ/m²K]	0,38	0,3	0,26	0,23	0,22	0,1	0,60	6,00	40,00	n	%
EW.01	2,55	0,362	**0,14**				0,005				0,015				0,26	0,006	0,023	19,05	72,40	1	1	1	0	0	1	1	1	1	4	100%
EW.01.1	1,305	0,229	0,14				0,005				0,015				0,23	0,005	0,023	21,11	58,94	1	1	1	0	0	1	1	1	1	4	100%
EW.01.2	0,76	0,01	0,14				0,005				0,015				0,21	0,000	0,001	8,90	59,03	1	1	1	1	1	1	1	1	1	4	100%
EW.02	2,2	0,144	0,14				0,005				0,015				0,25	0,002	0,009	22,59	72,55	1	1	1	0	0	1	1	1	1	4	100%
EW.03	1,61	0,309	0,14				0,005				0,015				0,24	0,007	0,027	20,05	62,28	1	1	1	0	0	1	1	1	1	4	100%
EW.04	1,19	0,065	0,14				0,005				0,015				0,30	0,003	0,009	23,51	62,40	1	1	0	0	0	1	1	1	1	4	100%
EW.05	1,95	0,69	0,14				0,005				0,015				0,25	0,015	0,059	16,98	61,91	1	1	1	0	0	1	1	1	1	4	100%
EW.06	1,44	0,199	0,14				0,005				0,015				0,24	0,004	0,018	21,72	62,04	1	1	1	0	0	1	1	1	1	4	100%
EW.07	1,16	0,063	0,14				0,005				0,015				0,23	0,001	0,006	2,09	62,10	1	1	1	1	0	1	1	0	1	3	75%
EW.08	0,97	0,02	0,14				0,005				0,015				0,22	0,000	0,002	6,46	62,11	1	1	1	1	1	1	1	1	1	4	100%
EW.09	3,24	2,334	0,14				0,005				0,015				0,26	0,044	0,170	12,59	71,64	1	1	0	0	0	1	1	1	1	4	100%
EW.10	2,61	1,174	0,14				0,005				0,015				0,26	0,022	0,086	15,00	67,27	1	1	1	0	0	1	1	1	1	4	100%
EW.11	0,815	0,374	0,14				0,005				0,015				0,21	0,019	0,089	15,51	71,53	1	1	1	1	1	1	1	1	1	4	100%
EW.12	0,785	0,176	0,14				0,005				0,015				0,21	0,009	0,042	17,92	68,72	1	1	1	1	1	1	1	1	1	4	100%
EW.13	0,61	0,253	0,14	0,04	2100	140	0,005	0,9	1000	1800	0,015	0,9	1000	1800	0,19	0,013	0,067	16,09	72,07	1	1	1	1	1	1	1	1	1	4	100%
EW.14	0,59	0,132	0,14				0,005				0,015				0,19	0,007	0,035	18,10	69,19	1	1	1	1	1	1	1	1	1	4	100%
EW.15	1,11	0,605	0,14				0,005				0,015				0,23	0,017	0,074	16,66	50,59	1	1	1	1	0	1	1	1	1	4	100%
EW.16	0,87	0,259	0,14				0,005				0,015				0,21	0,007	0,033	19,98	51,75	1	1	1	1	1	1	1	1	1	4	100%
EW.17	1,01	0,216	0,14				0,005				0,015				0,22	0,005	0,021	20,44	51,32	1	1	1	1	0	1	1	1	1	4	100%
EW.18	0,64	0,299	0,14				0,005				0,015				0,20	0,008	0,040	17,77	53,36	1	1	1	1	1	1	1	1	1	4	100%
EW.19	0,55	0,126	0,14				0,005				0,015				0,19	0,003	0,018	21,18	53,24	1	1	1	1	1	1	1	1	1	4	100%
EW.20	0,575	0,269	0,14				0,005				0,015				0,19	0,008	0,042	17,75	54,53	1	1	1	1	1	1	1	1	1	4	100%
EW.21	1,34	0,735	0,14				0,005				0,015				0,23	0,021	0,088	16,17	50,60	1	1	1	0	0	1	1	1	1	4	100%
EW.22	0,91	0,223	0,14				0,005				0,015				0,22	0,006	0,029	20,72	50,75	1	1	1	1	1	1	1	1	1	4	100%
EW.23	0,7	0,254	0,14				0,005				0,015				0,20	0,012	0,061	17,88	51,92	1	1	1	1	1	1	1	1	1	4	100%
EW.24	0,6	0,082	0,14				0,005				0,015				0,19	0,004	0,020	22,51	50,69	1	1	1	1	1	1	1	1	1	4	100%
EW.25	0,55	0,18	0,14				0,005				0,015				0,19	0,009	0,049	18,35	52,10	1	1	1	1	1	1	1	1	1	4	100%
EW.26	0,49	0,056	0,14				0,005				0,015				0,18	0,003	0,016	23,06	50,69	1	1	1	1	1	1	1	1	1	4	100%
EW.27	0,31	0,042	0,14				0,005				0,015				0,15	0,002	0,014	23,13	43,66	1	1	1	1	1	1	1	1	1	4	100%
EW.28	0,34	0,039	0,14				0,005				0,015				0,15	0,002	0,013	21,98	58,15	1	1	1	1	1	1	1	1	1	4	100%
																			EVALUATION RESULTS	**100%**	**100%**	**93%**	**67%**	**57%**	**100%**	**100%**	**97%**	**100%**	**99%**	

% of residential buildings by climatic zone	5,74	22,1	22,9	43,1	6,2
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement	5,74	22,1	21,37	28,73	3,513

81% Total % of national residential buildings on which the solution is suitable to comply with the winter regime limit values required by the current law, after the efficiency improvement

9.928.099 Number of national residential buildings that comply with the limit values after the efficiency improvement

81% Total % of national residential buildings that comply with both winter and summer regime limit values, after the efficiency improvement

SUMMARY
INSULATION COATING - SOLUTION EIS.02

INSULATION - Semi-rigid wood fiber insulation panel

Thickness	[m]	**0,14**
Conductivity	[W/mK]	**0,04**
Specific heat	[J/kgK]	2100
Density	[kg/m³]	140

CLADDING - RENDER

Thickness	[m]	0,005
Conductivity	[W/mK]	0,9
Specific heat	[J/kgK]	1000
Density	[kg/m³]	1800

EXTERIOR PLASTER

Thickness	[m]	0,015
Conductivity	[W/mK]	0,9
Specific heat	[J/kgK]	1000
Density	[kg/m³]	1800

THICKNESS TOT 0,16

EVALUATION RESULTS
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement

A-B	**100%**
C	**100%**
D	**93%**
E	**67%**
F	**57%**

Total % of national residential buildings on which the solution is suitable to comply with limit values required by the current law, after the efficiency improvement

81% **winter regime**

100% **summer regime**

EXISTING VERTICAL ENVELOPE			VENTILATED WALL SYSTEM - SOLUTION VWS.01																										RESPECTED PARAMETERS	
			INSULATION - Semi-rigid wood fiber insulation panel				AIR GAP				FACING PANEL				FINAL VALUES AFTER EFFICIENCY IMPROVEMENT					WINTER REGIME					SUMMER REGIME					
																				CLIMATIC ZONES										
	Thermal transmittance	Periodic thermal transmittance	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thermal transmittance	Periodic thermal transmittance	Attenuation factor	Thermal phase shift	Internal areal heat capacity	A-B	C	D	E	F	Yie < 0,10	fa < 0,6	φ > 6	Cip ≥ 40		
	(U)	(Yie)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(U)	(Yie)	(fa)	(φ)	(Cip)	Limit values [W/m²K]					[W/m²K]		[h]	[kJ/m²K]		
UdM	[W/m²K]	[W/m²K]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[W/m²K]	[W/m²K]			[kJ/m²K]	0,38	0,3	0,26	0,23	0,22	0,1	0,60	6,00	40,00	n	%
EW.01	2,55	0,362	**0,08**				0,04				0,02				0,24	0,008	0,033	15,64	72,47	1	1	1	0	0	1	1	1	1	4	100%
EW.01.1	1,305	0,229	0,08				0,04				0,02				0,22	0,007	0,034	17,72	58,97	1	1	1	1	1	1	1	1	1	4	100%
EW.01.2	0,76	0,01	0,08				0,04				0,02				0,20	0,000	0,002	5,50	59,03	1	1	1	1	1	1	1	0	1	3	75%
EW.02	2,2	0,144	0,08				0,04				0,02				0,23	0,003	0,013	19,18	72,56	1	1	1	0	0	1	1	1	1	4	100%
EW.03	1,61	0,309	0,08				0,04				0,02				0,23	0,009	0,040	16,64	62,34	1	1	1	1	0	1	1	1	1	4	100%
EW.04	1,19	0,065	0,08				0,04				0,02				0,18	0,002	0,008	23,03	62,41	1	1	1	1	1	1	1	1	1	4	100%
EW.05	1,95	0,69	0,08				0,04				0,02				0,23	0,020	0,087	13,58	62,11	1	1	1	0	0	1	1	1	1	4	100%
EW.06	1,44	0,199	0,08				0,04				0,02				0,22	0,006	0,026	18,32	62,06	1	1	1	1	0	1	1	1	1	4	100%
EW.07	1,16	0,063	0,08				0,04				0,02				0,21	0,002	0,009	22,69	62,09	1	1	1	1	1	1	1	1	1	4	100%
EW.08	0,97	0,02	0,08				0,04				0,02				0,21	0,001	0,003	3,06	62,10	1	1	1	1	1	1	1	0	1	3	75%
EW.09	3,24	2,334	0,08				0,04				0,02				0,24	0,061	0,251	9,20	72,37	1	1	1	0	0	1	1	1	1	4	100%
EW.10	2,61	1,174	0,08				0,04				0,02				0,24	0,030	0,126	11,59	67,65	1	1	1	0	0	1	1	1	1	4	100%
EW.11	0,815	0,374	0,08				0,04				0,02				0,20	0,030	0,149	12,25	71,88	1	1	1	1	1	1	1	1	1	4	100%
EW.12	0,785	0,176	0,08				0,04				0,02				0,20	0,014	0,071	14,65	68,84	1	1	1	1	1	1	1	1	1	4	100%
EW.13	0,61	0,253	0,08	0,022	1400	38	0,04	0,25	1000	1300	0,02	1,3	840	2000	0,18	0,021	0,112	12,89	72,29	1	1	1	1	1	1	1	1	1	4	100%
EW.14	0,59	0,132	0,08				0,04				0,02				0,18	0,011	0,059	14,90	69,28	1	1	1	1	1	1	1	1	1	4	100%
EW.15	1,11	0,605	0,08				0,04				0,02				0,21	0,024	0,112	13,31	50,82	1	1	1	1	1	1	1	1	1	4	100%
EW.16	0,87	0,259	0,08				0,04				0,02				0,20	0,010	0,051	16,61	51,79	1	1	1	1	1	1	1	1	1	4	100%
EW.17	1,01	0,216	0,08				0,04				0,02				0,21	0,006	0,030	17,03	51,35	1	1	1	1	1	1	1	1	1	4	100%
EW.18	0,64	0,299	0,08				0,04				0,02				0,19	0,011	0,060	14,43	53,45	1	1	1	1	1	1	1	1	1	4	100%
EW.19	0,55	0,126	0,08				0,04				0,02				0,18	0,005	0,027	17,82	53,26	1	1	1	1	1	1	1	1	1	4	100%
EW.20	0,575	0,269	0,08				0,04				0,02				0,18	0,011	0,064	14,49	54,62	1	1	1	1	1	1	1	1	1	4	100%
EW.21	1,34	0,735	0,08				0,04				0,02				0,22	0,029	0,134	12,80	50,92	1	1	1	1	1	1	1	1	1	4	100%
EW.22	0,91	0,223	0,08				0,04				0,02				0,20	0,009	0,044	17,35	50,78	1	1	1	1	1	1	1	1	1	4	100%
EW.23	0,7	0,254	0,08				0,04				0,02				0,19	0,019	0,102	14,61	52,06	1	1	1	1	1	1	1	1	1	4	100%
EW.24	0,6	0,082	0,08				0,04				0,02				0,18	0,006	0,033	19,20	50,68	1	1	1	1	1	1	1	1	1	4	100%
EW.25	0,55	0,18	0,08				0,04				0,02				0,18	0,014	0,081	15,14	52,19	1	1	1	1	1	1	1	1	1	4	100%
EW.26	0,49	0,056	0,08				0,04				0,02				0,17	0,004	0,026	19,83	50,67	1	1	1	1	1	1	1	1	1	4	100%
EW.27	0,31	0,042	0,08				0,04				0,02				0,14	0,003	0,024	19,98	43,65	1	1	1	1	1	1	1	1	1	4	100%
EW.28	0,34	0,039	0,08				0,04				0,02				0,15	0,003	0,022	18,85	58,15	1	1	1	1	1	1	1	1	1	4	100%
																		EVALUATION RESULTS		**100%**	**100%**	**100%**	**83%**	**77%**	**100%**	**100%**	**93%**	**100%**	**98%**	
																		% of residential buildings by climatic zone		5,74	22,1	22,9	43,1	6,2						
																		% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement		5,74	22,1	22,9	35,92	4,753						

91% Total % of national residential buildings on which the solution is suitable to comply with the winter regime limit values required by the current law, after the efficiency improvement

11.140.775 Number of national residential buildings that comply with the limit values after the efficiency improvement

90% Total % of national residential buildings that comply with both winter and summer regime limit values, after the efficiency improvement

SUMMARY
VENTILATED WALL SYSTEM - SOLUTION VWS.01

INSULATION - Semi-rigid wood fiber insulation panel		
Thickness	[m]	**0,08**
Conductivity	[W/mK]	**0,022**
Specific heat	[J/kgK]	1400
Density	[kg/m³]	38
AIR GAP		
Thickness	[m]	0,04
Conductivity	[W/mK]	0,25
Specific heat	[J/kgK]	1000
Density	[kg/m³]	1300
FACING PANEL		
Thickness	[m]	0,02
Conductivity	[W/mK]	1,3
Specific heat	[J/kgK]	840
Density	[kg/m³]	2000
THICKNESS TOT		**0,14**

EVALUATION RESULTS
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement

A-B	**100%**
C	**100%**
D	**100%**
E	**83%**
F	**77%**

Total % of national residential buildings on which the solution is suitable to comply with limit values required by the current law, after the efficiency improvement

91% **winter regime**

100% **summer regime**

EXISTING VERTICAL ENVELOPE			VENTILATED WALL SYSTEM - SOLUTION VWS.02														FINAL VALUES AFTER EFFICIENCY IMPROVEMENT					WINTER REGIME					SUMMER REGIME				RESPECTED PARAMETERS	
			INSULATION - Semi-rigid rock wool insulation panel				CALCIUM SILICATE SLAB				AIR GAP				FACING PANEL										CLIMATIC ZONES									
	Thermal transmittance	Periodic thermal transmittance	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thermal transmittance	Periodic thermal transmittance	Attenuation factor	Thermal phase shift	Internal areal heat capacity	A-B	C	D	E	F	Yie < 0,10	fa < 0,6	φ > 6	Cip ≥ 40		
	(U)	(Yie)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(U)	(Yie)	(fa)	(φ)	(Cip)	Limit values [W/m²K]					[W/m²K]		[h]	[kJ/m²K]		
UdM	[W/m²K]	[W/m²K]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[W/m²K]	[W/m²K]		[h]	[kJ/m²K]	0,38	0,3	0,26	0,23	0,22	0,1	0,60	6,00	40,00	n	%
EW.01	2,55	0,362	**0,12**				0,012				0,04				0,02				0,23	0,007	0,031	16,20	72,45	1	1	1	0	0	1	1	1	1	4	100%
EW.01.1	1,305	0,229	0,12				0,012				0,04				0,02				0,21	0,007	0,031	18,28	58,96	1	1	1	1	1	1	1	1	1	4	100%
EW.01.2	0,76	0,01	0,12				0,012				0,04				0,02				0,19	0,000	0,002	6,07	59,03	1	1	1	1	1	1	1	1	1	4	100%
EW.02	2,2	0,144	0,12				0,012				0,04				0,02				0,23	0,003	0,012	19,74	72,56	1	1	1	1	0	1	1	1	1	4	100%
EW.03	1,61	0,309	0,12				0,012				0,04				0,02				0,22	0,008	0,037	17,21	62,32	1	1	1	1	1	1	1	1	1	4	100%
EW.04	1,19	0,065	0,12				0,012				0,04				0,02				0,24	0,002	0,008	22,92	62,40	1	1	1	0	0	1	1	1	1	4	100%
EW.05	1,95	0,69	0,12				0,012				0,04				0,02				0,22	0,018	0,081	14,15	62,07	1	1	1	1	0	1	1	1	1	4	100%
EW.06	1,44	0,199	0,12				0,012				0,04				0,02				0,22	0,005	0,024	18,88	62,06	1	1	1	1	1	1	1	1	1	4	100%
EW.07	1,16	0,063	0,12				0,012				0,04				0,02				0,21	0,002	0,008	23,25	62,09	1	1	1	1	1	1	1	1	1	4	100%
EW.08	0,97	0,02	0,12				0,012				0,04				0,02				0,20	0,001	0,003	3,62	62,11	1	1	1	1	1	1	1	0	1	3	75%
EW.09	3,24	2,334	0,12				0,012				0,04				0,02				0,23	0,055	0,234	9,77	72,35	1	1	1	0	0	1	1	1	1	4	100%
EW.10	2,61	1,174	0,12				0,012				0,04				0,02				0,23	0,027	0,117	12,16	67,60	1	1	1	0	0	1	1	1	1	4	100%
EW.11	0,815	0,374	0,12				0,012				0,04				0,02				0,19	0,027	0,139	12,82	71,82	1	1	1	1	1	1	1	1	1	4	100%
EW.12	0,785	0,176	0,12				0,012				0,04				0,02				0,19	0,013	0,066	15,22	68,81	1	1	1	1	1	1	1	1	1	4	100%
EW.13	0,61	0,253	0,12				0,012				0,04				0,02				0,18	0,019	0,104	13,46	72,24	1	1	1	1	1	1	1	1	1	4	100%
EW.14	0,59	0,132	0,12	0,032	1030	30	0,012	0,39	900	1200	0,04	0,25	1000	1300	0,02	1,3	840	2000	0,18	0,010	0,055	15,47	69,26	1	1	1	1	1	1	1	1	1	4	100%
EW.15	1,11	0,605	0,12				0,012				0,04				0,02				0,21	0,021	0,104	13,87	50,76	1	1	1	1	1	1	1	1	1	4	100%
EW.16	0,87	0,259	0,12				0,012				0,04				0,02				0,20	0,009	0,047	17,18	51,78	1	1	1	1	1	1	1	1	1	4	100%
EW.17	1,01	0,216	0,12				0,012				0,04				0,02				0,20	0,006	0,028	17,60	51,34	1	1	1	1	1	1	1	1	1	4	100%
EW.18	0,64	0,299	0,12				0,012				0,04				0,02				0,18	0,010	0,056	15,00	53,42	1	1	1	1	1	1	1	1	1	4	100%
EW.19	0,55	0,126	0,12				0,012				0,04				0,02				0,17	0,004	0,025	18,38	53,25	1	1	1	1	1	1	1	1	1	4	100%
EW.20	0,575	0,269	0,12				0,012				0,04				0,02				0,18	0,010	0,059	15,06	54,60	1	1	1	1	1	1	1	1	1	4	100%
EW.21	1,34	0,735	0,12				0,012				0,04				0,02				0,21	0,027	0,125	13,37	50,85	1	1	1	1	1	1	1	1	1	4	100%
EW.22	0,91	0,223	0,12				0,012				0,04				0,02				0,20	0,008	0,041	17,91	50,77	1	1	1	1	1	1	1	1	1	4	100%
EW.23	0,7	0,254	0,12				0,012				0,04				0,02				0,19	0,018	0,094	15,18	52,01	1	1	1	1	1	1	1	1	1	4	100%
EW.24	0,6	0,082	0,12				0,012				0,04				0,02				0,18	0,005	0,031	19,77	50,68	1	1	1	1	1	1	1	1	1	4	100%
EW.25	0,55	0,18	0,12				0,012				0,04				0,02				0,17	0,013	0,076	15,71	52,16	1	1	1	1	1	1	1	1	1	4	100%
EW.26	0,49	0,056	0,12				0,012				0,04				0,02				0,17	0,004	0,024	20,40	50,67	1	1	1	1	1	1	1	1	1	4	100%
EW.27	0,31	0,042	0,12				0,012				0,04				0,02				0,14	0,003	0,022	20,55	43,65	1	1	1	1	1	1	1	1	1	4	100%
EW.28	0,34	0,039	0,12				0,012				0,04				0,02				0,14	0,003	0,020	19,43	58,15	1	1	1	1	1	1	1	1	1	4	100%
																							EVALUATION RESULTS	**100%**	**100%**	**100%**	**87%**	**80%**	**100%**	**100%**	**97%**	**100%**	**99%**	

% of residential buildings by climatic zone	5,74	22,1	22,9	43,1	6,2
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement	5,74	22,1	22,9	37,35	4,96

93%	Total % of national residential buildings on which the solution is suitable to comply with the winter regime limit values required by the current law, after the efficiency improvement
11.341.059	Number of national residential buildings that comply with the limit values after the efficiency improvement
92%	Total % of national residential buildings that comply with both winter and summer regime limit values, after the efficiency improvement

SUMMARY
VENTILATED WALL SYSTEM - SOLUTION VWS.02

INSULATION - Semi-rigid rock wool insulation panel		
Thickness	[m]	**0,12**
Conductivity	[W/mK]	**0,032**
Specific heat	[J/kgK]	1030
Density	[kg/m³]	30
CALCIUM SILICATE SLAB		
Thickness	[m]	0,012
Conductivity	[W/mK]	0,39
Specific heat	[J/kgK]	900
Density	[kg/m³]	1200
AIR GAP		
Thickness	[m]	0,04
Conductivity	[W/mK]	0,25
Specific heat	[J/kgK]	1000
Density	[kg/m³]	1300
FACING PANEL		
Thickness	[m]	0,02
Conductivity	[W/mK]	1,3
Specific heat	[J/kgK]	840
Density	[kg/m³]	2000
THICKNESS TOT		**0,192**

EVALUATION RESULTS
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement

A-B	**100%**
C	**100%**
D	**100%**
E	**87%**
F	**80%**

Total % of national residential buildings on which the solution is suitable to comply with limit values required by the current law, after the efficiency improvement

93%	**winter regime**
100%	**summer regime**

EXISTING VERTICAL ENVELOPE			INTERIOR INSULATION SYSTEM - SOLUTION IIS.01								FINAL VALUES AFTER EFFICIENCY IMPROVEMENT					WINTER REGIME					SUMMER REGIME				RESPECTED PARAMETERS	
			INSULATION - Semi-rigid aerogel insulation panel				EXTERIOR PLASTER									CLIMATIC ZONES										
	Thermal transmittance	Periodic thermal transmittance	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thermal transmittance	Periodic thermal transmittance	Attenuation factor	Thermal phase shift	Internal areal heat capacity	A-B	C	D	E	F	Yie < 0,10	fa < 0,6	φ > 6	Cip ≥ 40		
	(U)	(Yie)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(U)	(Yie)	(fa)	(φ)	(Cip)	Limit values [W/m²K]					[W/m²K]		[h]	[kJ/m²K]		
UdM	[W/m²K]	[W/m²K]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[W/m²K]	[W/m²K]		[h]	[kJ/m²K]	0,38	0,3	0,26	0,23	0,22	0,1	0,60	6,00	40,00	n	%
EW.01	2,55	0,362	**0,05**				0,01				0,27	0,019	0,072	12,52	14,16	1	1	0	0	0	1	1	1	0	3	75%
EW.01.1	1,305	0,229	0,05				0,01				0,24	0,015	0,061	14,32	14,10	1	1	1	0	0	1	1	1	0	3	75%
EW.01.2	0,76	0,01	0,05				0,01				0,21	0,001	0,003	2,10	14,14	1	1	1	1	1	1	1	0	0	2	50%
EW.02	2,2	0,144	0,05				0,01				0,26	0,008	0,029	16,05	14,02	1	1	0	0	0	1	1	1	0	3	75%
EW.03	1,61	0,309	0,05				0,01				0,25	0,019	0,075	13,29	14,14	1	1	1	0	0	1	1	1	0	3	75%
EW.04	1,19	0,065	0,05				0,01				0,24	0,004	0,017	19,24	14,07	1	1	1	0	0	1	1	1	0	3	75%
EW.05	1,95	0,69	0,05				0,01				0,26	0,042	0,163	10,25	14,57	1	1	1	0	0	1	1	1	0	3	75%
EW.06	1,44	0,199	0,05				0,01				0,25	0,012	0,050	14,96	14,06	1	1	1	0	0	1	1	1	0	3	75%
EW.07	1,16	0,063	0,05				0,01				0,24	0,004	0,016	19,33	14,07	1	1	1	0	0	1	1	1	0	3	75%
EW.08	0,97	0,02	0,05				0,01				0,23	0,001	0,005	23,70	14,11	1	1	1	1	0	1	1	1	0	3	75%
EW.09	3,24	2,334	0,05				0,01				0,27	0,141	0,516	5,65	15,84	1	1	0	0	0	0	1	0	0	1	25%
EW.10	2,61	1,174	0,05				0,01				0,27	0,068	0,253	8,33	15,02	1	1	0	0	0	1	1	1	0	3	75%
EW.11	0,815	0,374	0,05				0,01				0,22	0,020	0,093	7,48	14,41	1	1	1	1	1	1	1	1	0	3	75%
EW.12	0,785	0,176	0,05				0,01				0,22	0,010	0,045	9,38	14,22	1	1	1	1	1	1	1	1	0	3	75%
EW.13	0,61	0,253	0,05	0,015	1000	11	0,01	0,7	1000	1400	0,20	0,014	0,068	7,72	14,31	1	1	1	1	1	1	1	1	0	3	75%
EW.14	0,59	0,132	0,05				0,01				0,20	0,007	0,037	9,29	14,19	1	1	1	1	1	1	1	1	0	3	75%
EW.15	1,11	0,605	0,05				0,01				0,24	0,045	0,192	9,98	14,71	1	1	1	0	0	1	1	1	0	3	75%
EW.16	0,87	0,259	0,05				0,01				0,22	0,019	0,085	13,13	14,21	1	1	1	1	0	1	1	1	0	3	75%
EW.17	1,01	0,216	0,05				0,01				0,23	0,017	0,076	14,32	14,14	1	1	1	0	0	1	1	1	0	3	75%
EW.18	0,64	0,299	0,05				0,01				0,20	0,021	0,105	11,26	14,38	1	1	1	1	1	1	1	1	0	3	75%
EW.19	0,55	0,126	0,05				0,01				0,19	0,009	0,046	14,32	14,16	1	1	1	1	1	1	1	1	0	3	75%
EW.20	0,575	0,269	0,05				0,01				0,20	0,019	0,096	10,17	14,39	1	1	1	1	1	1	1	1	0	3	75%
EW.21	1,34	0,735	0,05				0,01				0,24	0,055	0,225	9,37	14,86	1	1	1	0	0	1	1	1	0	3	75%
EW.22	0,91	0,223	0,05				0,01				0,23	0,017	0,074	13,90	14,16	1	1	1	1	0	1	1	1	0	3	75%
EW.23	0,7	0,254	0,05				0,01				0,21	0,019	0,088	10,21	14,37	1	1	1	1	1	1	1	1	0	3	75%
EW.24	0,6	0,082	0,05				0,01				0,20	0,006	0,031	14,99	14,15	1	1	1	1	1	1	1	1	0	3	75%
EW.25	0,55	0,18	0,05				0,01				0,19	0,013	0,068	10,39	14,31	1	1	1	1	1	1	1	1	0	3	75%
EW.26	0,49	0,056	0,05				0,01				0,19	0,004	0,023	15,23	14,16	1	1	1	1	1	1	1	1	0	3	75%
EW.27	0,31	0,042	0,05				0,01				0,15	0,004	0,024	15,48	14,22	1	1	1	1	1	1	1	1	0	3	75%
EW.28	0,34	0,039	0,05				0,01				0,16	0,003	0,016	13,27	14,14	1	1	1	1	1	1	1	1	0	3	75%
															EVALUATION RESULTS	**100%**	**100%**	**87%**	**57%**	**47%**	**97%**	**100%**	**93%**	**0%**	**73%**	
															% of residential buildings by climatic zone	5,74	22,1	22,9	43,1	6,2						
															% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement	5,74	22,1	19,85	24,42	2,893						

75%	Total % of national residential buildings on which the solution is suitable to comply with the winter regime limit values required by the current law, after the efficiency improvement
9.141.180	Number of national residential buildings that comply with the limit values after the efficiency improvement
54%	Total % of national residential buildings that comply with both winter and summer regime limit values, after the efficiency improvement

SUMMARY
INTERIOR INSULATION SYSTEM - SOLUTION IIS.01

INSULATION - Semi-rigid aerogel insulation panel		
Thickness	[m]	**0,05**
Conductivity	[W/mK]	**0,015**
Specific heat	[J/kgK]	1000
Density	[kg/m3]	11
EXTERIOR PLASTER		
Thickness	[m]	0,01
Conductivity	[W/mK]	0,7
Specific heat	[J/kgK]	1000
Density	[kg/m3]	1400
THICKNESS TOT		**0,06**

EVALUATION RESULTS
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement

A-B	**100%**
C	**100%**
D	**87%**
E	**57%**
F	**47%**

Total % of national residential buildings on which the solution is suitable to comply with limit values required by the current law, after the efficiency improvement

75% **winter regime**

97% **summer regime**

EXISTING VERTICAL ENVELOPE			INTERIOR INSULATION SYSTEM - SOLUTION IIS.02										FINAL VALUES AFTER EFFICIENCY IMPROVEMENT					WINTER REGIME					SUMMER REGIME				RESPECTED PARAMETERS	
			INSULATION - Semi-rigid extruded polystyrene (XPS) insulation panel				GYPSUM PLASTERBOARD				RENDER/CLADDING										CLIMATIC ZONES									
	Thermal transmittance	Periodic thermal transmittance	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thickness	Conductivity	Specific heat	Density	Thermal transmittance	Periodic thermal transmittance	Attenuation factor	Thermal phase shift	Internal areal heat capacity	A-B	C	D	E	F	Yie < 0,10	fa < 0,6	φ > 6	Cip ≥ 40		
	(U)	(Yie)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(s)	(λ)	(c)	(ρ)	(U)	(Yie)	(fa)	(φ)	(Cip)	Valori limite [W/m²K]					[W/m²K]		[h]	[kJ/m²K]		
UdM	[W/m²K]	[W/m²K]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[m]	[W/mK]	[J/kgK]	[kg/m³]	[W/m²K]	[W/m²K]		[h]	[kJ/m²K]	0,38	0,3	0,26	0,23	0,22	0,1	0,60	6,00	40,00	n	%
EW.01	2,55	0,362	**0,1**				0,013				0,005				0,27	0,019	0,071	12,96	16,98	1	1	0	0	0	1	1	1	0	3	75%
EW.01.1	1,305	0,229	0,1				0,013				0,005				0,25	0,015	0,060	14,77	16,93	1	1	1	0	0	1	1	1	0	3	75%
EW.01.2	0,76	0,01	0,1				0,013				0,005				0,22	0,001	0,003	2,56	17,00	1	1	1	1	1	1	1	0	0	2	50%
EW.02	2,2	0,144	0,1				0,013				0,005				0,27	0,008	0,029	16,50	16,86	1	1	0	0	0	1	1	1	0	3	75%
EW.03	1,61	0,309	0,1				0,013				0,005				0,26	0,019	0,075	13,74	16,97	1	1	1	0	0	1	1	1	0	3	75%
EW.04	1,19	0,065	0,1				0,013				0,005				0,24	0,004	0,017	19,69	16,92	1	1	1	0	0	1	1	1	0	3	75%
EW.05	1,95	0,69	0,1				0,013				0,005				0,26	0,042	0,162	10,70	17,38	1	1	0	0	0	1	1	1	0	3	75%
EW.06	1,44	0,199	0,1				0,013				0,005				0,25	0,012	0,049	15,41	16,90	1	1	1	0	0	1	1	1	0	3	75%
EW.07	1,16	0,063	0,1				0,013				0,005				0,24	0,004	0,016	19,78	16,93	1	1	1	0	0	1	1	1	0	3	75%
EW.08	0,97	0,02	0,1				0,013				0,005				0,23	0,001	0,005	0,15	16,98	1	1	1	0	0	1	1	0	0	2	50%
EW.09	3,24	2,334	0,1				0,013				0,005				0,28	0,142	0,510	6,10	18,79	1	1	0	0	0	0	1	1	0	2	50%
EW.10	2,61	1,174	0,1				0,013				0,005				0,27	0,068	0,251	8,78	17,86	1	1	0	0	0	1	1	1	0	3	75%
EW.11	0,815	0,374	0,1				0,013				0,005				0,22	0,020	0,092	7,93	17,26	1	1	1	1	0	1	1	1	0	3	75%
EW.12	0,785	0,176	0,1				0,013				0,005				0,22	0,010	0,045	9,83	17,07	1	1	1	1	1	1	1	1	0	3	75%
EW.13	0,61	0,253	0,1	0,031	1210	18	0,013	0,21	1000	754	0,005	0,7	1000	1400	0,20	0,014	0,067	8,17	17,16	1	1	1	1	1	1	1	1	0	3	75%
EW.14	0,59	0,132	0,1				0,013				0,005				0,20	0,007	0,037	9,74	17,04	1	1	1	1	1	1	1	1	0	3	75%
EW.15	1,11	0,605	0,1				0,013				0,005				0,24	0,045	0,190	10,43	17,53	1	1	1	0	0	1	1	1	0	3	75%
EW.16	0,87	0,259	0,1				0,013				0,005				0,22	0,019	0,084	13,59	17,05	1	1	1	1	0	1	1	1	0	3	75%
EW.17	1,01	0,216	0,1				0,013				0,005				0,23	0,016	0,069	14,90	16,98	1	1	1	0	0	1	1	1	0	3	75%
EW.18	0,64	0,299	0,1				0,013				0,005				0,21	0,021	0,104	11,71	17,21	1	1	1	1	1	1	1	1	0	3	75%
EW.19	0,55	0,126	0,1				0,013				0,005				0,20	0,009	0,046	14,77	17,00	1	1	1	1	1	1	1	1	0	3	75%
EW.20	0,575	0,269	0,1				0,013				0,005				0,20	0,019	0,095	10,62	17,23	1	1	1	1	1	1	1	1	0	3	75%
EW.21	1,34	0,735	0,1				0,013				0,005				0,25	0,055	0,222	9,82	17,68	1	1	1	0	0	1	1	1	0	3	75%
EW.22	0,91	0,223	0,1				0,013				0,005				0,23	0,017	0,073	14,35	17,00	1	1	1	1	0	1	1	1	0	3	75%
EW.23	0,7	0,254	0,1				0,013				0,005				0,21	0,019	0,087	10,66	17,22	1	1	1	1	1	1	1	1	0	3	75%
EW.24	0,6	0,082	0,1				0,013				0,005				0,20	0,006	0,030	15,45	17,01	1	1	1	1	1	1	1	1	0	3	75%
EW.25	0,55	0,18	0,1				0,013				0,005				0,20	0,013	0,067	10,84	17,16	1	1	1	1	1	1	1	1	0	3	75%
EW.26	0,49	0,056	0,1				0,013				0,005				0,19	0,004	0,022	15,68	17,02	1	1	1	1	1	1	1	1	0	3	75%
EW.27	0,31	0,042	0,1				0,013				0,005				0,15	0,004	0,023	15,93	17,08	1	1	1	1	1	1	1	1	0	3	75%
EW.28	0,34	0,039	0,1				0,013				0,005				0,16	0,003	0,016	13,72	17,00	1	1	1	1	1	1	1	1	0	3	75%
																			EVALUATION RESULTS	**100%**	**100%**	**83%**	**53%**	**43%**	**97%**	**100%**	**93%**	**0%**	**73%**	

	A-B	C	D	E	F
% of residential buildings by climatic zone	5,74	22,1	22,9	43,1	6,2
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement	5,74	22,1	19,08	22,99	2,687

73%	Total % of national residential buildings on which the solution is suitable to comply with the winter regime limit values required by the current law, after the efficiency improvement
8.847.862	Number of national residential buildings that comply with the limit values after the efficiency improvement
53%	Total % of national residential buildings that comply with both winter and summer regime limit values, after the efficiency improvement

SUMMARY
INTERIOR INSULATION SYSTEM - SOLUTION IIS.02

INSULATION - Semi-rigid extruded polystyrene (XPS) insulation panel		
Thickness	[m]	**0,1**
Conductivity	[W/mK]	**0,031**
Specific heat	[J/kgK]	1210
Density	[kg/m3]	18
GYPSUM PLASTERBOARD		
Thickness	[m]	0,013
Conductivity	[W/mK]	0,21
Specific heat	[J/kgK]	1000
Density	[kg/m3]	754
RENDER/CLADDING		
Thickness	[m]	0,005
Conductivity	[W/mK]	0,7
Specific heat	[J/kgK]	1000
Density	[kg/m3]	1400
THICKNESS TOT		**0,118**

EVALUATION RESULTS
% of residential buildings by climatic zone that comply with winter regime limit values after the efficiency improvement

A-B	**100%**
C	**100%**
D	**83%**
E	**53%**
F	**43%**

Total % of national residential buildings on which the solution is suitable to comply with limit values required by the current law, after the efficiency improvement

73% **winter regime**

97% **summer regime**