



Hooramco

The designer, manufacturer and operator of window and facade systems was established and launched in 2007. Designing and producing exclusive profiles with the "Horal" brand, as well as the presence of expert and experienced personnel in the central office, sales offices and factories, and the use of advanced machines and quality raw materials, as well as compliance with production standards, implementation and after-sales services has made **Hooramco** one of the largest window and facade manufacturers in the industry.

Central Office : Unit 202 , Aseman e Sardar Building
Sardar e Jangal Blv , Hashemi Rafsanjani Hwy , Tehran , Iran

Fctory : Unit 45 , 19 St , Kaveh industrial city , Saveh , Iran

🌐 www.hooramco.com ✉ info@hooramco.com

☎ +9821 47 236 000

project; it means establishing a
form, within an order

Louis Kahn



DOOR & WINDOW SYSTEMS





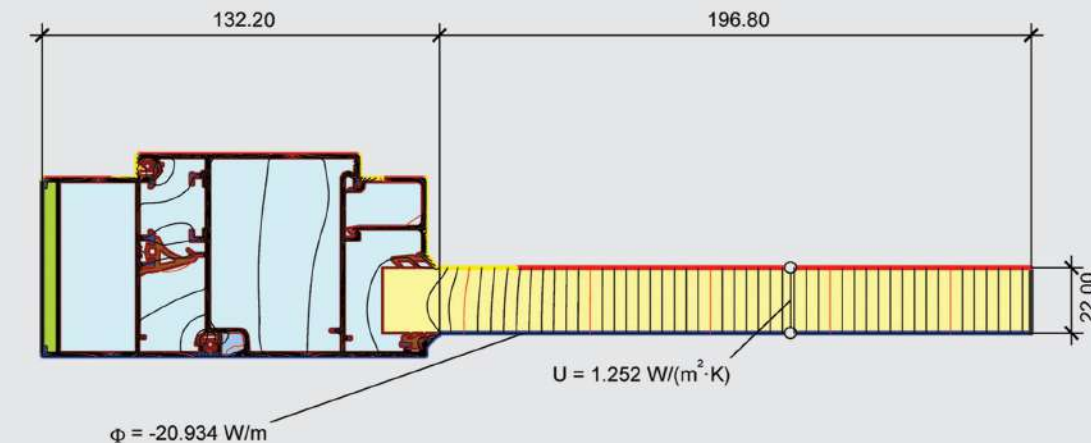
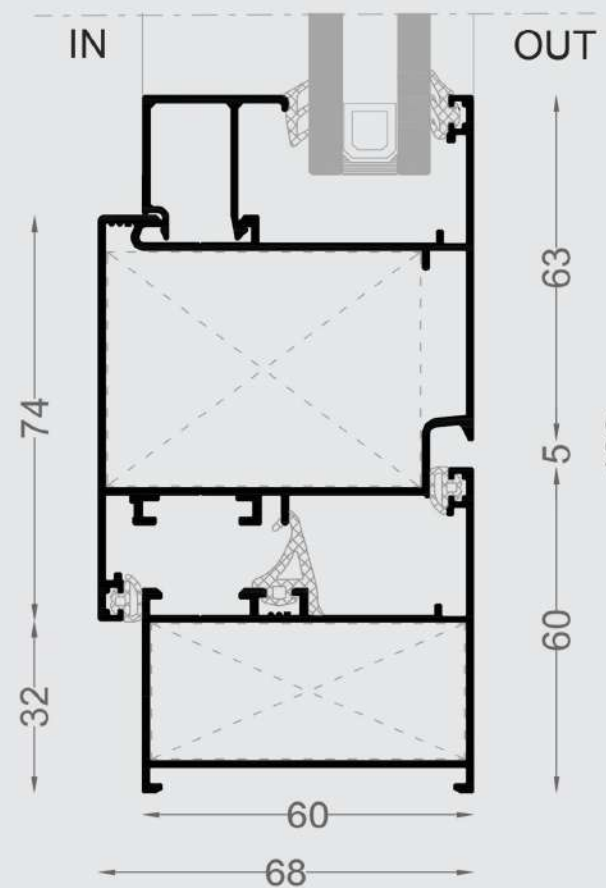
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	60
VENT DEPTH	68
VISIBLE HEIGHT	128
WALL THICKNESS	1.3
GLASS THICKNESS	6-30
THERMAL INSULATION	without

HW 60-N

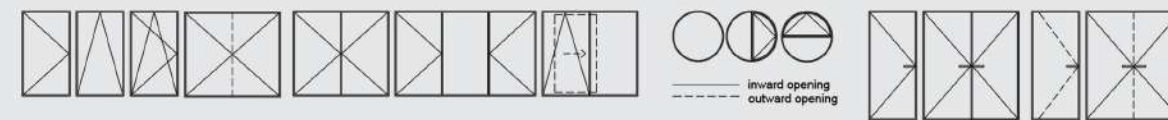
هورالكو

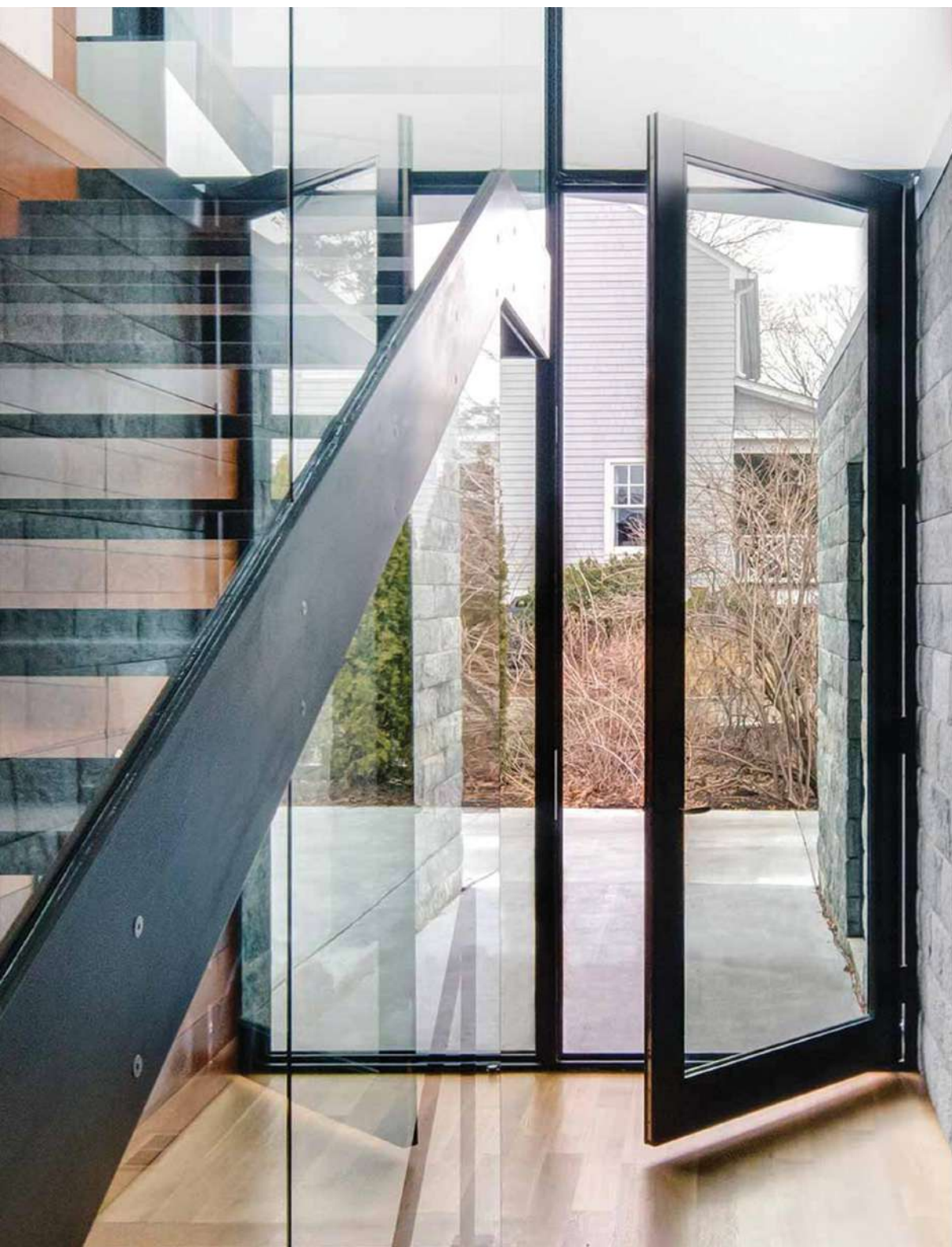


$$U_f = \frac{\frac{20.934}{20.000} - 1.252 \cdot 0.197}{0.132} = 6.05 \text{ W/(m}^2\cdot\text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000	0.040	
Panel	0.035	0.900	Interior, Frame, Normal		20.000	0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000	0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section		0.000		
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





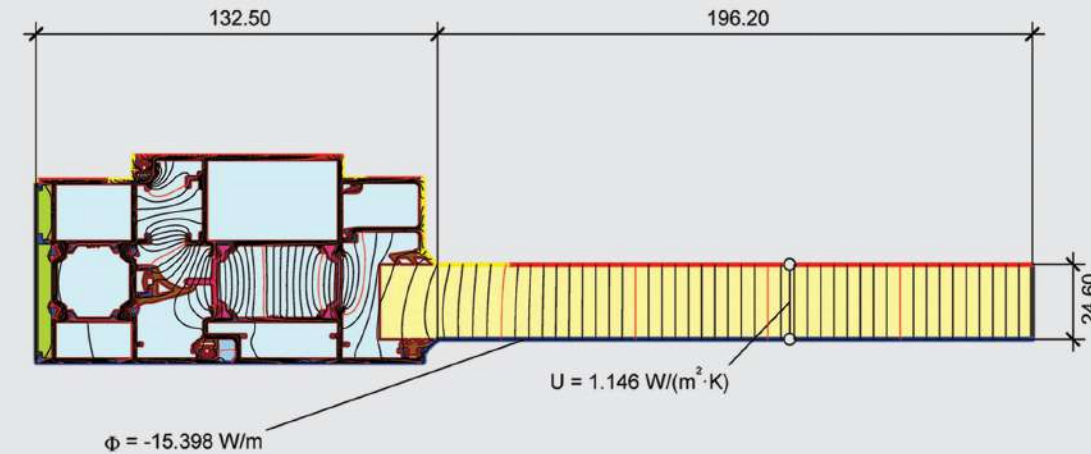
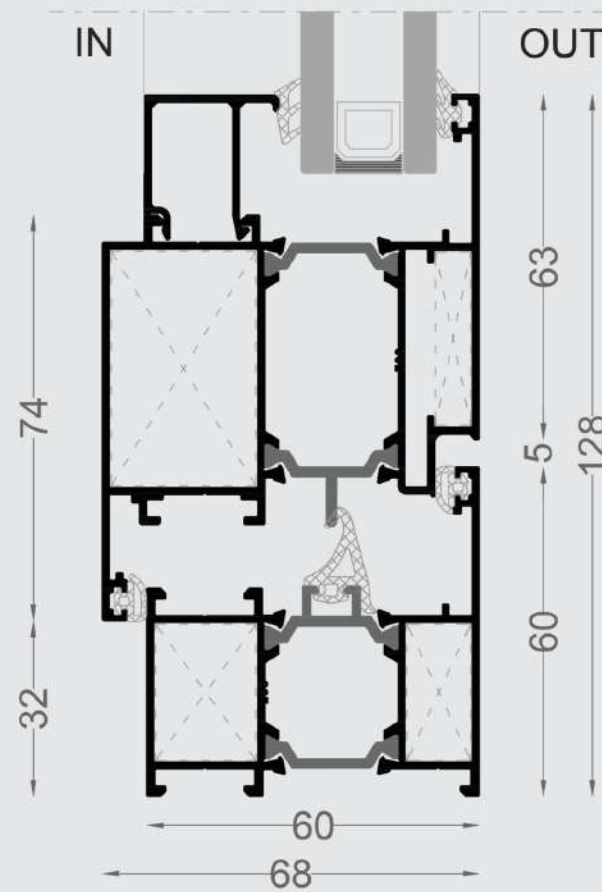
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	60
VENT DEPTH	68
VISIBLE HEIGHT	128
WALL THICKNESS	1.3
GLASS THICKNESS	6-30
THERMAL INSULATION	24

HW 60

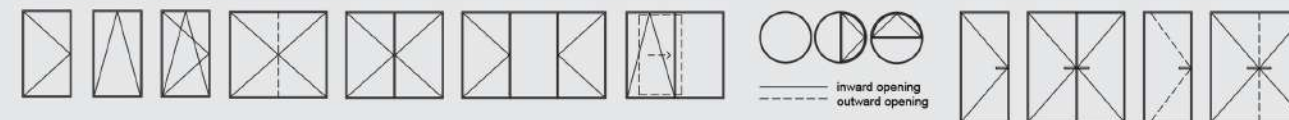
هورالکو



$$U_f = \frac{\frac{15.398}{20.000} - 1.146 \cdot 0.196}{0.133} = 4.11 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





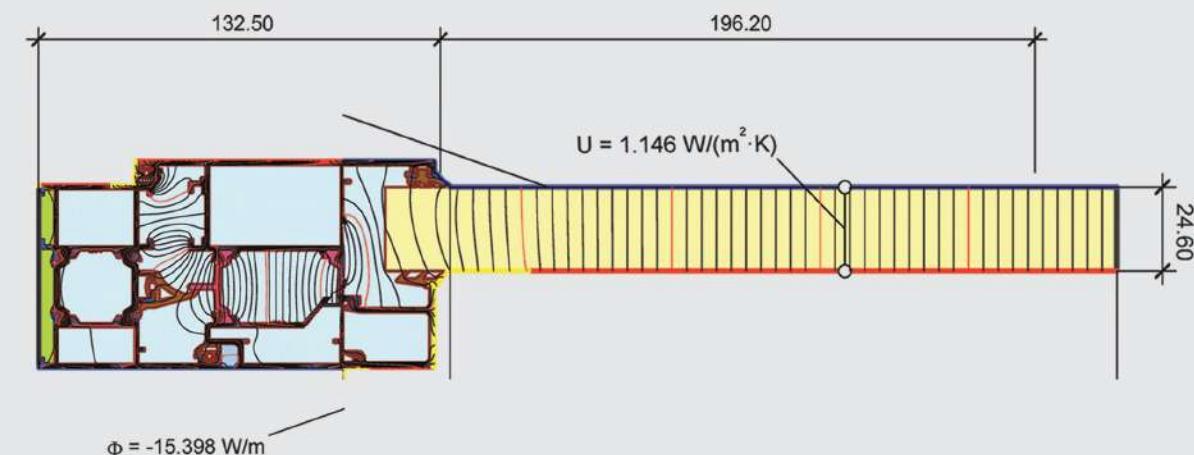
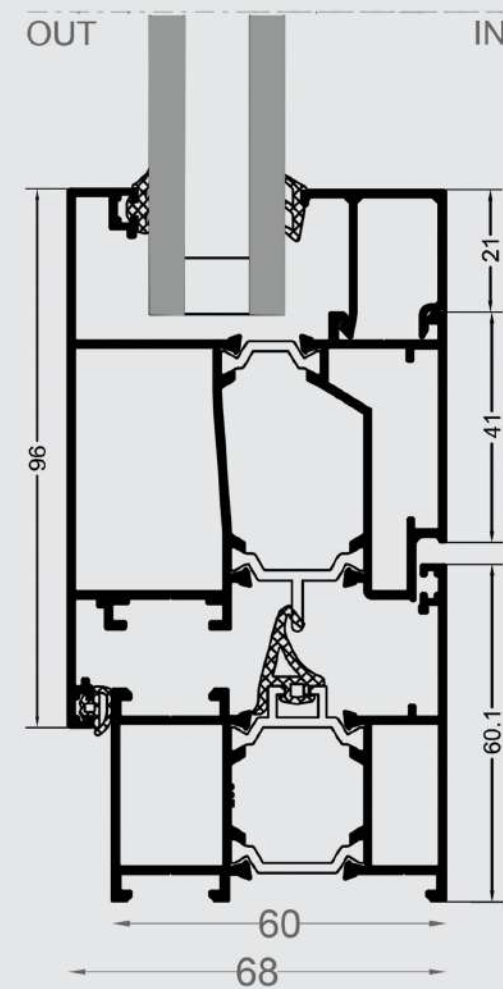
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	60
VENT DEPTH	68
VISIBLE HEIGHT	127
WALL THICKNESS	1.3
GLASS THICKNESS	6-30
THERMAL INSULATION	24

HW 60

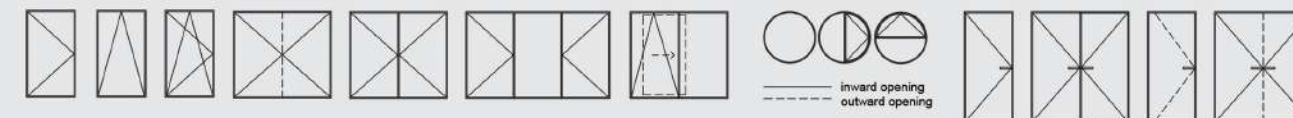
هورالكو



$$U_t = \frac{\frac{15.398}{20.000} - 1.146 \cdot 0.196}{0.133} = 4.11 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





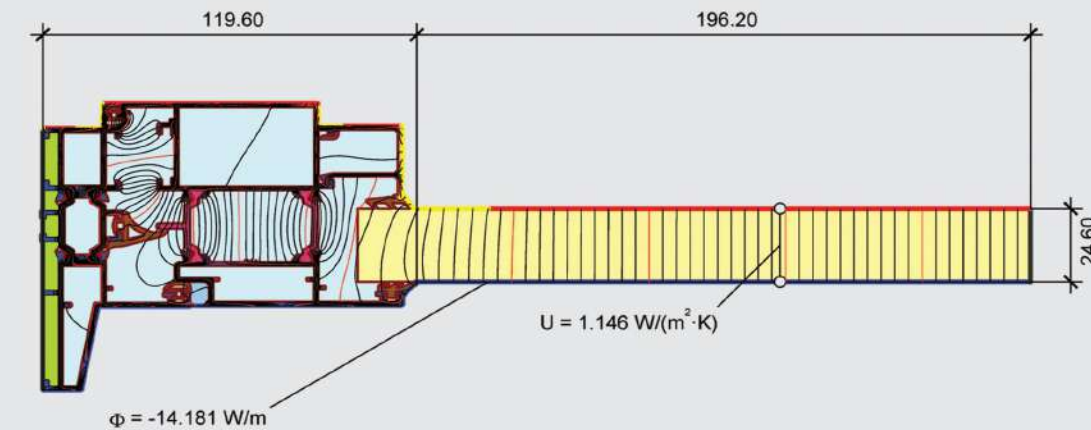
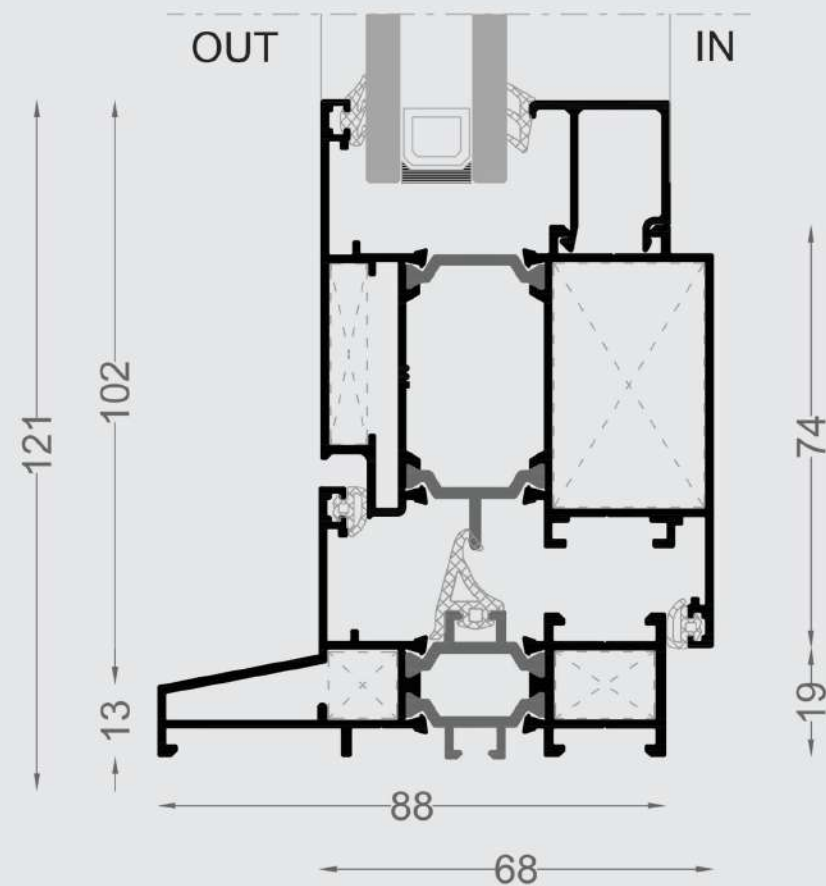
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	88
VENT DEPTH	68
VISIBLE HEIGHT	121
WALL THICKNESS	1.3
GLASS THICKNESS	6-30
THERMAL INSULATION	24

HW 60-88

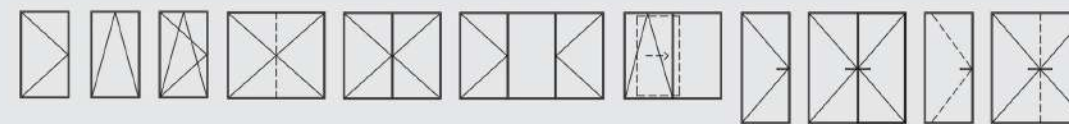
هورالکو



$$U_t = \frac{14.181}{20.000} - 1.146 \cdot 0.196 = 4.05 \text{ W/(m}^2\text{·K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section		0.000		
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





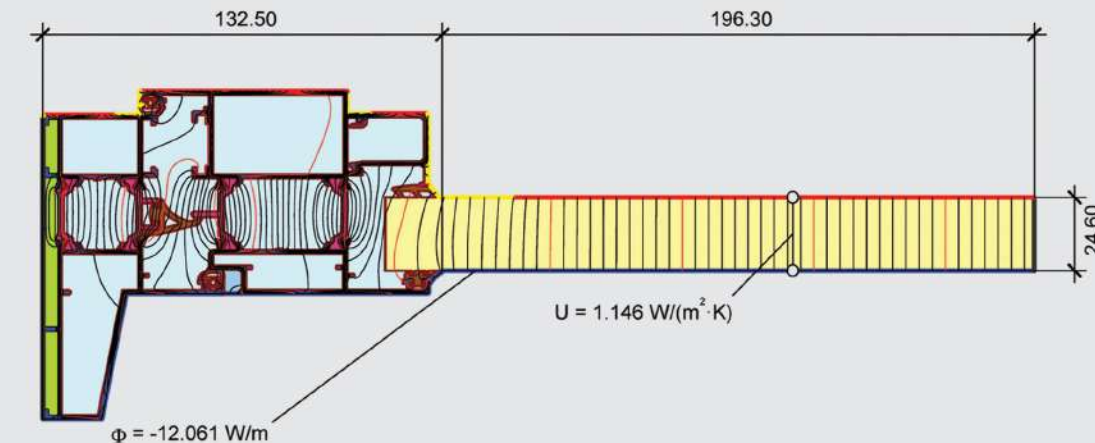
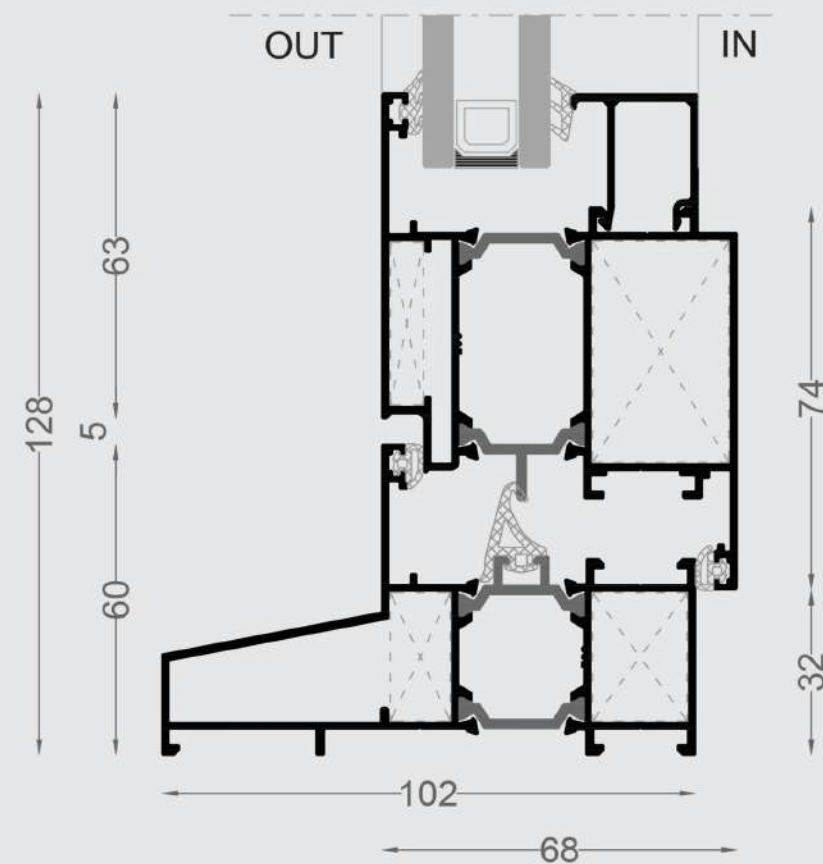
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	102
VENT DEPTH	68
VISIBLE HEIGHT	128
WALL THICKNESS	1.3
GLASS THICKNESS	6-30
THERMAL INSULATION	24

HW 60-102

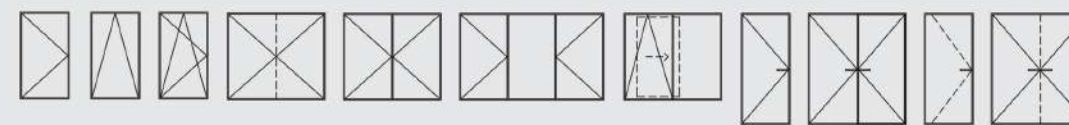
هورامکو



$$U_f = \frac{\frac{12.061}{20.000} - 1.146 \cdot 0.196}{0.133} = 2.85 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





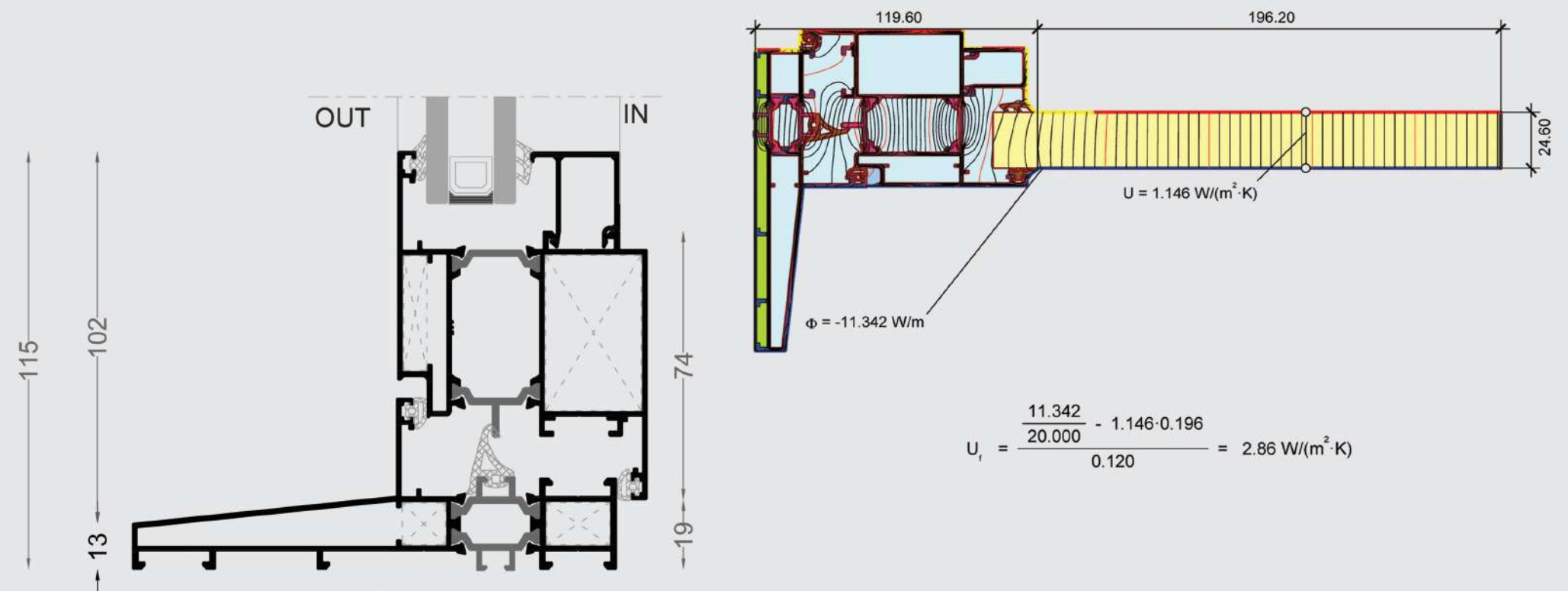
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	132
VENT DEPTH	68
VISIBLE HEIGHT	115
WALL THICKNESS	1.3
GLASS THICKNESS	6-30
THERMAL INSULATION	24

HW 60-132

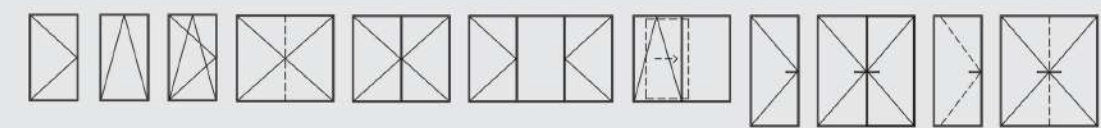
هورالكو



$$U_t = \frac{\frac{11.342}{20.000} - 1.146 \cdot 0.196}{0.120} = 2.86 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section		0.000		
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





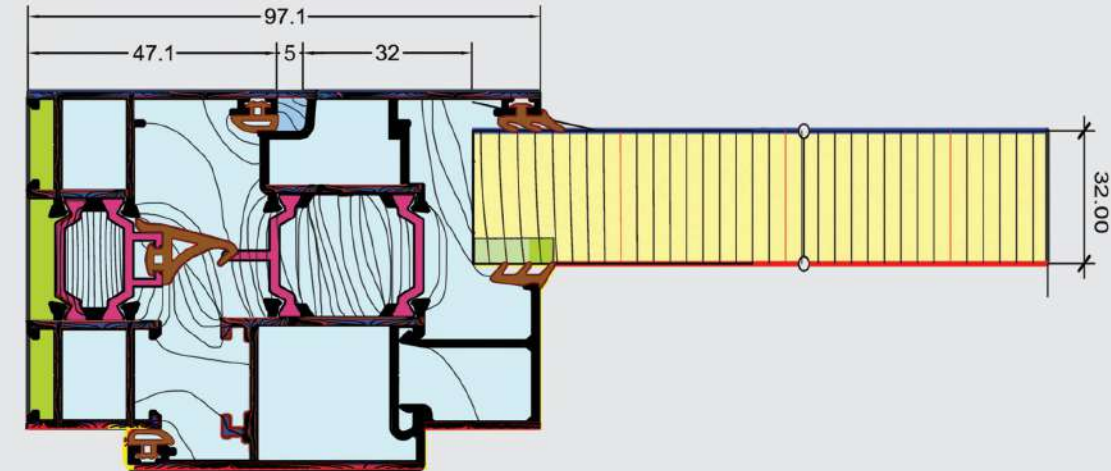
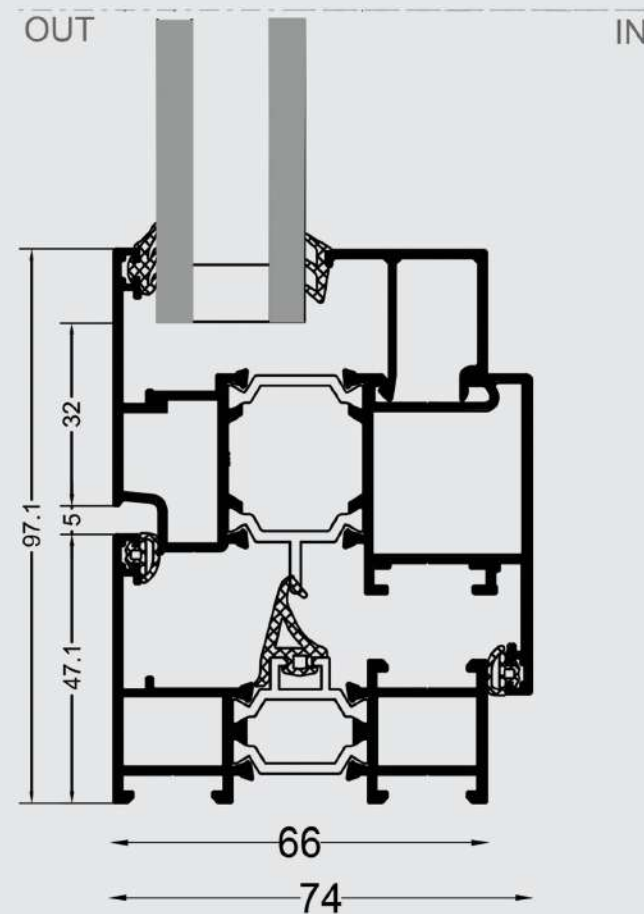
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	66
VENT DEPTH	74
VISIBLE HEIGHT	97
WALL THICKNESS	1.6
GLASS THICKNESS	12-36
THERMAL INSULATION	24

HW 66

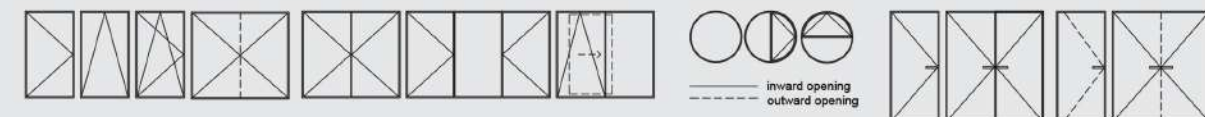
هورالكو



$$U_{TAB} = \frac{9.228}{20.000} - \frac{0.922 \cdot 0.193}{0.102} = 2.78 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





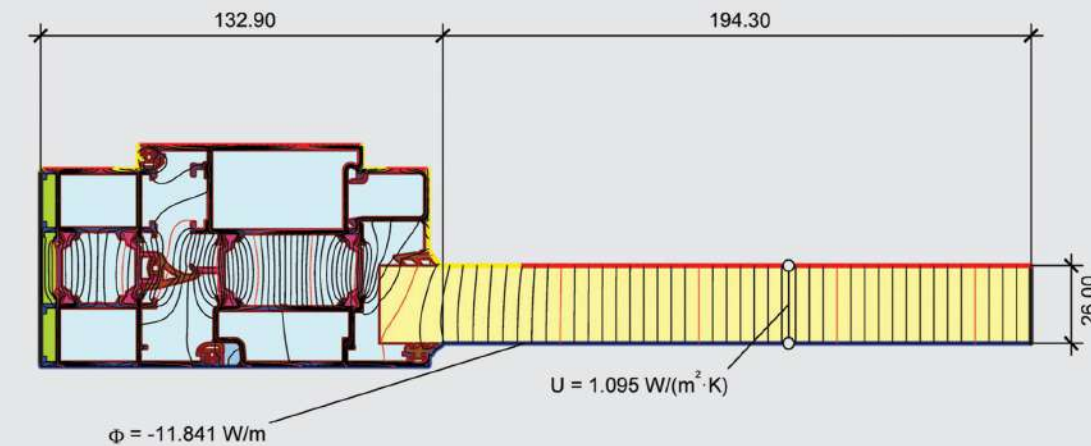
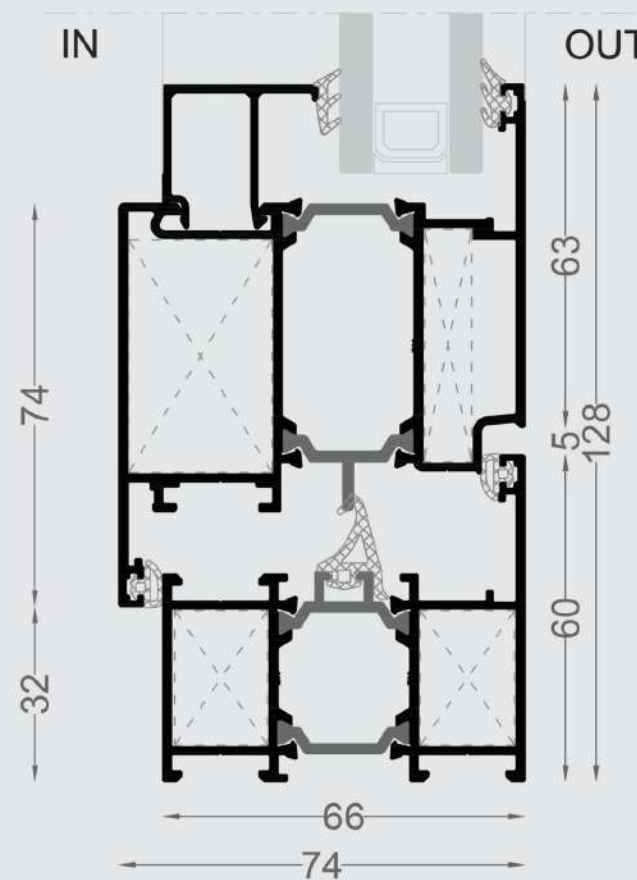
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	66
VENT DEPTH	74
VISIBLE HEIGHT	128
WALL THICKNESS	1.6
GLASS THICKNESS	12-36
THERMAL INSULATION	24

HW 66

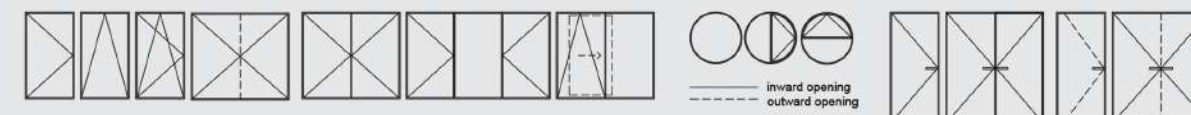
هورالكو



$$U_f = \frac{\frac{11.841}{20.000} - 1.095 \cdot 0.194}{0.133} = 2.85 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





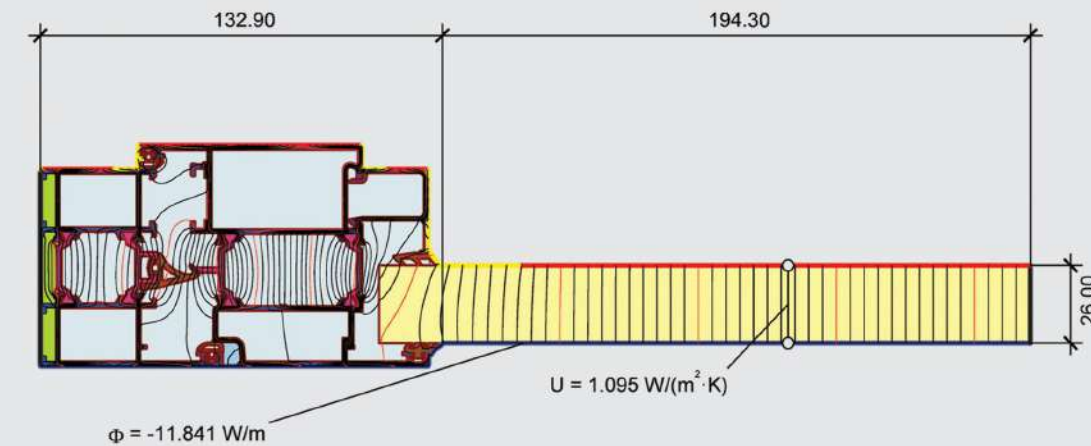
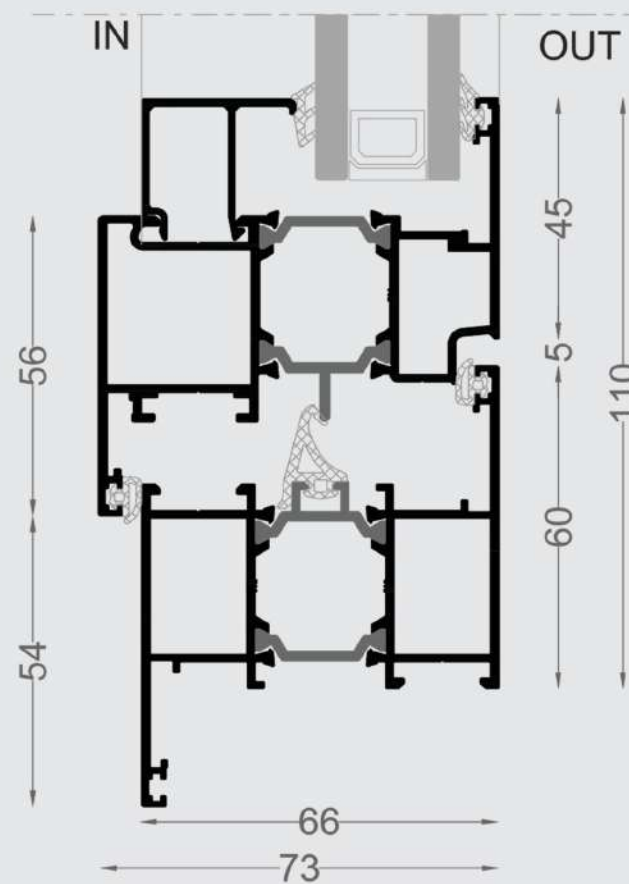
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	66
VENT DEPTH	74
VISIBLE HEIGHT	132
WALL THICKNESS	1.6
GLASS THICKNESS	12-36
THERMAL INSULATION	24

HW 66

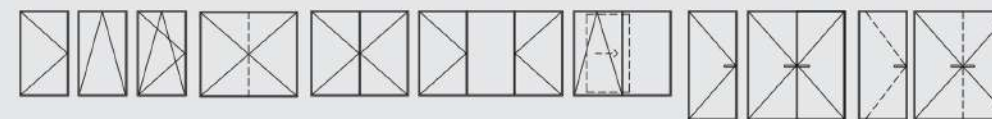
هورالكو



$$U_f = \frac{\frac{11.841}{20.000} - 1.095 \cdot 0.194}{0.133} = 2.85 \text{ W/(m}^2\cdot\text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section				
Unventilated air cavity *				0.000			

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





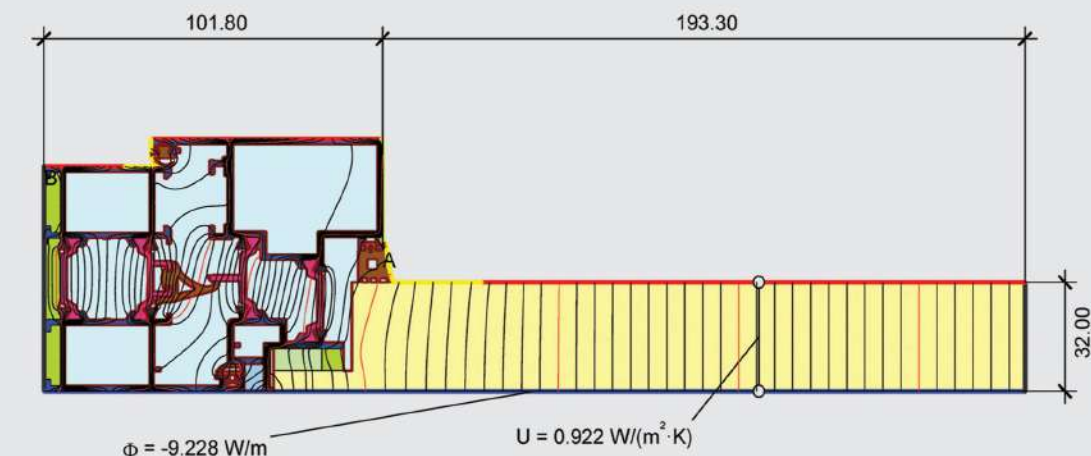
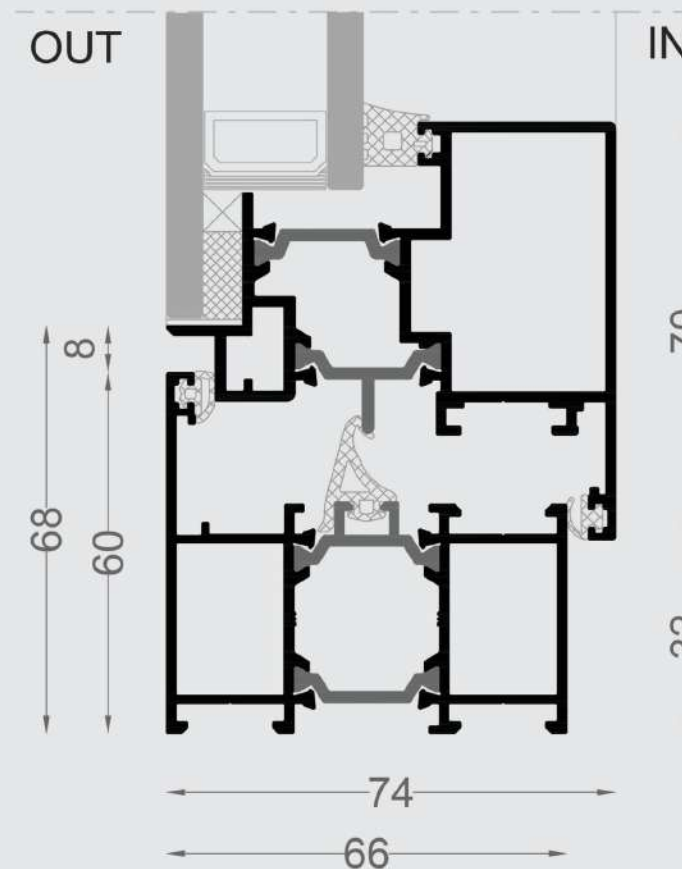
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	66
VENT DEPTH	74
VISIBLE HEIGHT	102
WALL THICKNESS	1.6
GLASS THICKNESS	32
THERMAL INSULATION	24

HW 66-GV

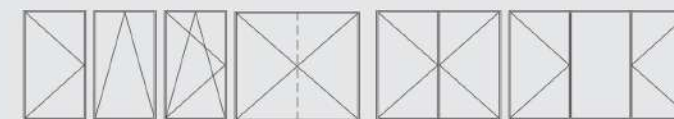
هورالگو



$$U_{TAB} = \frac{\frac{9.228}{20.000} - 0.922 \cdot 0.193}{0.102} = 2.78 \text{ W/(m}^2\cdot\text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





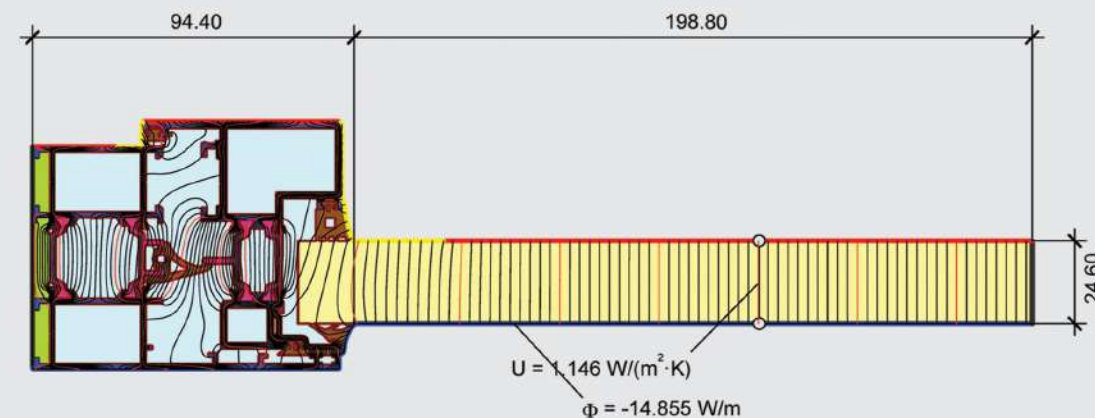
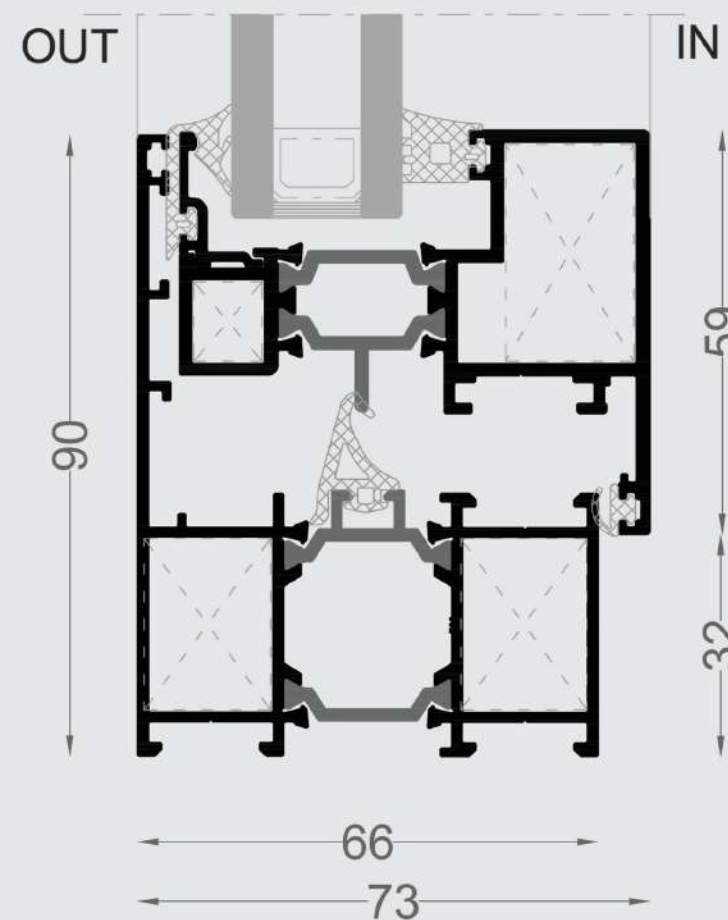
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	66
VENT DEPTH	67.5
VISIBLE HEIGHT	90
WALL THICKNESS	1.6
GLASS THICKNESS	6-26
THERMAL INSULATION	24

HW 66-HV

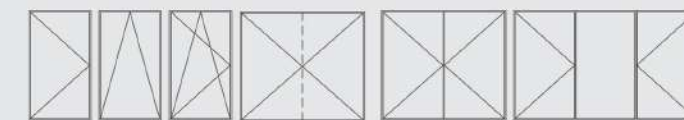
هورالکو



$$U_f = \frac{\frac{14.855}{30.000} - 1.146 \cdot 0.199}{0.094} = 2.83 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





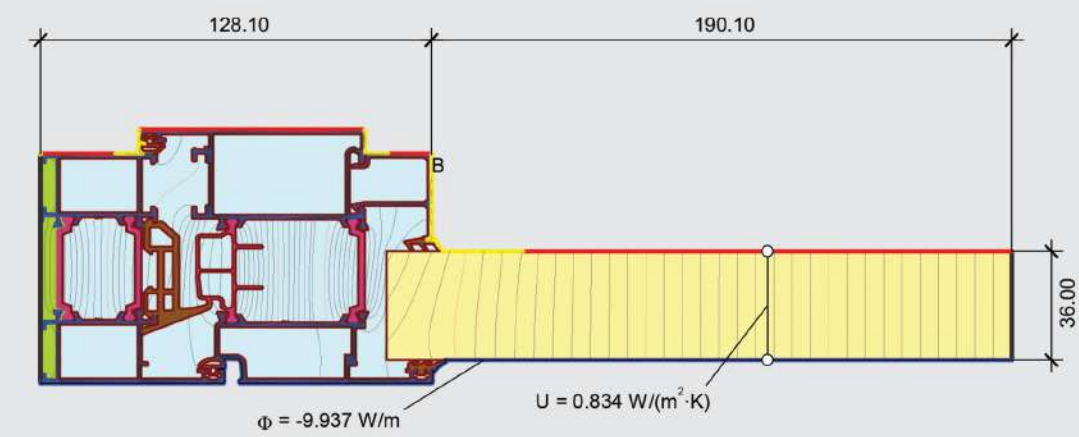
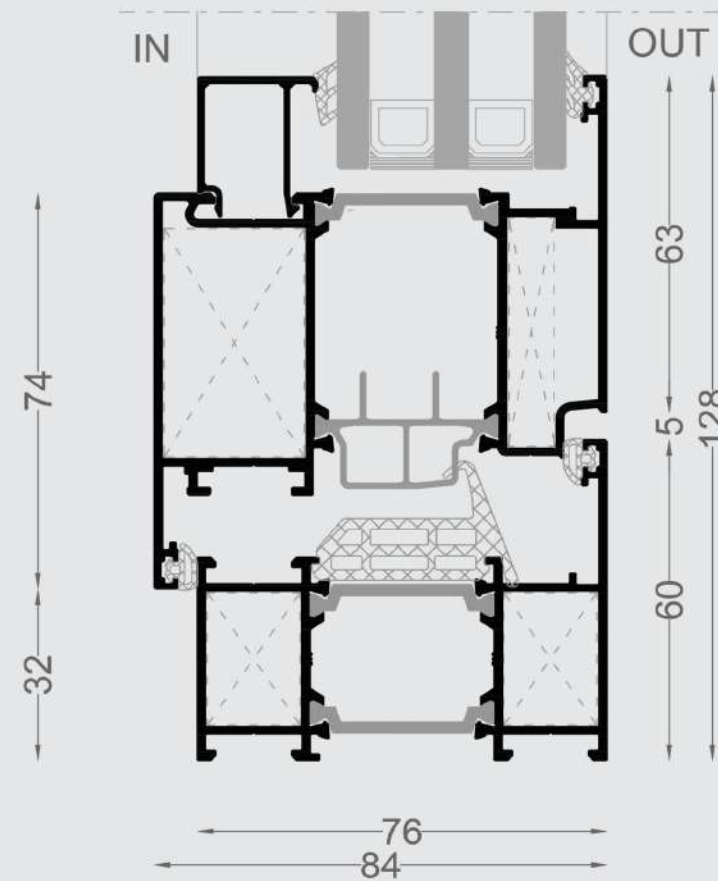
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	76
VENT DEPTH	84
VISIBLE HEIGHT	97
WALL THICKNESS	1.6
GLASS THICKNESS	22-46
THERMAL INSULATION	34

HW 76

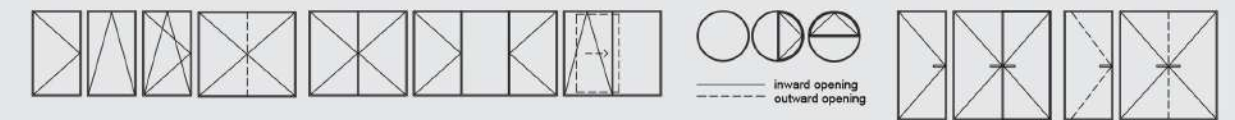
هورالکو



$$U_f = \frac{\frac{9.937}{20.000} - 0.834 \cdot 0.190}{0.128} = 2.64 \text{ W/(m}^2\cdot\text{K)}$$

Material	λ [W/(m.K)]	ϵ	Bondary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section		0.000		
Unventilated air cavity *				0.000			

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





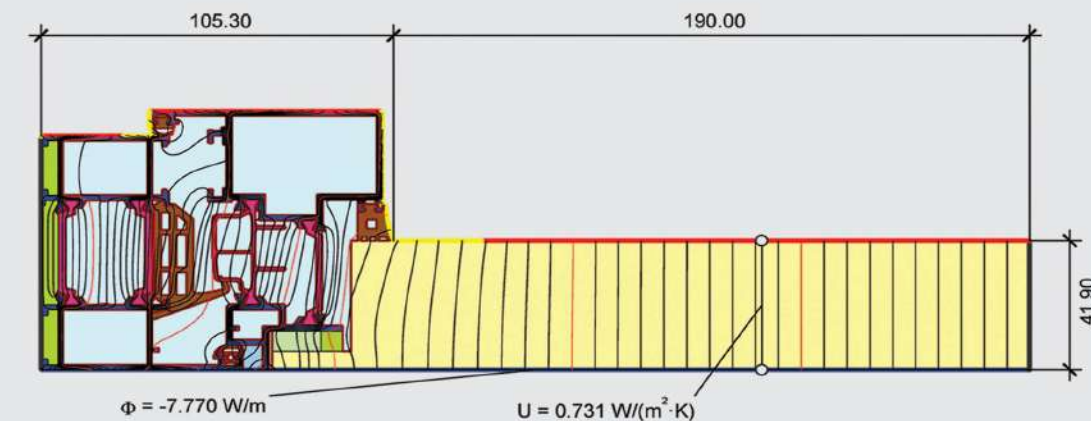
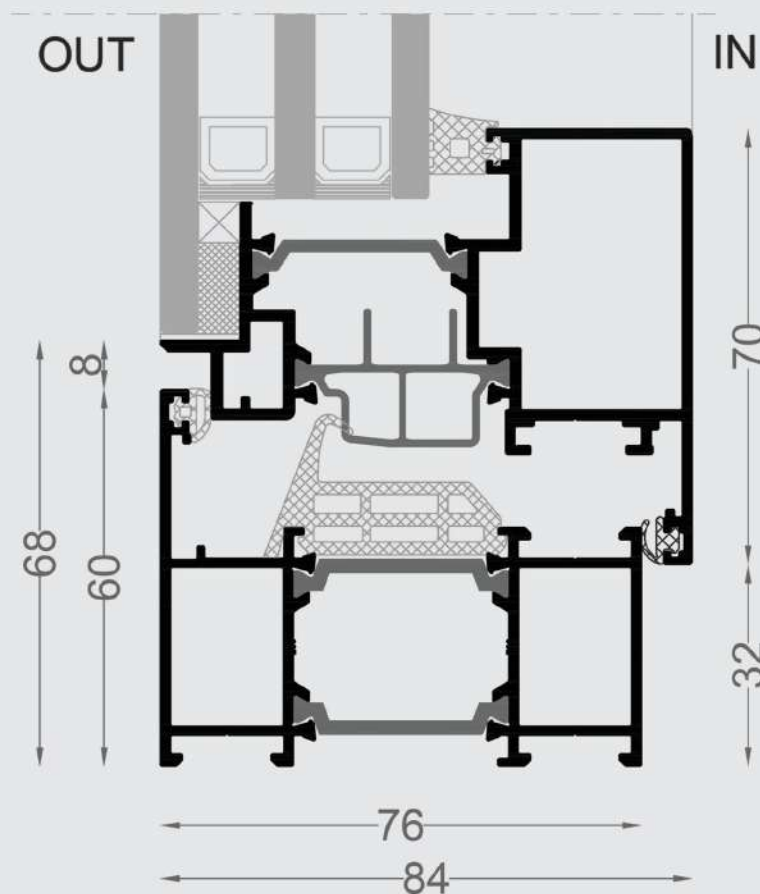
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	76
VENT DEPTH	84
VISIBLE HEIGHT	102
WALL THICKNESS	1.6
GLASS THICKNESS	42
THERMAL INSULATION	34

HW 76-GV

هورالكو



$$U_r = \frac{\frac{7.770}{20.000} - 0.731 \cdot 0.190}{0.105} = 2.37 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop

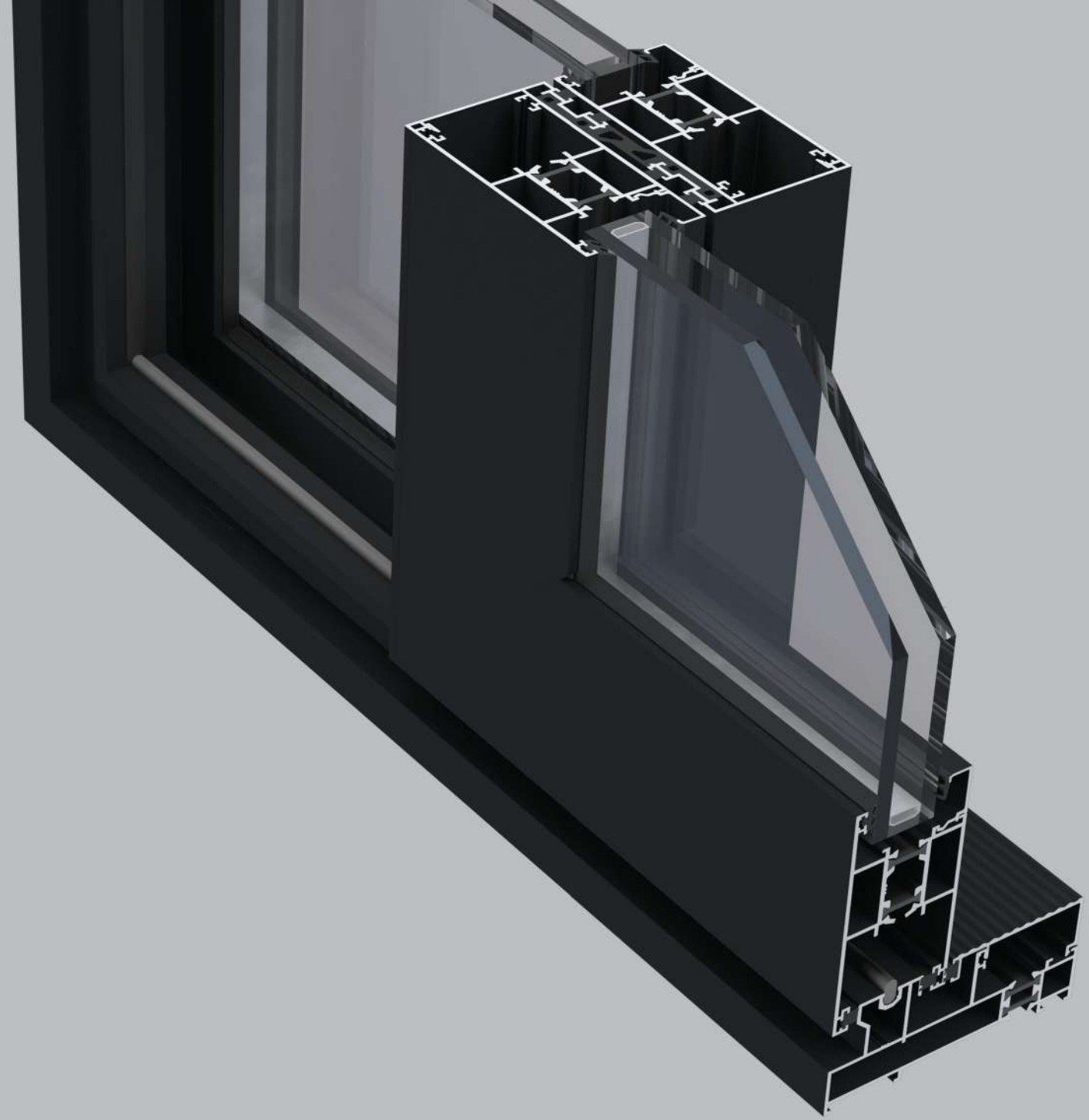




Scientific facts are an excuse for
architecture, not a justification for it

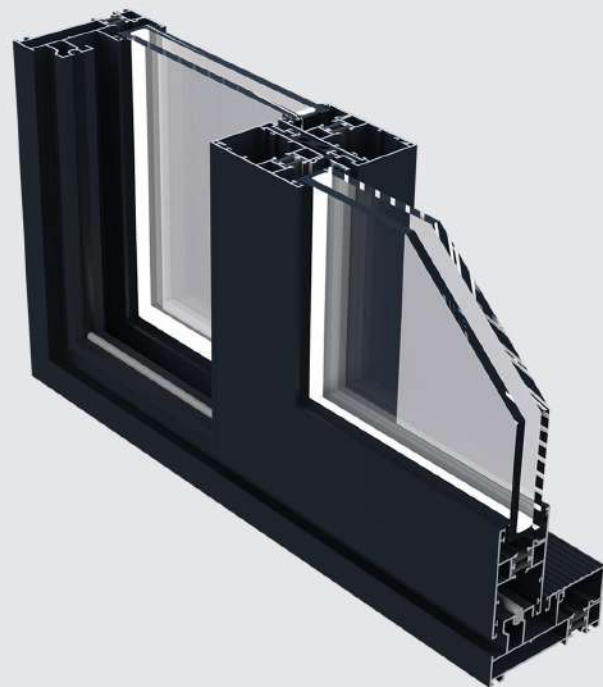
Peter Eisenman

SLIDING SYSTEMS





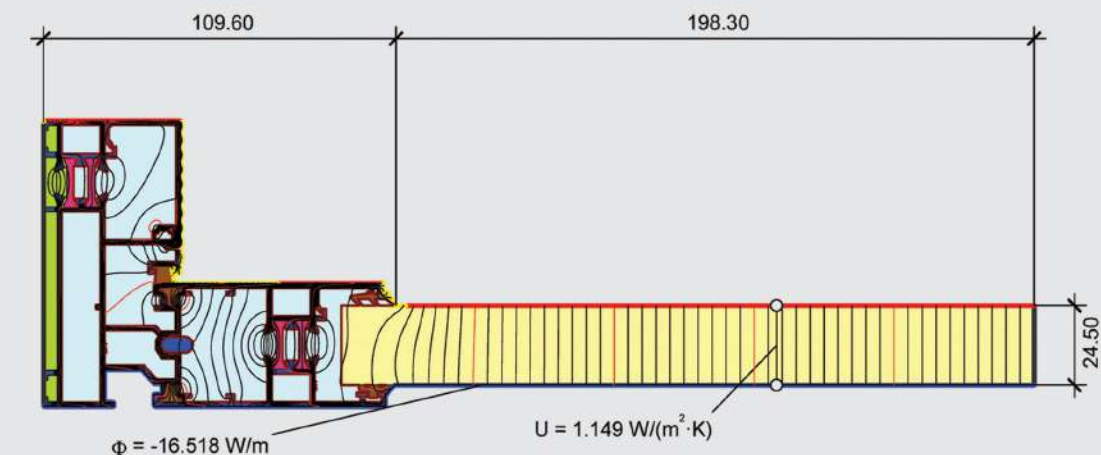
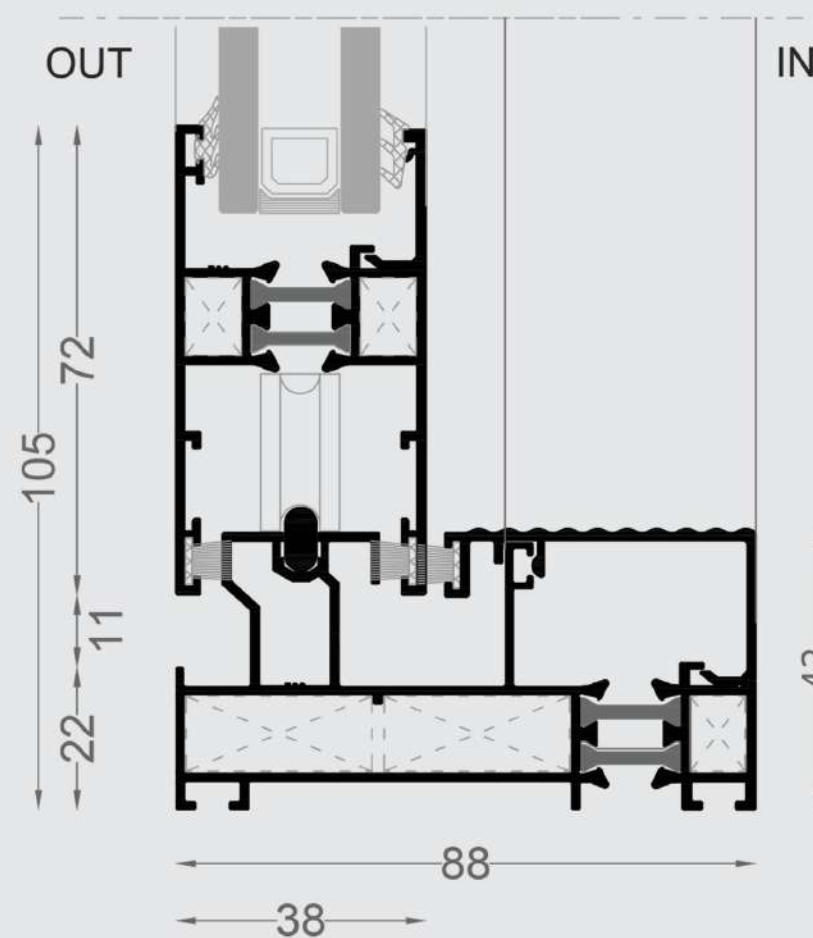
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	88
VENT DEPTH	38
VISIBLE HEIGHT	43-105
WALL THICKNESS	1.4
GLASS THICKNESS	24
THERMAL INSULATION	F15-V15

HS 88-M

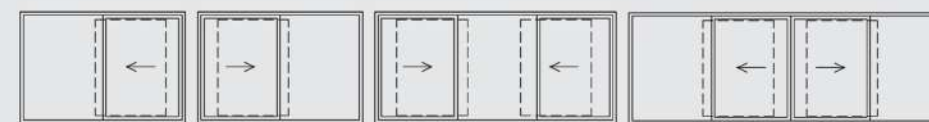
هورالكو



$$U_i = \frac{\frac{16.518}{20.000} - 1.149 \cdot 0.198}{0.110} = 5.46 \text{ W/(m}^2\cdot\text{K)}$$

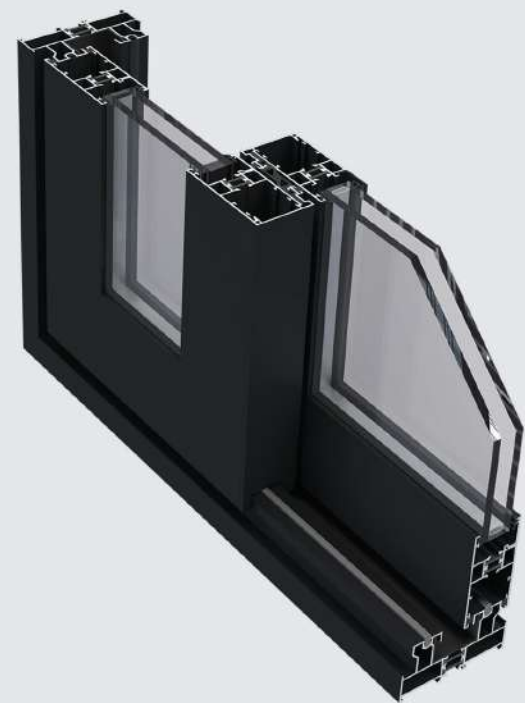
Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





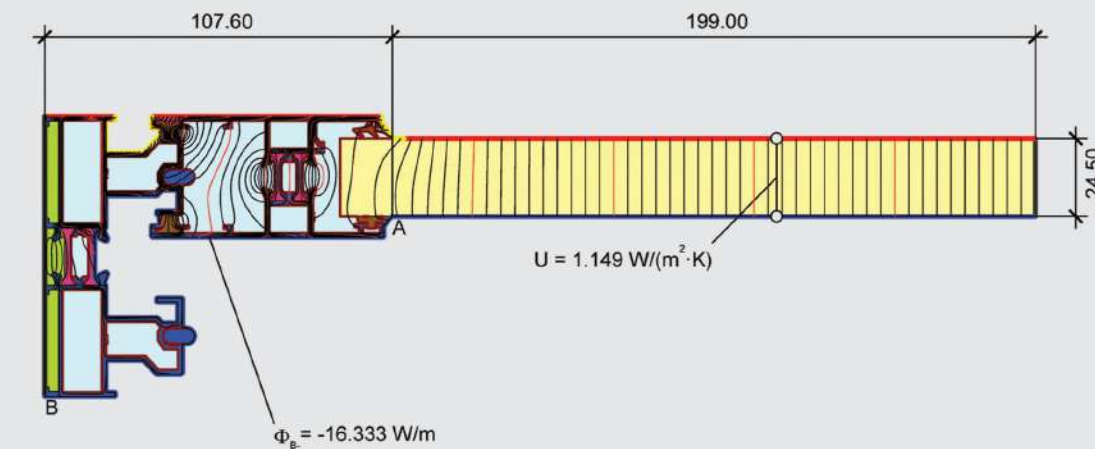
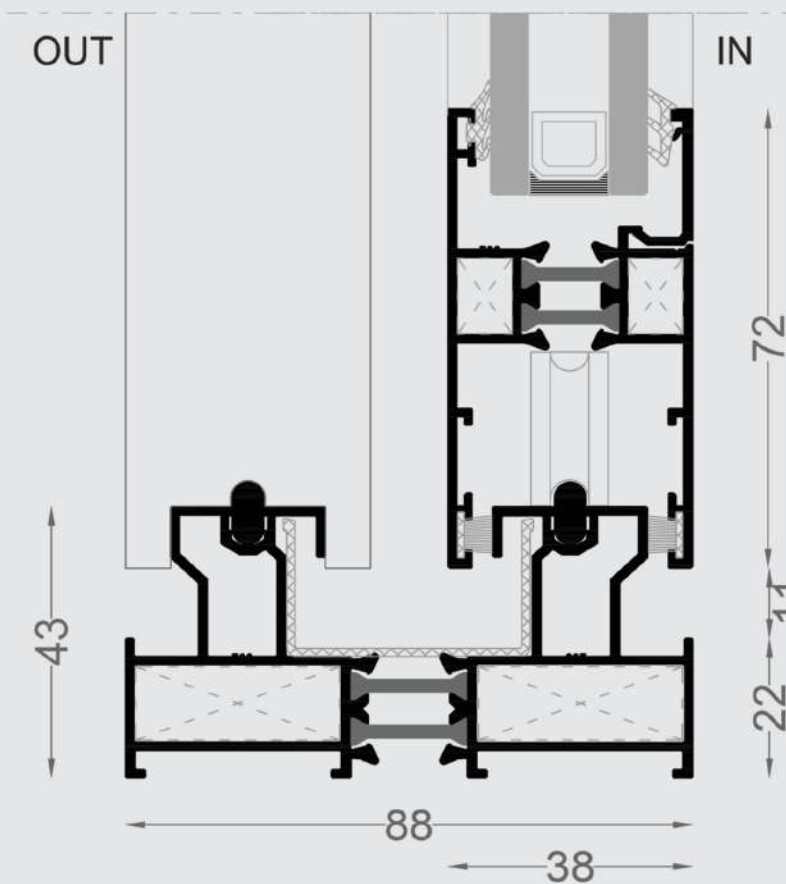
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	88
VENT DEPTH	38
VISIBLE HEIGHT	105
WALL THICKNESS	1.4
GLASS THICKNESS	24
THERMAL INSULATION	F18-V15

HS 88-D

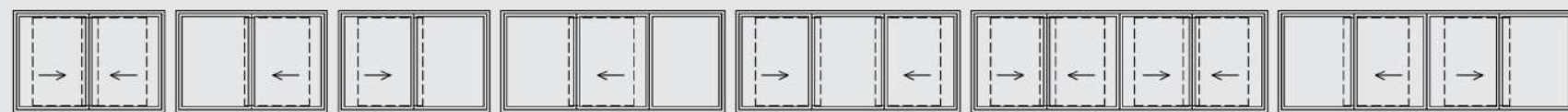
هورالكو



$$U_{f,a,b} = \frac{\frac{16.333}{20.000} - 1.149 \cdot 0.199}{0.108} = 5.46 \text{ W/(m}^2 \cdot \text{K)}$$

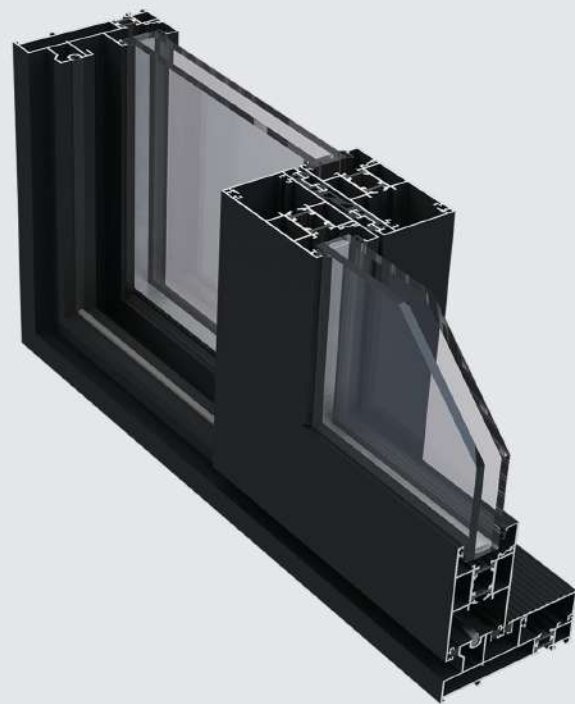
Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000			0.040
Panel	0.035	0.900	Interior, Frame, Normal	20.000			0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000			0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





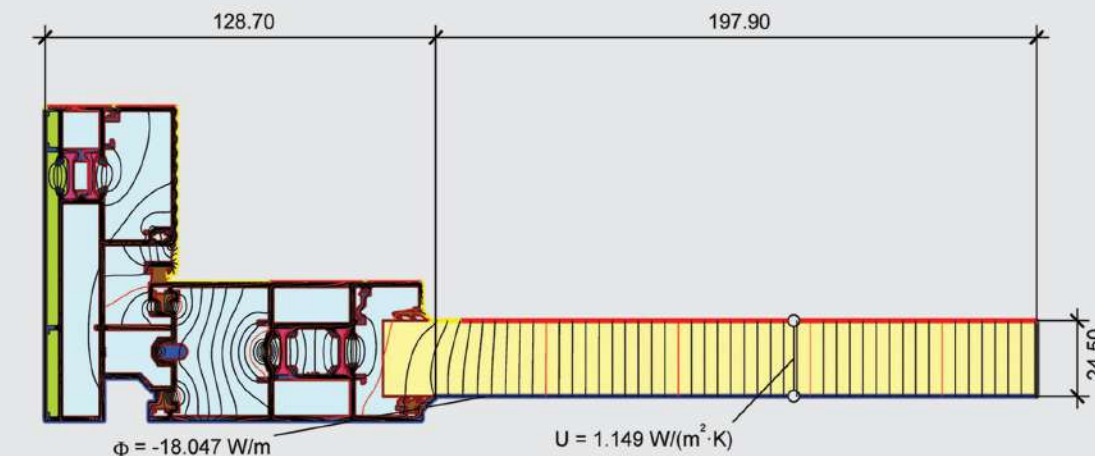
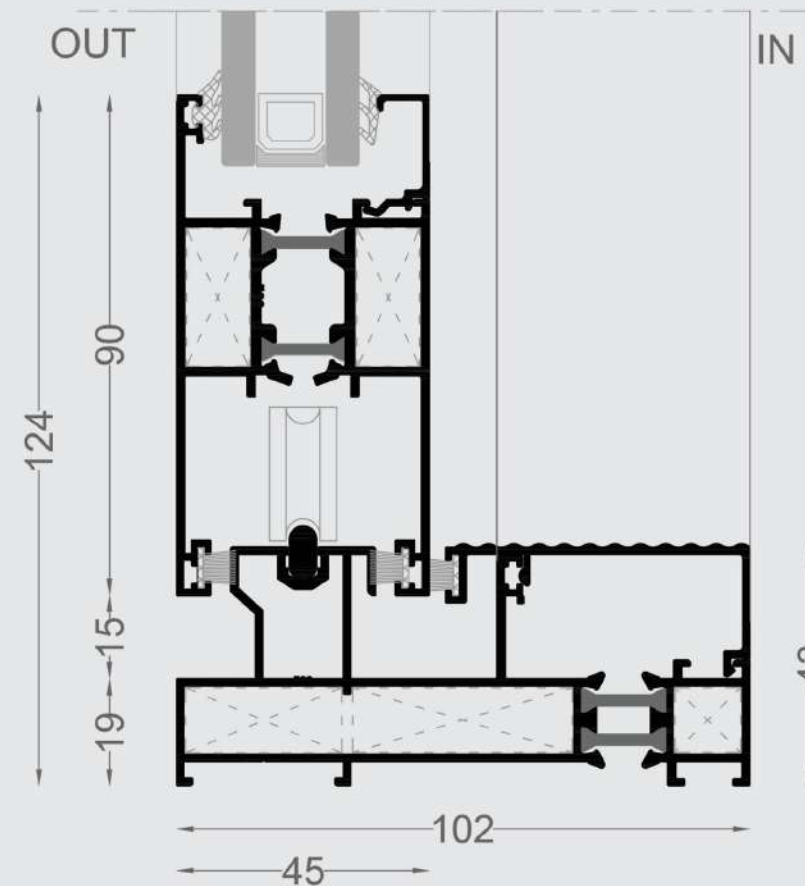
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	102
VENT DEPTH	45
VISIBLE HEIGHT	124
WALL THICKNESS	1.6
GLASS THICKNESS	24-30
THERMAL INSULATION	F15-V15

HS 102-M

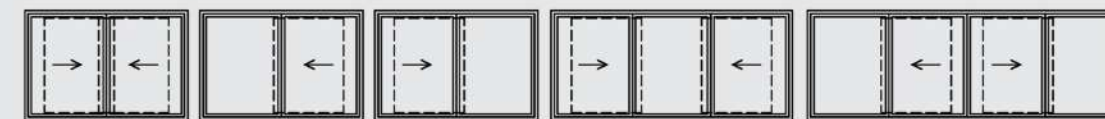
هورالكو

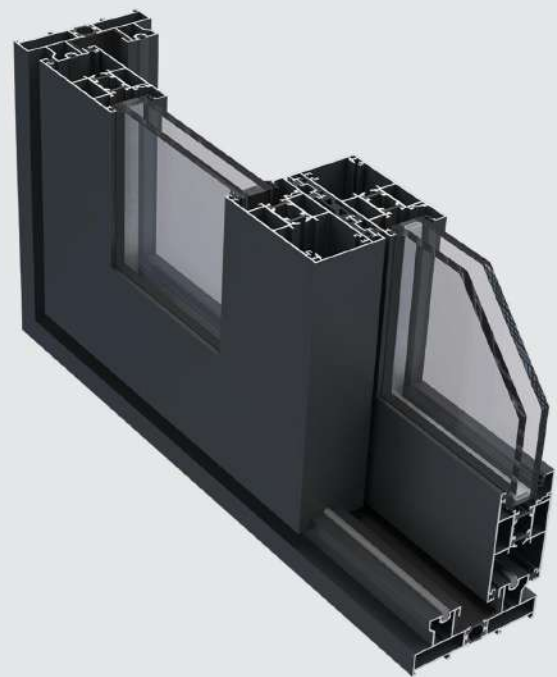


$$U_i = \frac{\frac{18.047}{20.000} - 1.149 \cdot 0.198}{0.129} = 5.24 \text{ W/(m}^2 \cdot \text{K)}$$

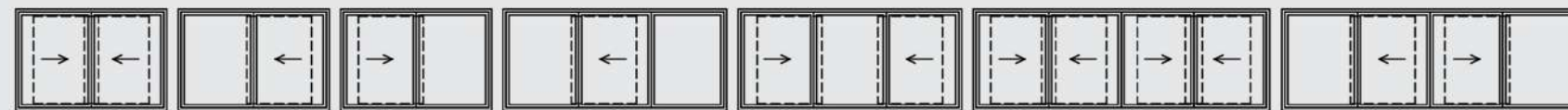
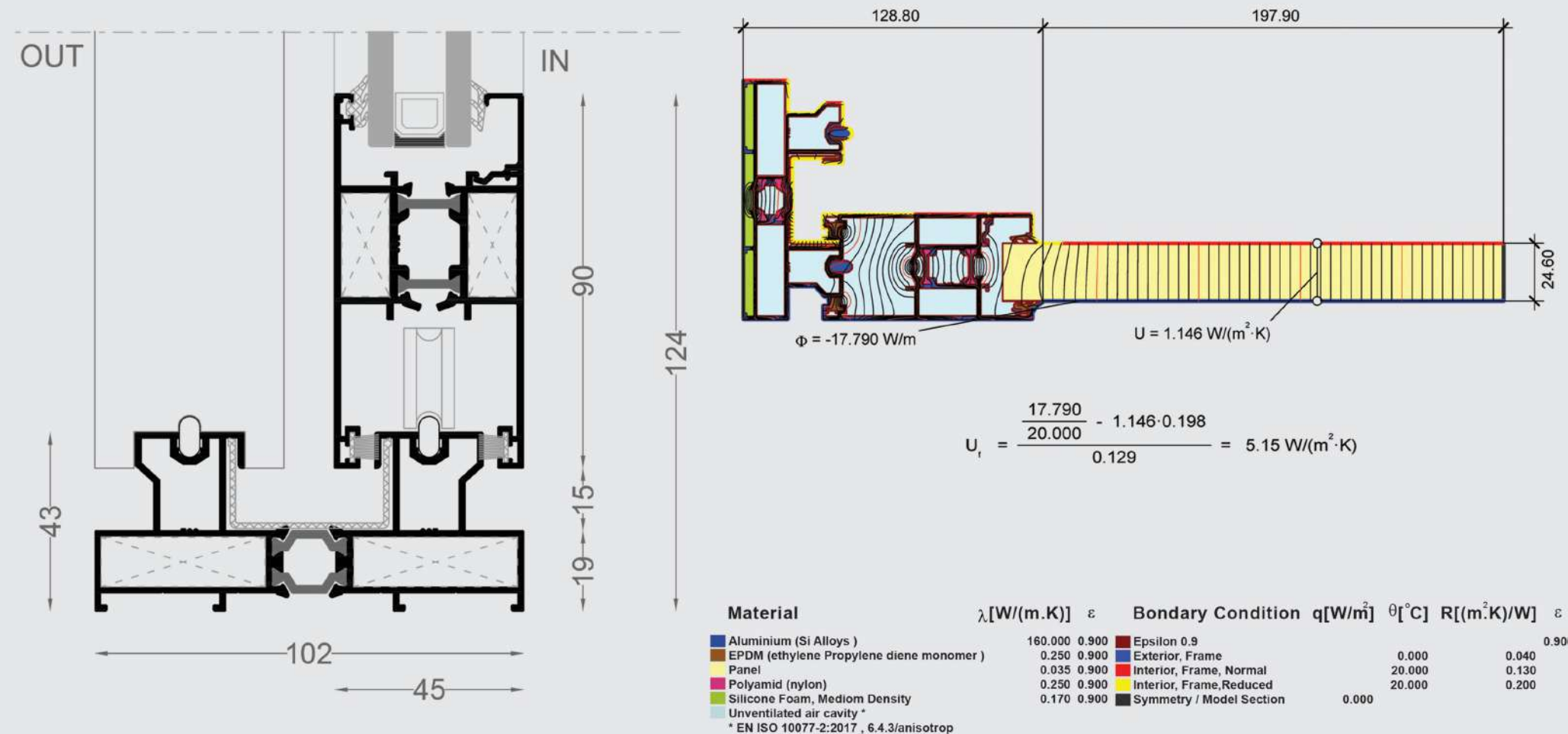
Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop



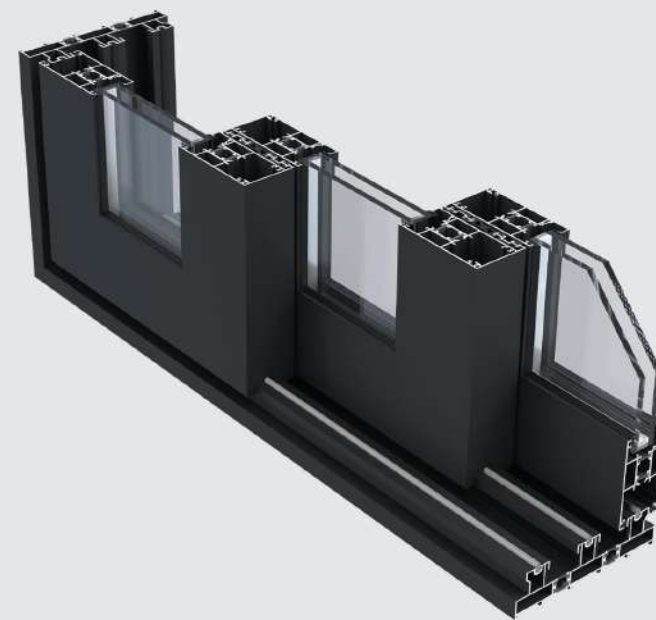


THECHNICAL PROPERTIES	
FRAME DEPHT	102
VENT DEPTH	45
VISIBLE HEIGHT	124
WALL THICKNESS	1.6
GLASS THICKNESS	24-30
THERMAL INSULATION	F18-V15





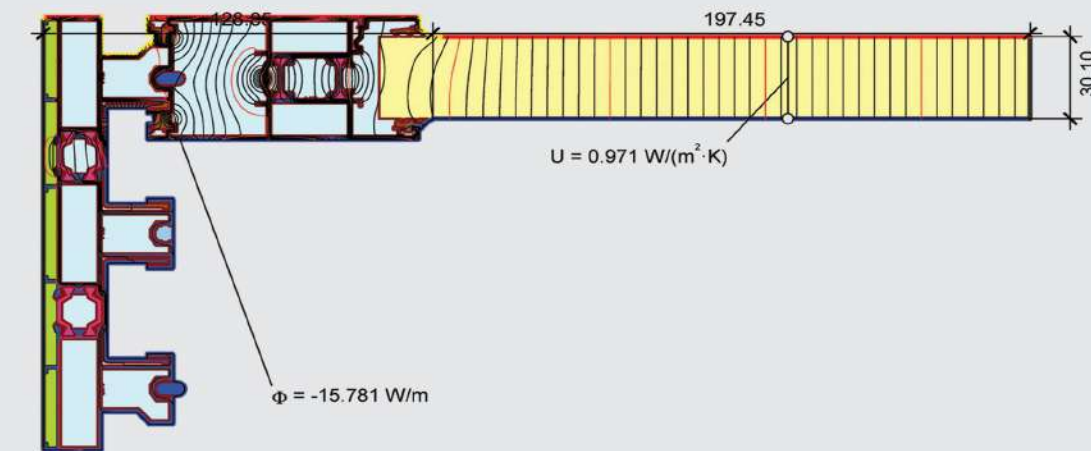
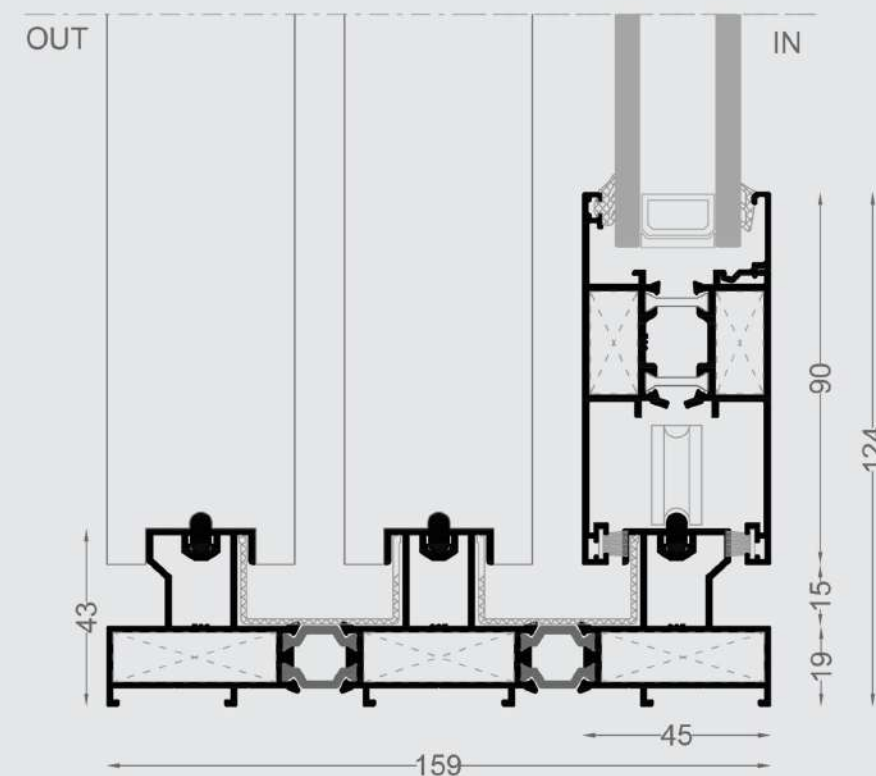
Horral



THECHNICAL PROPERTIES	
FRAME DEPHT	102
VENT DEPTH	45
VISIBLE HEIGHT	124
WALL THICKNESS	1.6
GLASS THICKNESS	24-30
THERMAL INSULATION	F15-V15

HS 102-T

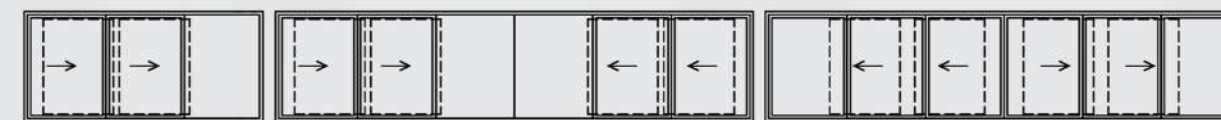
هورالكو



$$U_r = \frac{\frac{15.781}{20.000} - 0.971 \cdot 0.197}{0.129} = 4.64 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop

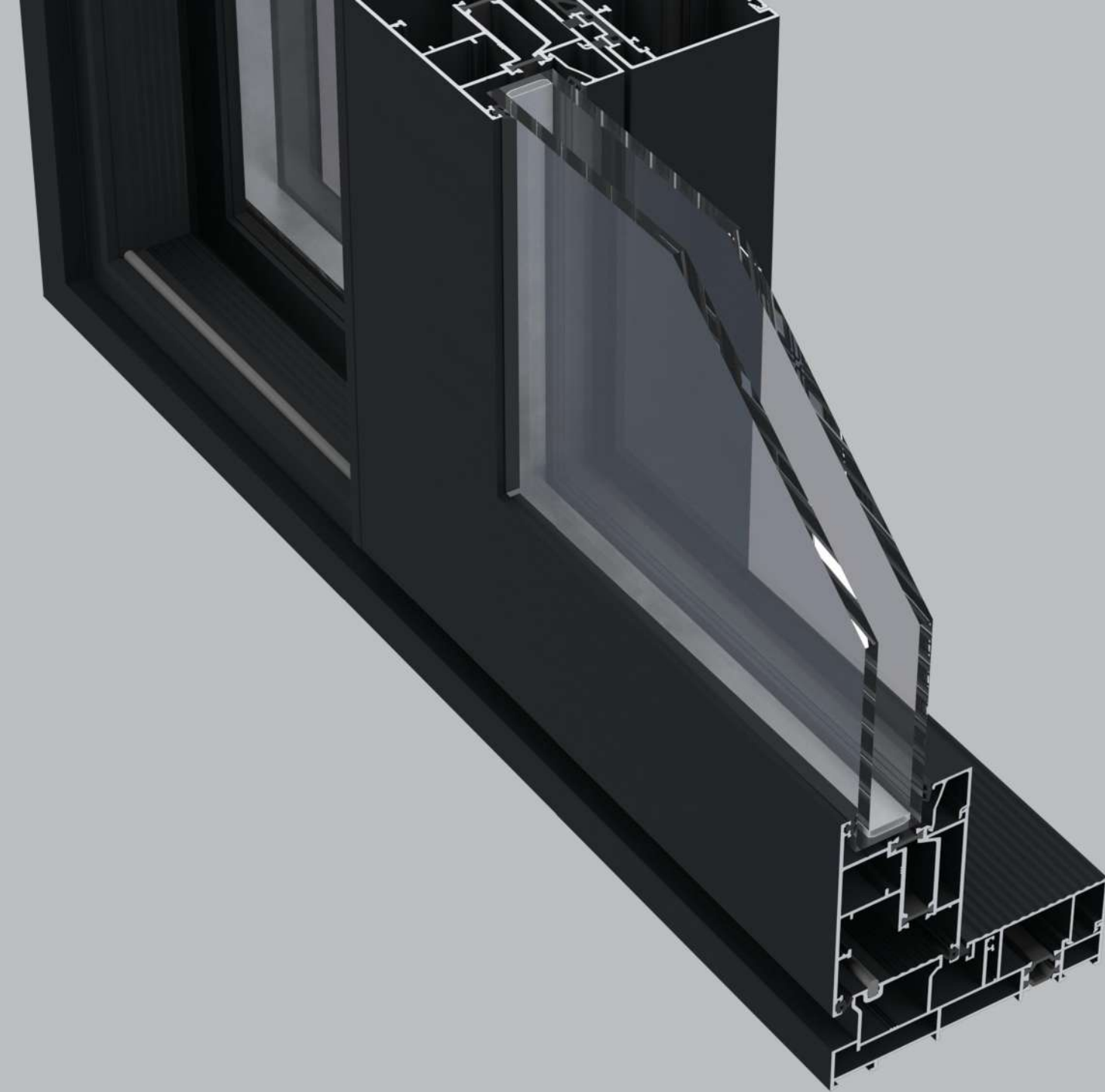


architecture is a trace of
time and space

Seyed Hadi Mirmiran



LIFT & SLIDING SYSTEMS





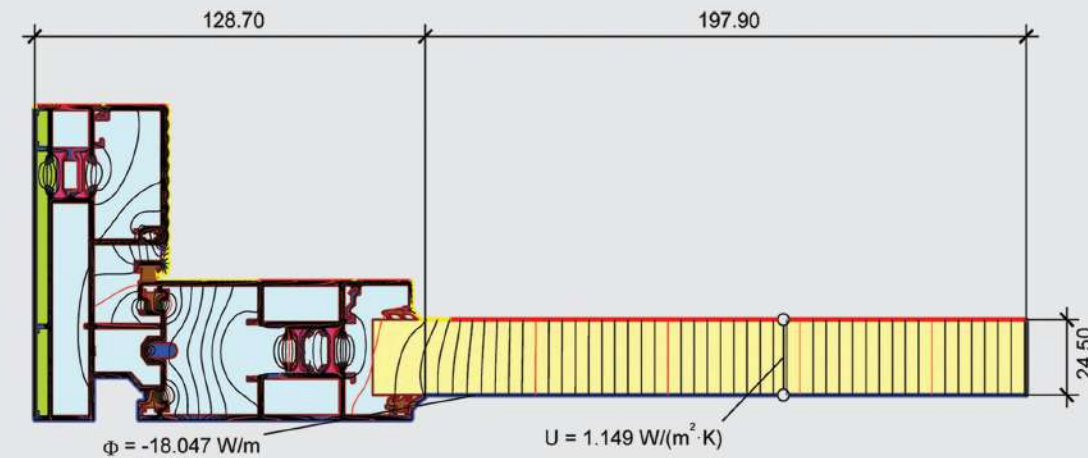
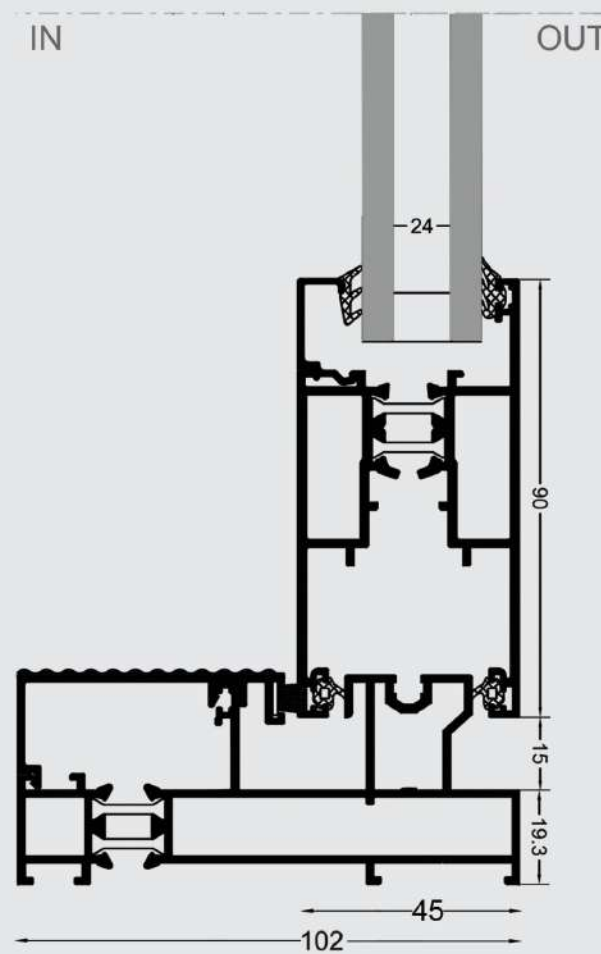
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	102
VENT DEPTH	45
VISIBLE HEIGHT	124
WALL THICKNESS	1.7
GLASS THICKNESS	20-30
THERMAL INSULATION	F18-V15

HLS 102-M

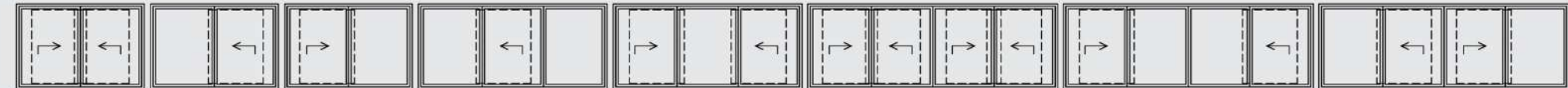
هورامکو



$$U_i = \frac{\frac{18.047}{20.000} - 1.149 \cdot 0.198}{0.129} = 5.24 \text{ W/(m}^2 \cdot \text{K)}$$

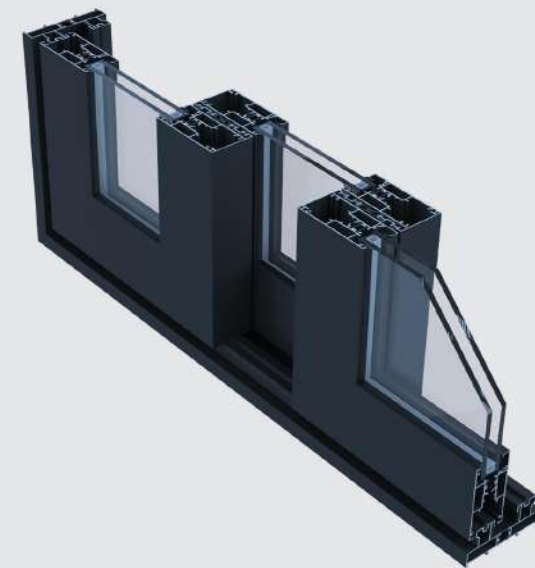
Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





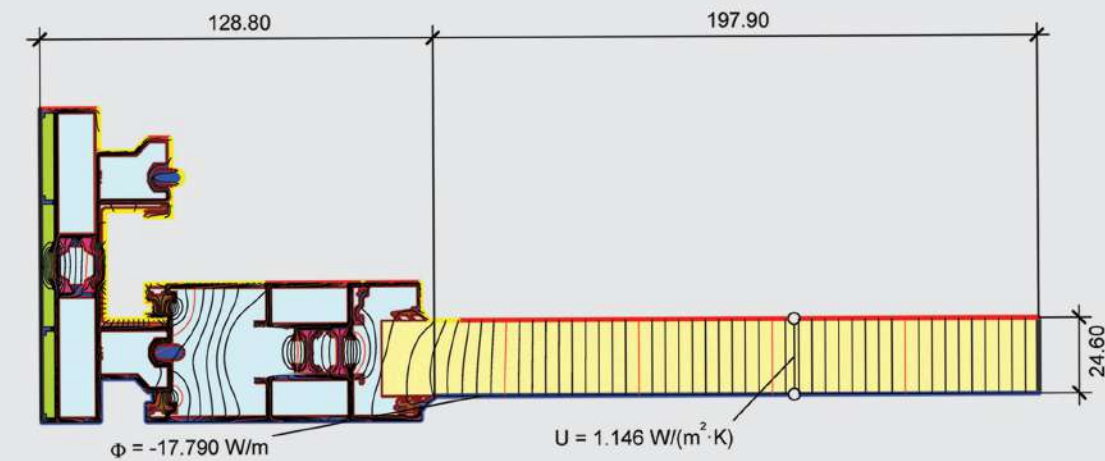
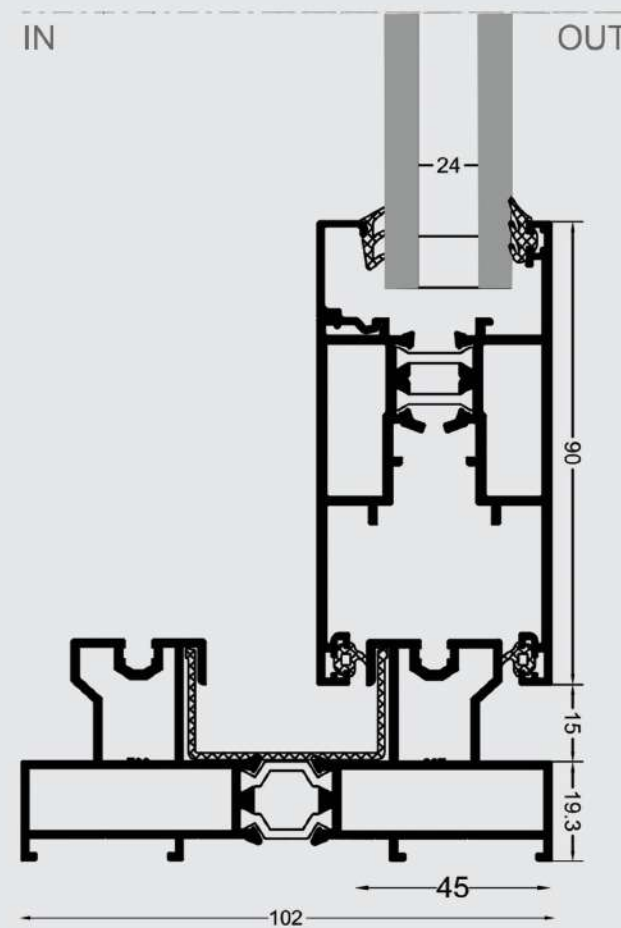
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	102
VENT DEPTH	45
VISIBLE HEIGHT	124
WALL THICKNESS	1.5
GLASS THICKNESS	24-30
THERMAL INSULATION	F18-V15

HLS 102-D

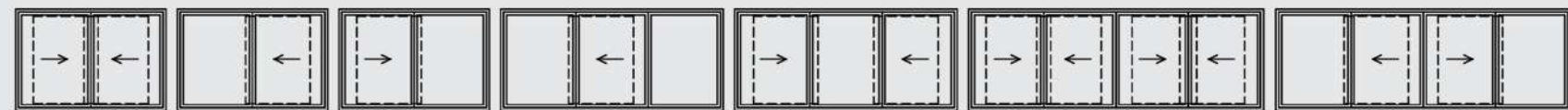
هورامکو



$$U_t = \frac{\frac{17.790}{20.000} - 1.146 \cdot 0.198}{0.129} = 5.15 \text{ W/(m}^2\cdot\text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





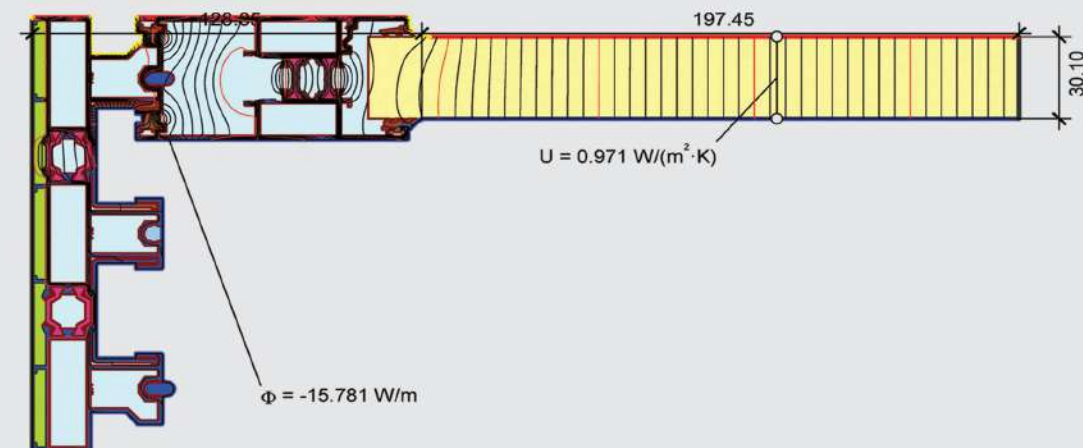
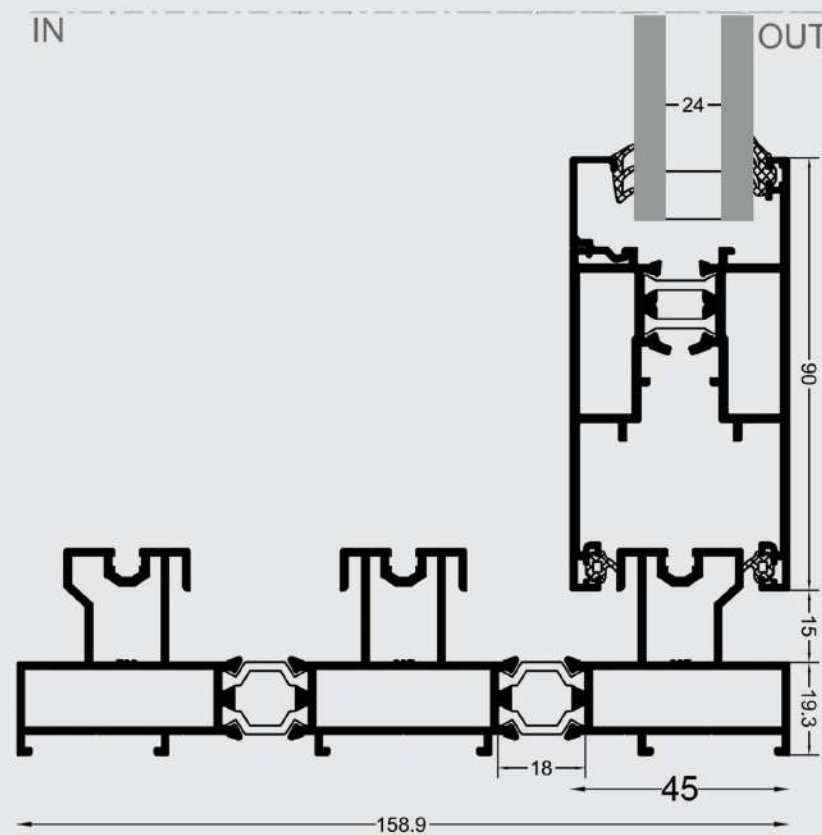
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	158
VENT DEPTH	45
VISIBLE HEIGHT	151
WALL THICKNESS	1.7
GLASS THICKNESS	20-30
THERMAL INSULATION	F18-V15

HLS 102-T

هورامكو

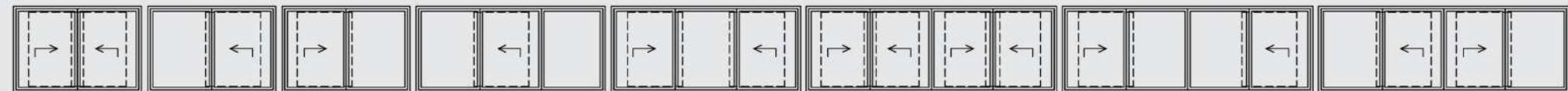


$$U_t = \frac{\frac{15.781}{20.000} - 0.971 \cdot 0.197}{0.129} = 4.64 \text{ W/(m}^2 \cdot \text{K)}$$

Material

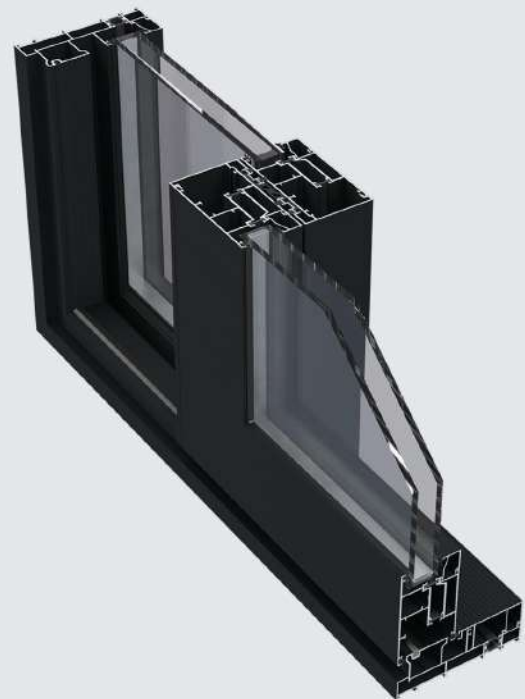
Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





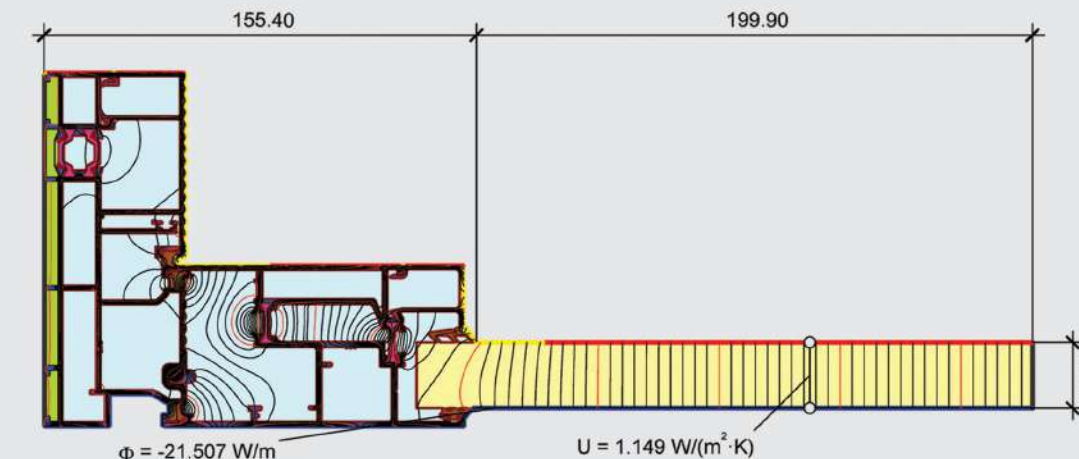
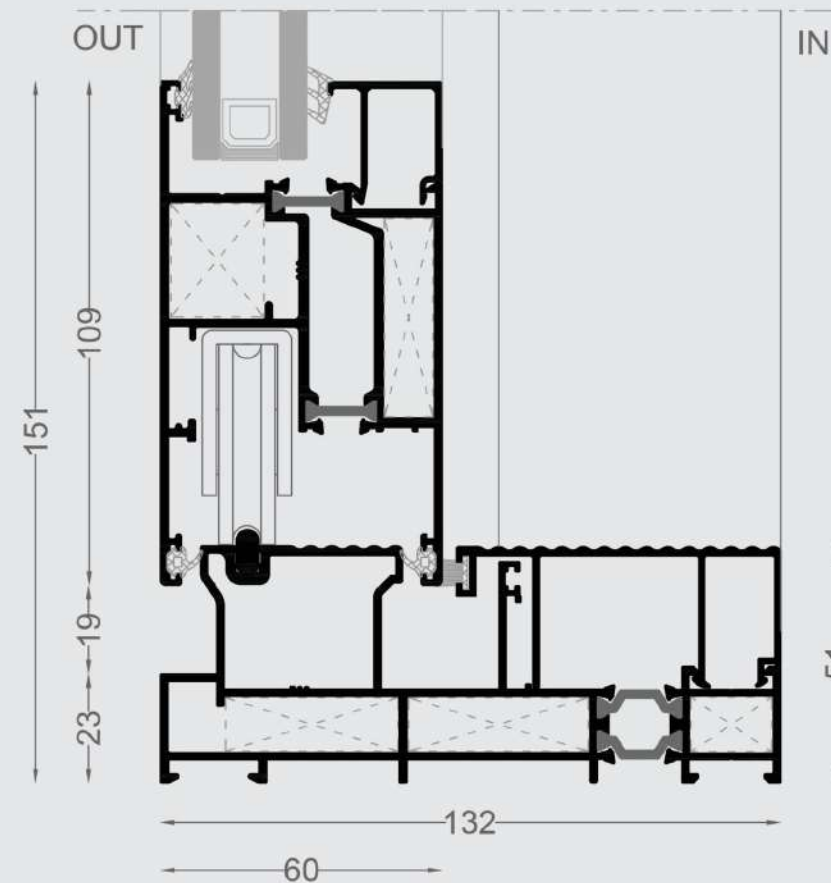
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	132
VENT DEPTH	60
VISIBLE HEIGHT	151
WALL THICKNESS	1.7
GLASS THICKNESS	20-30
THERMAL INSULATION	F18-V14.8

HLS 132-M

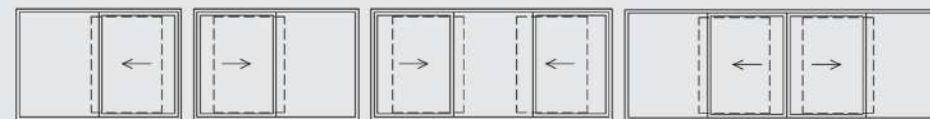
هورامکو



$$U_f = \frac{\frac{21.507}{20.000} - 1.149 \cdot 0.200}{0.155} = 5.44 \text{ W/(m}^2\cdot\text{K)}$$

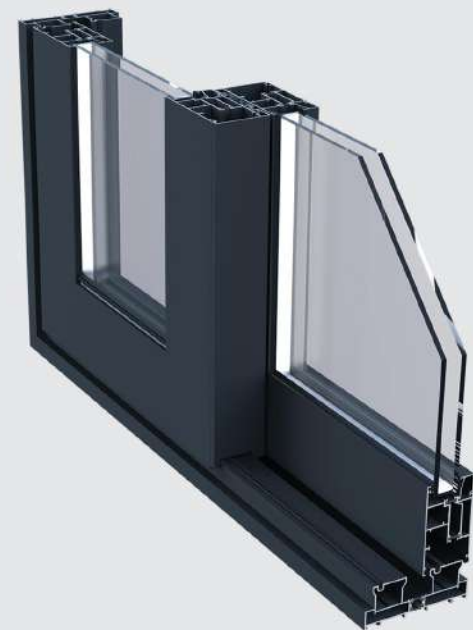
Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop





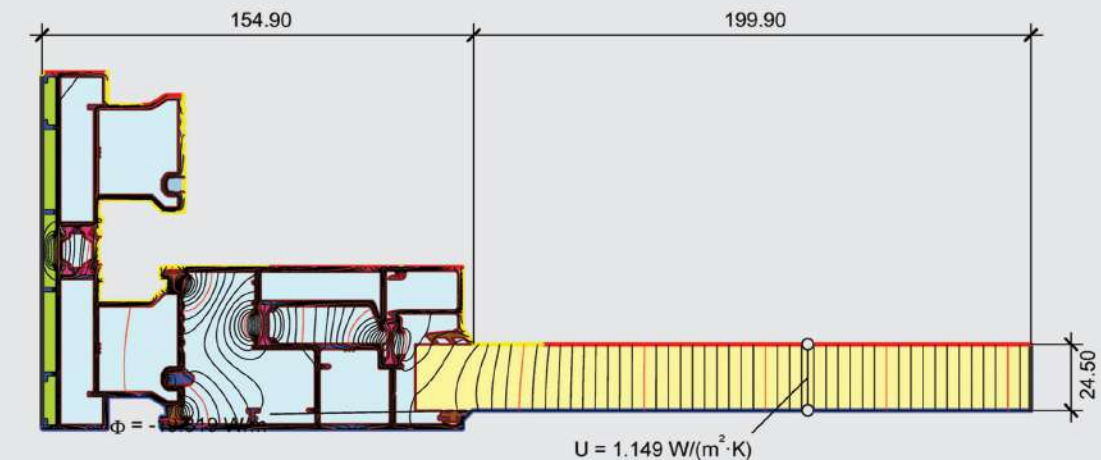
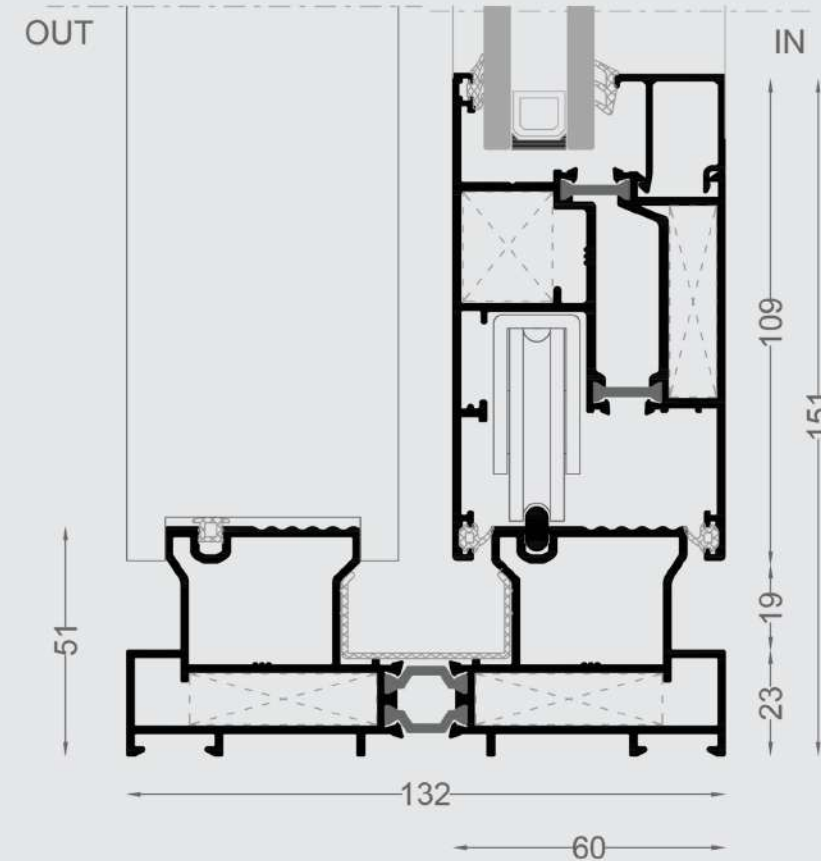
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	132
VENT DEPTH	60
VISIBLE HEIGHT	151
WALL THICKNESS	1.7
GLASS THICKNESS	20-30
THERMAL INSULATION	F18-V14.8

HLS 132-D

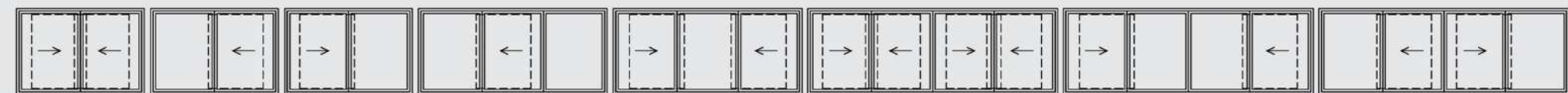
هورانکو



$$U_i = \frac{\frac{19.319}{20.000} - 1.149 \cdot 0.200}{0.155} = 4.75 \text{ W/(m}^2\cdot\text{K)}$$

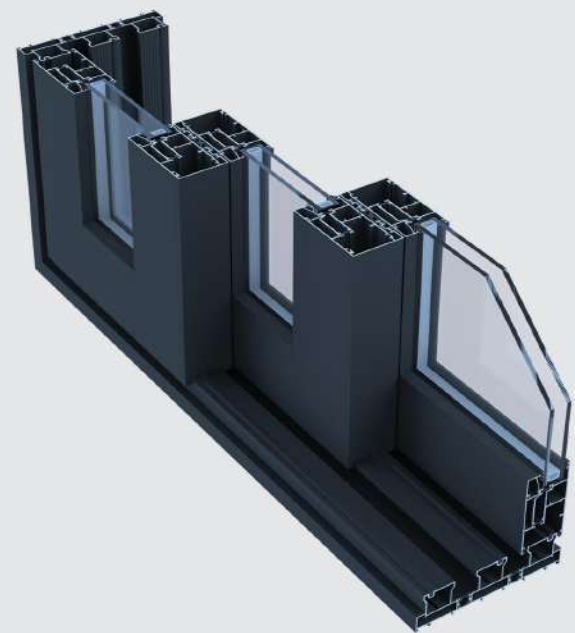
Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017, 6.4.3/anisotrop





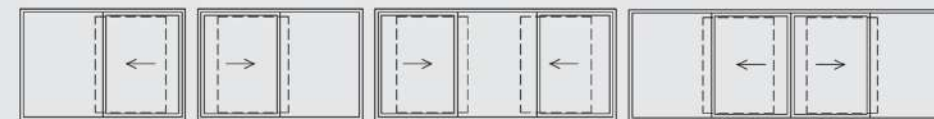
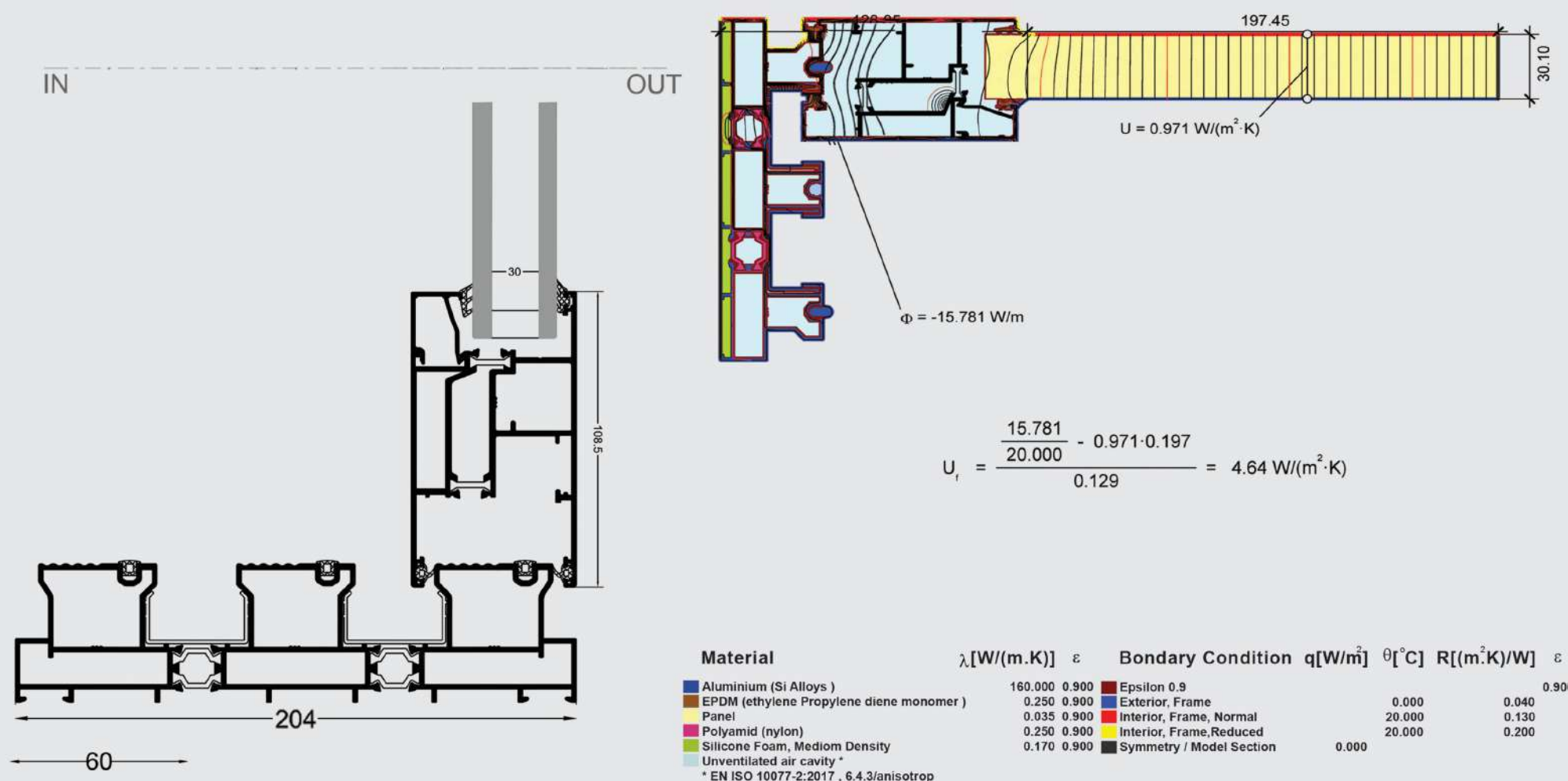
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	204
VENT DEPTH	60
VISIBLE HEIGHT	151
WALL THICKNESS	1.7
GLASS THICKNESS	20-30
THERMAL INSULATION	F18-V14.8

HLS 132-T

هورامکو

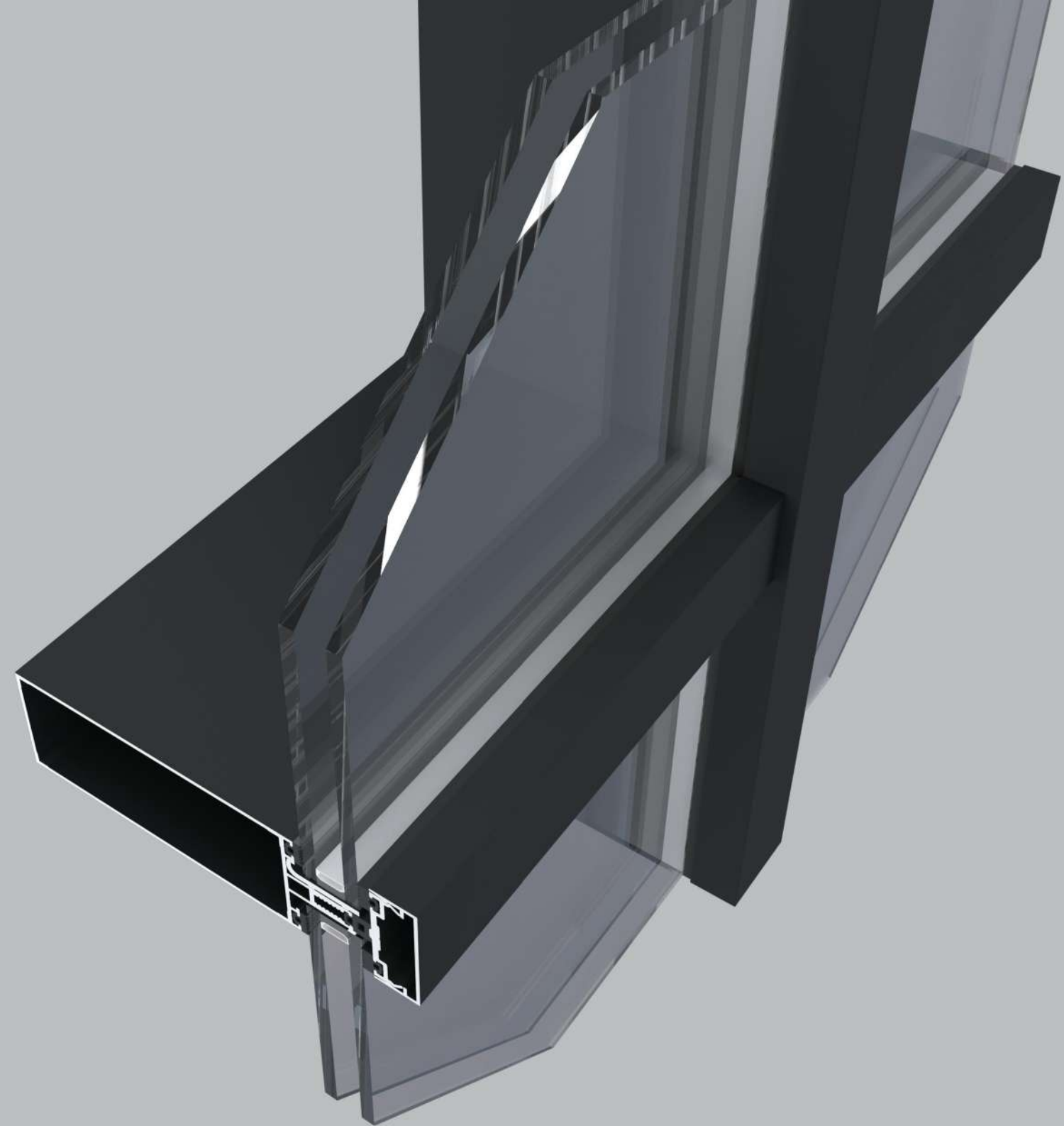


the ethics of architecture dictates that
the architect should be at the service
of the building she builds

Paul Andrew



FACADE & SKYLIGHT SYSTEMS





Höral

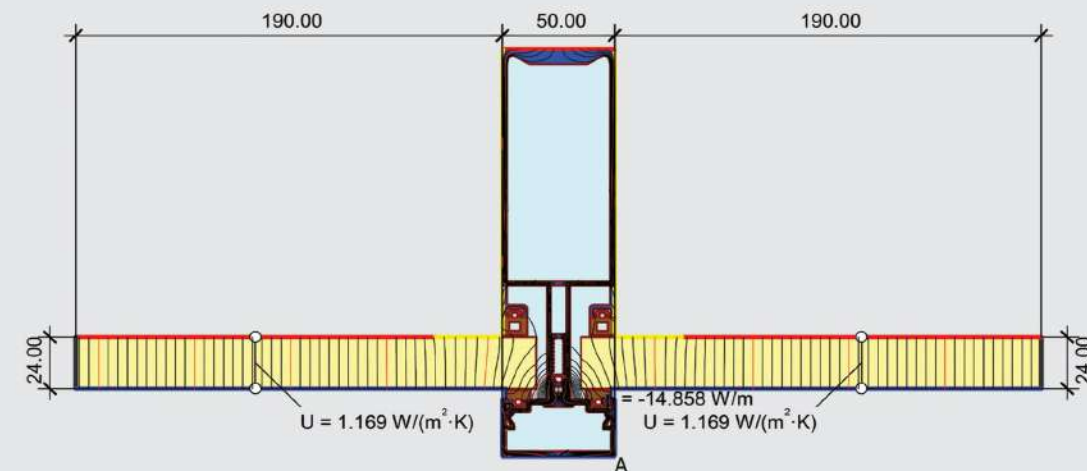
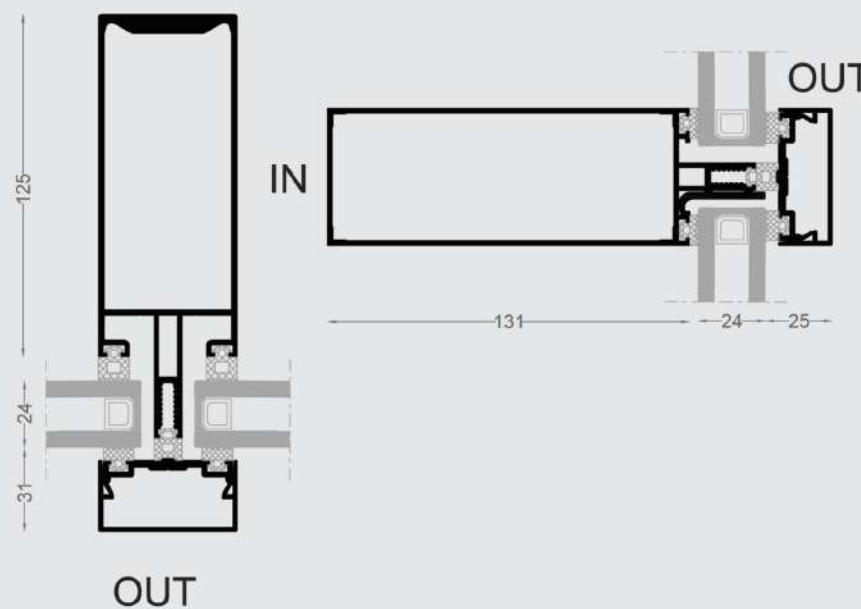


THECHNICAL PROPERTIES

FRAME DEPHT	148-50
VENT DEPTH	77
VISIBLE HEIGHT	50
WALL THICKNESS	M:2 - T:1.7
GLASS THICKNESS	6-24
THERMAL INSULATION	without

HCW 50

هورانکو



$$U_{TAB} = \frac{14.858}{20.000} - 1.169 \cdot 0.190 - 1.169 \cdot 0.190 = 5.98 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Bondary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section		0.000		
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop



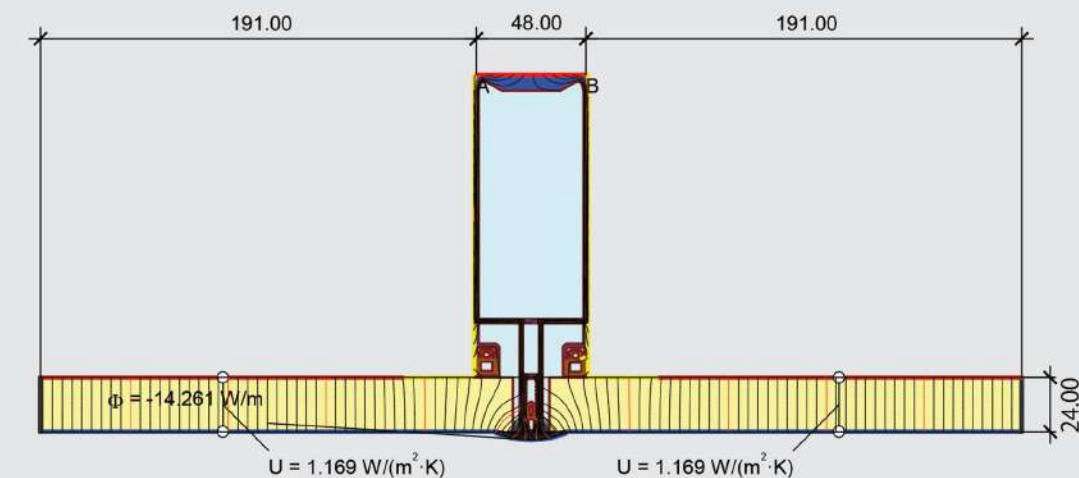
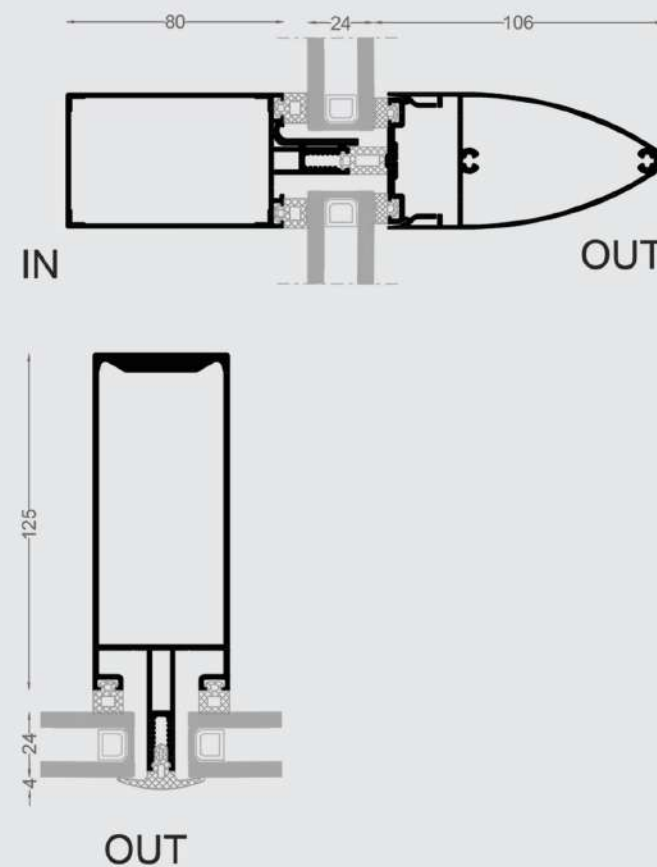
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	148-50
VENT DEPTH	77
VISIBLE HEIGHT	50
WALL THICKNESS	M:2 - T:1.7
GLASS THICKNESS	6-24
THERMAL INSULATION	without

HCW 50-HL

هورامکو



$$U_{TAB} = \frac{\frac{14.261}{20.000} - 1.169 \cdot 0.191 - 1.169 \cdot 0.191}{0.048} = 5.56 \text{ W/(m}^2\text{·K)}$$

Material	λ [W/(m·K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m²·K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section				
Unventilated air cavity *				0.000			

* EN ISO 10077-2:2017 , 6.4.3/anisotrop



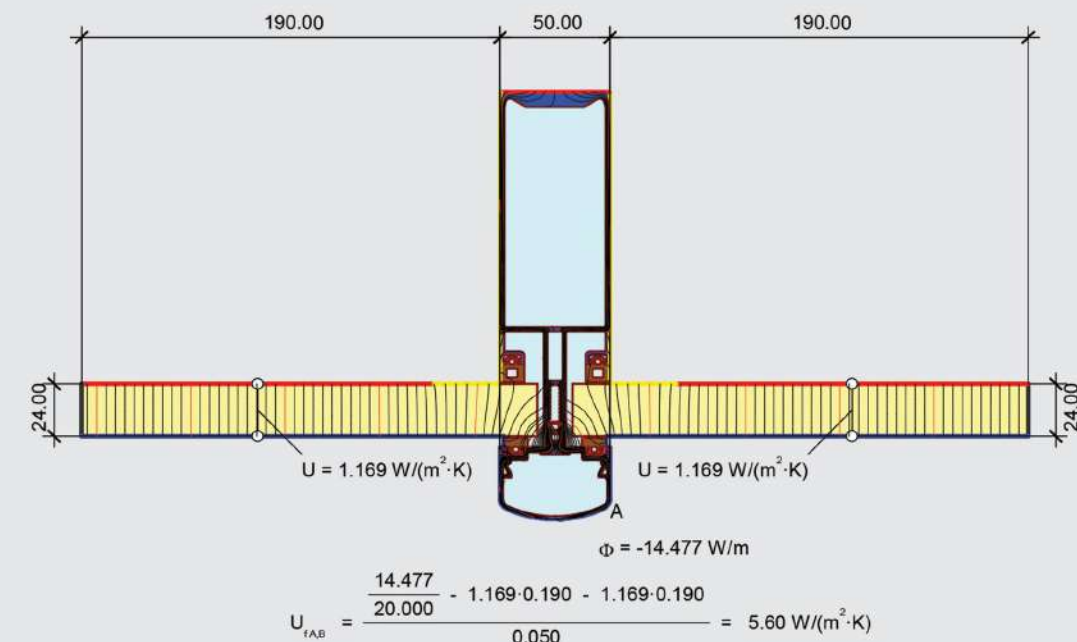
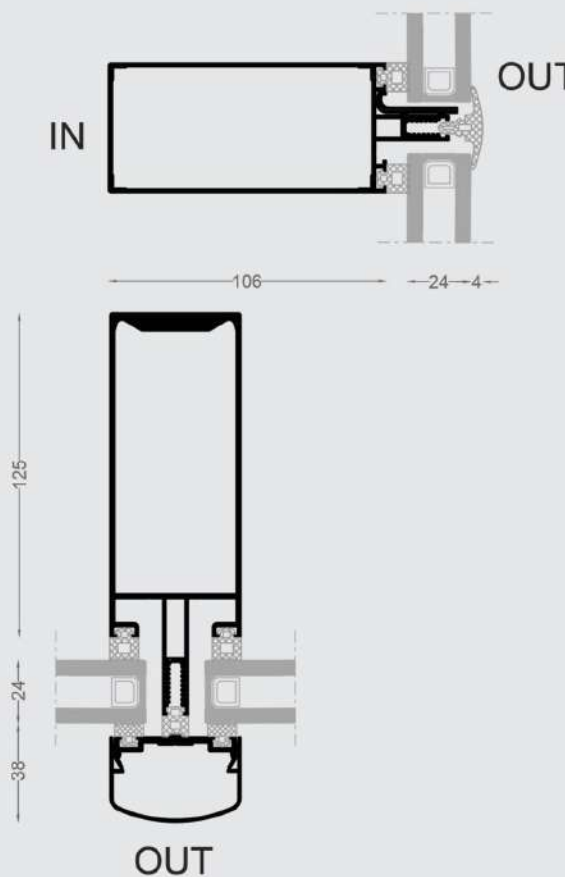
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	148-50
VENT DEPTH	77
VISIBLE HEIGHT	50
WALL THICKNESS	M:2 - T:1.7
GLASS THICKNESS	6-24
THERMAL INSULATION	without

HCW 50-VL

هورامكو



Material	λ [W/(m.K)]	ϵ	Bondary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop



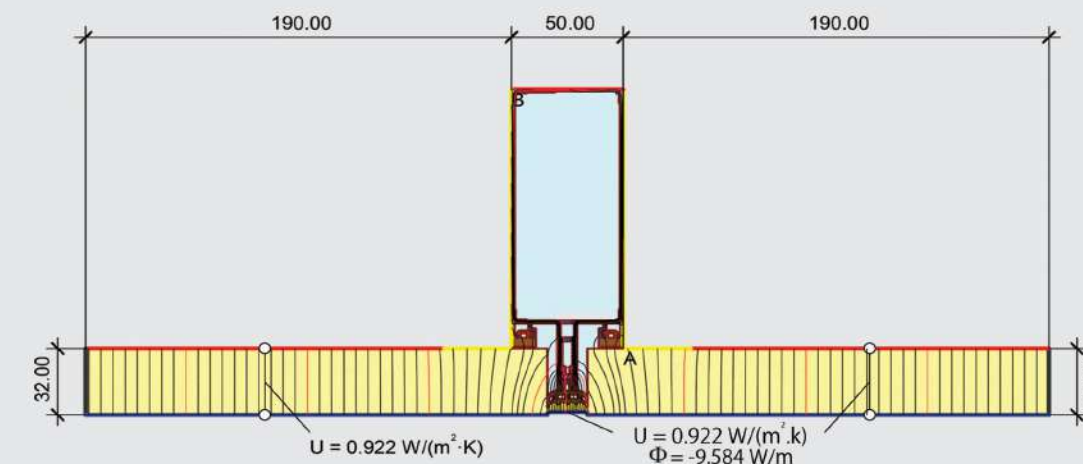
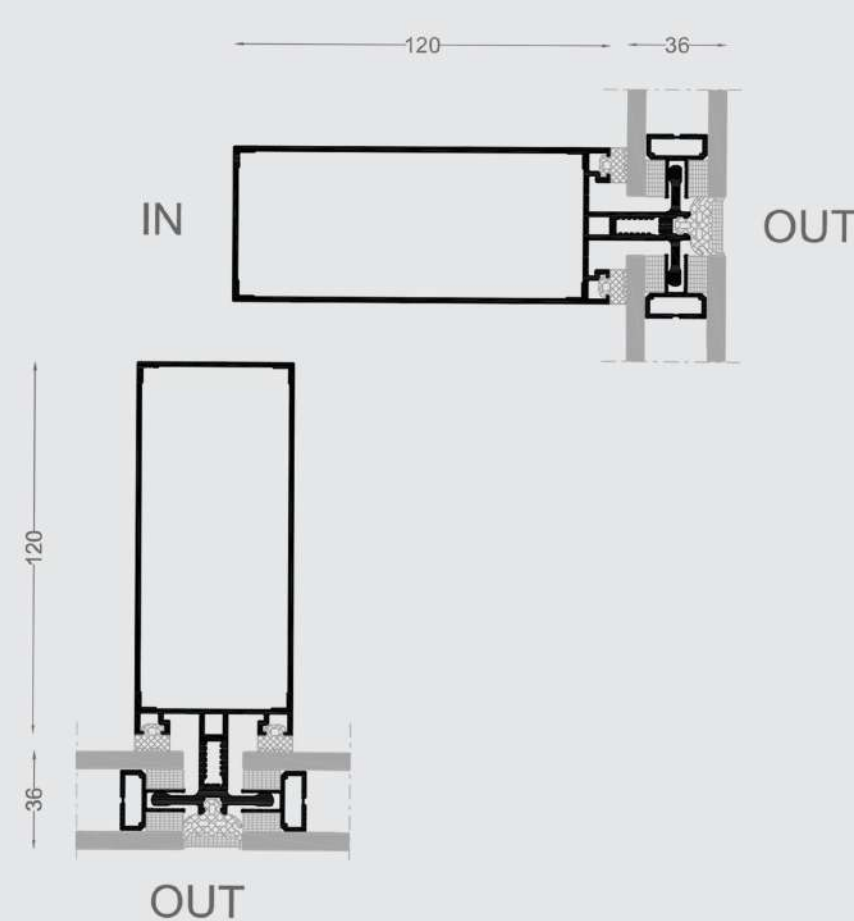
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	156-80
VENT DEPTH	77
VISIBLE HEIGHT	50
WALL THICKNESS	M:2 - T1.7
GLASS THICKNESS	32
THERMAL INSULATION	without

HCW 50-SC

هورانكو



$$U_{TAB} = \frac{\frac{9.584}{20.000} - 0.922 \cdot 0.190 - 0.922 \cdot 0.190}{0.050} = 2.57 \text{ W/(m}^2\cdot\text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² .K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section		0.000		
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop



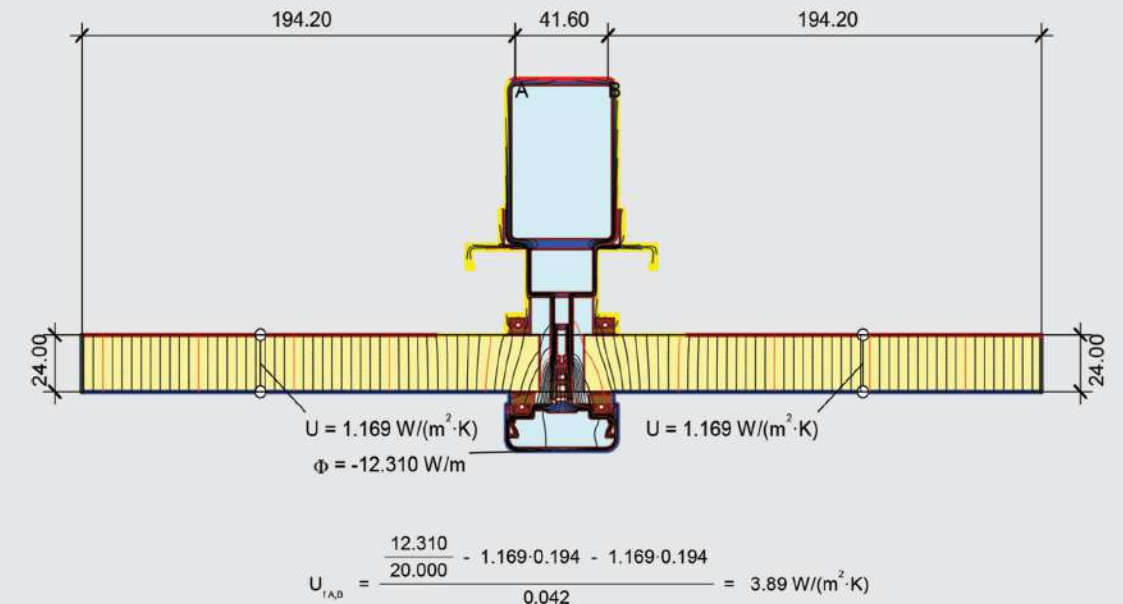
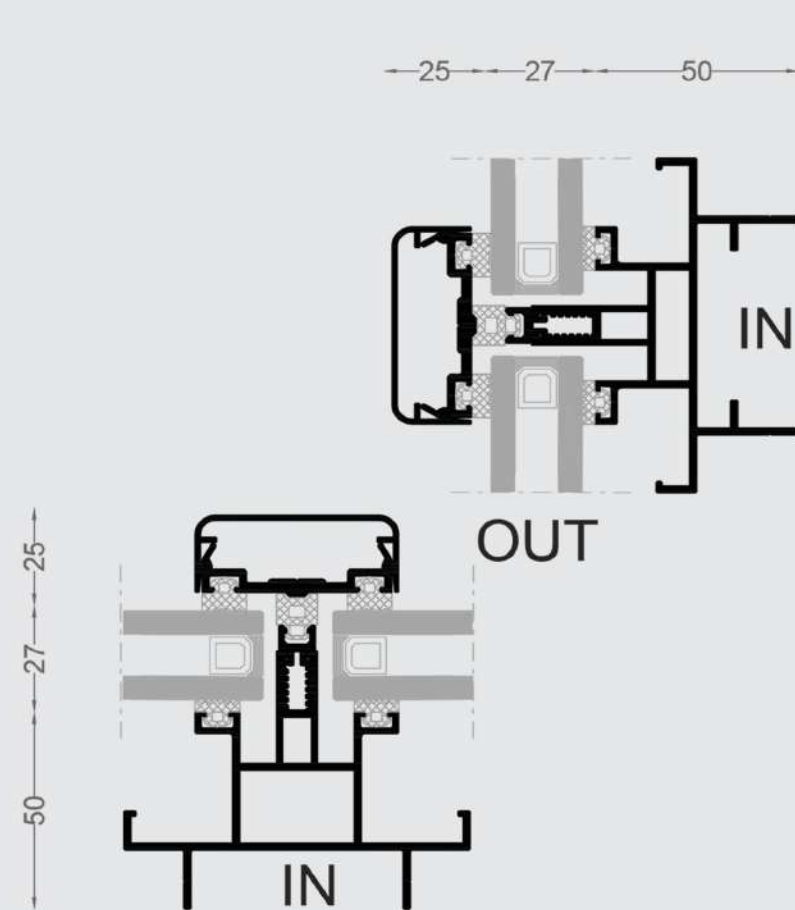
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	148-50
VENT DEPTH	-
VISIBLE HEIGHT	50
WALL THICKNESS	M:2 - T:1.7
GLASS THICKNESS	6-24
THERMAL INSULATION	without

SKYLIGHT

هورامكو



Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame		0.000		0.040
Panel	0.035	0.900	Interior, Frame, Normal		20.000		0.130
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced		20.000		0.200
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section				
Unventilated air cavity *				0.000			

* EN ISO 10077-2:2017 , 6.4.3/anisotrop



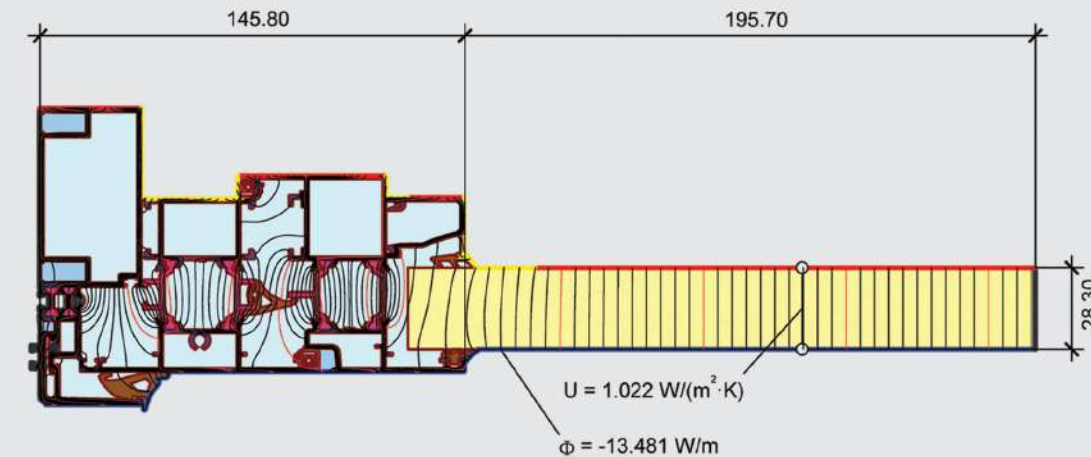
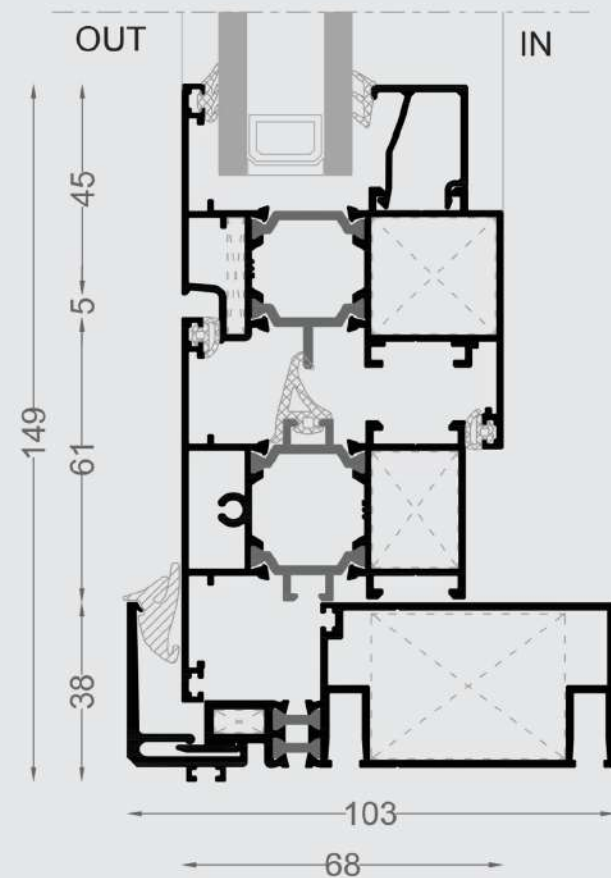
Höral



THECHNICAL PROPERTIES	
FRAME DEPHT	156-80
VENT DEPTH	60
VISIBLE HEIGHT	149
WALL THICKNESS	M:2 - T1.7
GLASS THICKNESS	22-28
THERMAL INSULATION	10

HCW 90

هورامكو



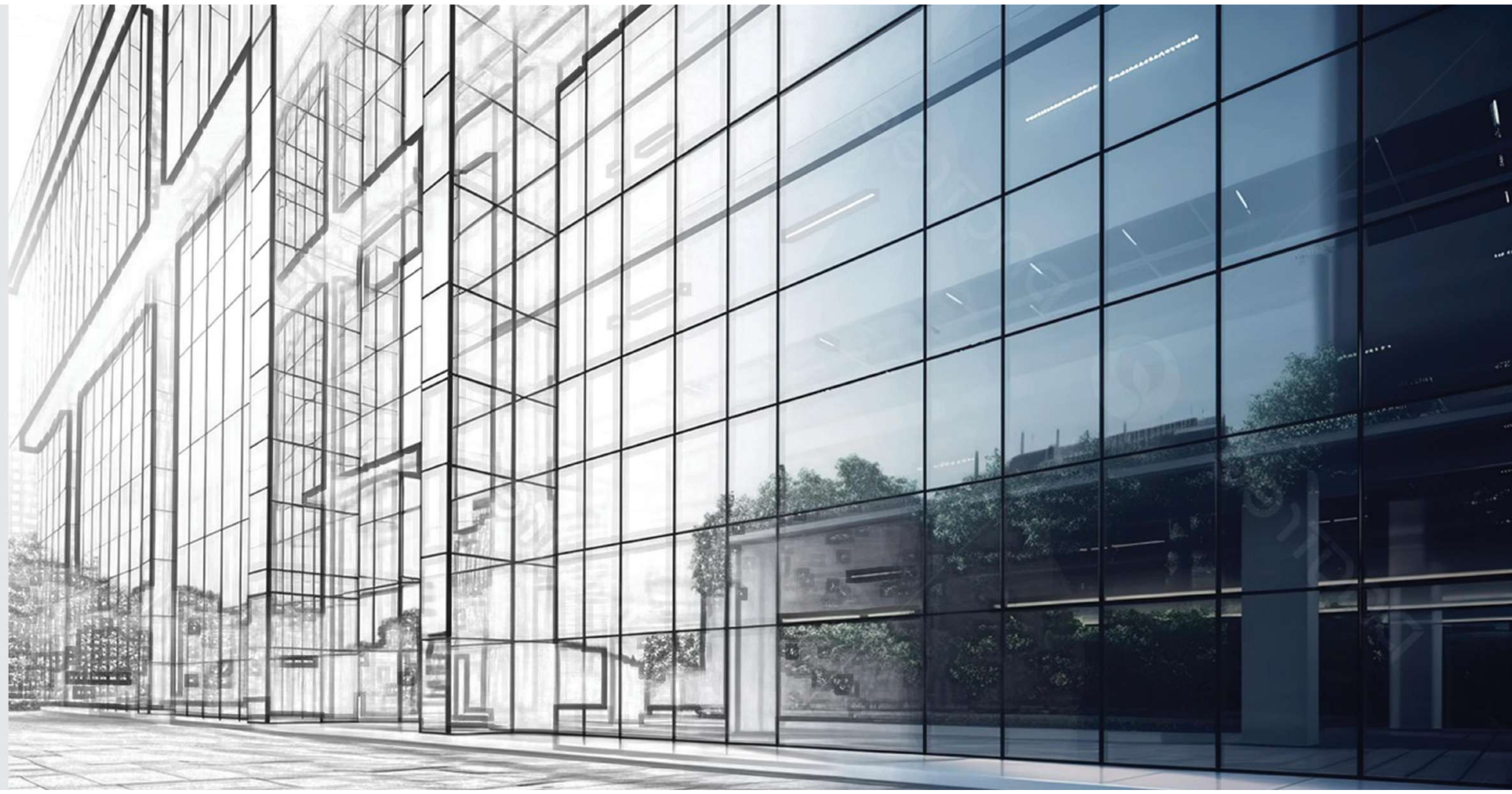
$$U_f = \frac{\frac{13.481}{20.000} - 1.022 \cdot 0.196}{0.146} = 3.25 \text{ W/(m}^2 \cdot \text{K)}$$

Material	λ [W/(m.K)]	ϵ	Boundary Condition	q [W/m²]	θ [°C]	R [(m².K)/W]	ϵ
Aluminium (Si Alloys)	160.000	0.900	Epsilon 0.9				0.900
EPDM (ethylene Propylene diene monomer)	0.250	0.900	Exterior, Frame	0.000		0.040	
Panel	0.035	0.900	Interior, Frame, Normal	20.000		0.130	
Polyamid (nylon)	0.250	0.900	Interior, Frame, Reduced	20.000		0.200	
Silicone Foam, Mediom Density	0.170	0.900	Symmetry / Model Section	0.000			
Unventilated air cavity *							

* EN ISO 10077-2:2017 , 6.4.3/anisotrop

I prefer to be good than interesting

Mies Van Der Rohe



OTHER SYSTEMS





Horal

Invisible

THECHNICAL PROPERTIES	
FRAME DEPHT	105
VISIBLE HEIGHT	0
GLASS THICKNESS	17.5



هورامکو

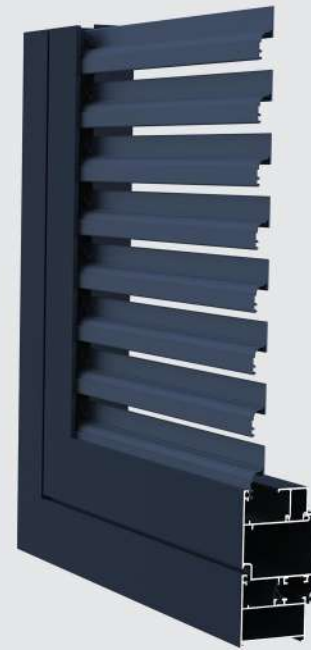
GLASS SUPPORTING SYSTEM

Visible

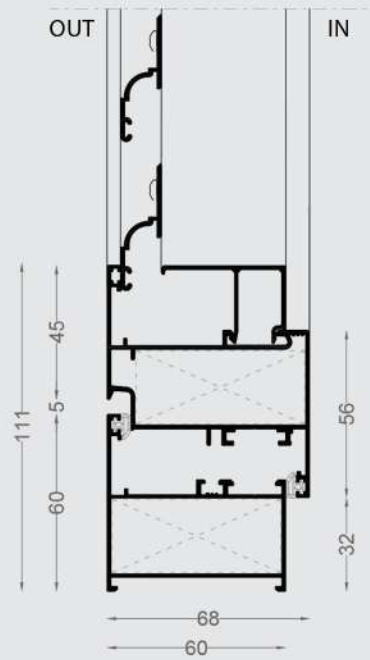
THECHNICAL PROPERTIES	
FRAME DEPHT	89
VISIBLE HEIGHT	100
GLASS THICKNESS	17.5



Horal



Gride

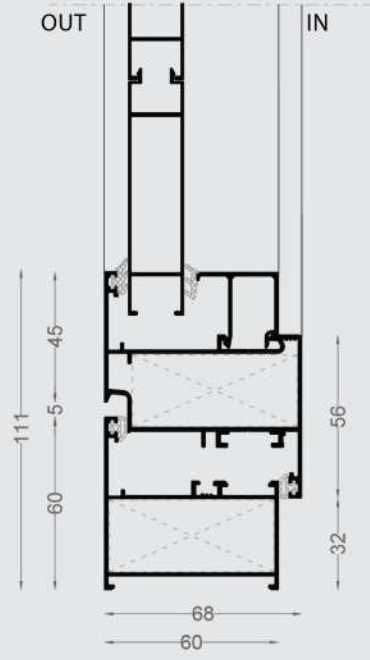


Other Systems

هورامکو



Panel



Ral

1000	1001	1002	1003	1004	1005	1006	1007	1011	1012	1013	1014
1015	1016	1017	1018	1019	1020	1021	1023	1024	1027	1028	1032
1033	1034	2000	2001	2002	2003	2004	2008	2009	2010	2011	2012
3000	3001	3002	3003	3004	3005	3007	3009	3011	3012	3013	3014
3015	3016	3017	3018	3020	3022	3027	3031	4001	4002	4003	4004
4005	4006	4007	4008	4009	4010	5000	5001	5002	5003	5004	5005
5007	5008	5009	5010	5011	5012	5013	5014	5015	5017	5018	5019
5020	5021	5022	5023	5024	6000	6001	6002	6003	6004	6005	6006

6007	6008	6009	6010	6011	6012	6013	6014	6015	6016	6017	6018
6019	6020	6021	6022	6024	6025	6026	6027	6028	6029	6032	6033
6034	7000	7001	7002	7003	7004	7005	7006	7008	7009	7010	7011
7012	7013	7015	7016	7021	7022	7023	7024	7026	7030	7031	7032
7033	7034	7035	7036	7037	7038	7039	7040	7042	7043	7044	7045
7046	7047	8000	8001	8002	8003	8004	8007	8008	8011	8012	8014
8015	8016	8017	8019	8022	8023	8024	8025	8028	9001	9002	9003
9004	9005	9010	9011	9016	9017	9018					

Decoral



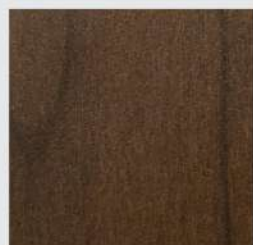
HD - 100



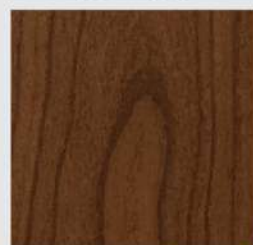
HD - 101



HD - 102



HD - 103



HD - 104



HD - 105



HD - 106



HD - 107



HD - 108



HD - 109



HD - 110



HD - 111



HD - 112



HD - 113



HD - 114



HD - 115

Anodize



HA - 200



HA - 201

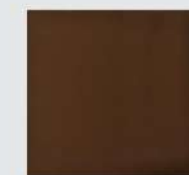


HA - 220

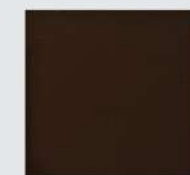


HA - 221

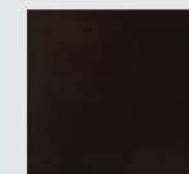
MATT



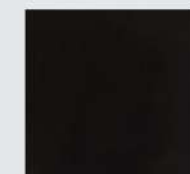
HA - 202



HA - 203



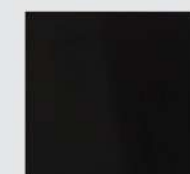
HA - 204



HA - 205



HA - 206



HA - 207

POLISH



HA - 222



HA - 223



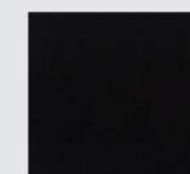
HA - 224



HA - 225



HA - 226



HA - 227

The architects who have more to say
are the architects who actually build

Jean Nouvel

