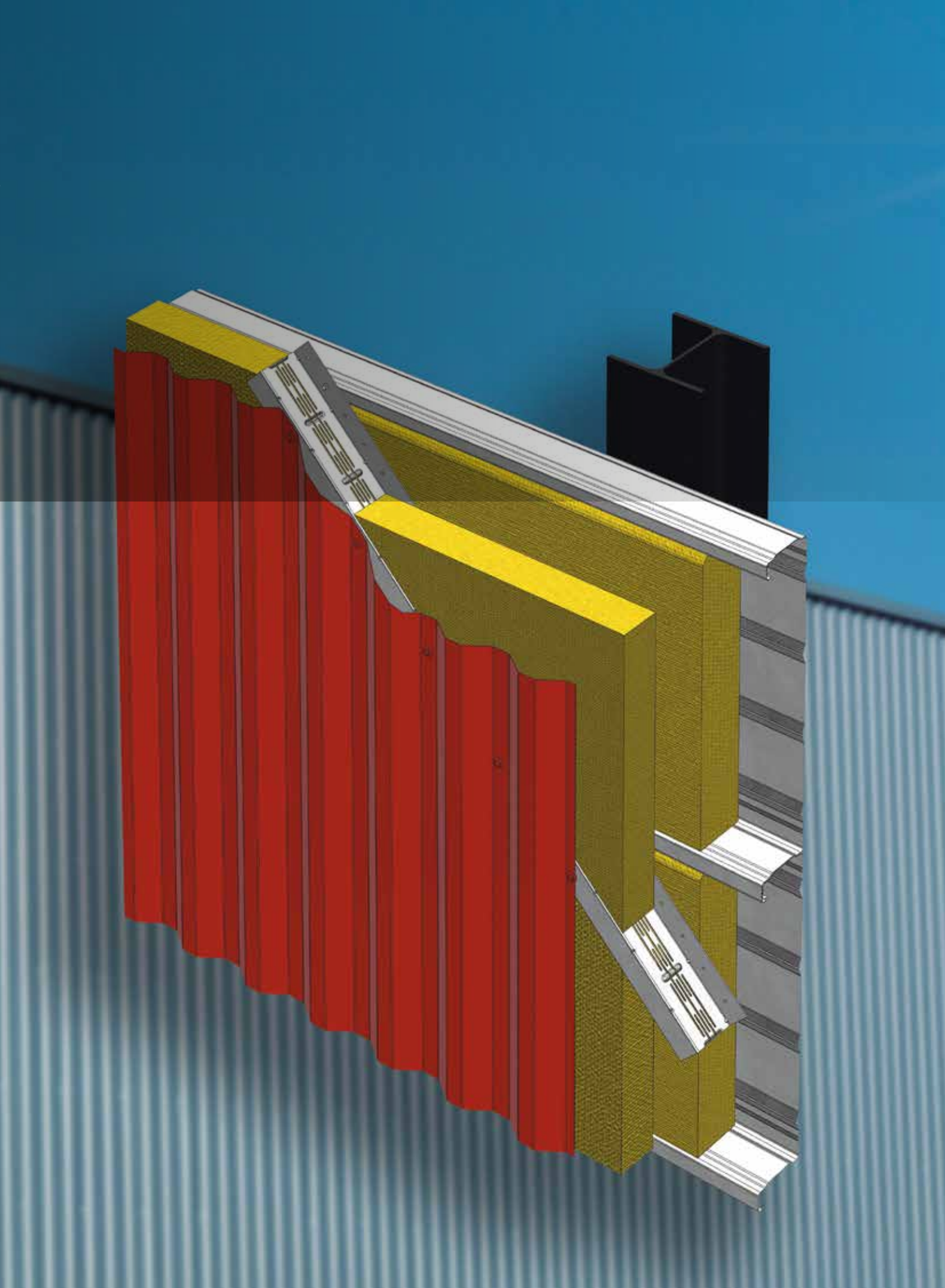


STRUCTURAL SPACER FOR THERMAL BRIDGES

THERMAL SOLUTIONS FOR CLADDING



NEW TRADITIONAL CLADDING WITH Z THERMIQUE®

The U_p vales (surface transmittance coefficient) and R_p values (wall thermal resistance) are estimated for:

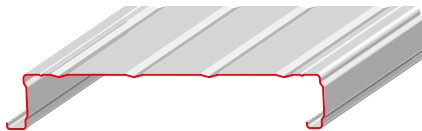
- A density of 2.5 fixtures/m² on external cladding
- Distance of 2.0 m between "Z thermique®" sub frame components
- Mineral wool insulation conductivity $\lambda = 0.040$ W/m.K maximum

U_p (W/m ² .K)	0.32	0.30	0.28
R_p (m ² .K/W)	3.00	3.20	3.40

B.30.TRADI WITH Z THERMIQUE®

Description of the system:

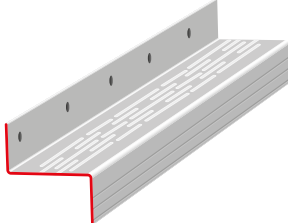
- Plateau Tempo 500 (a) (b)



TECHNICAL DATA SHEET - PAGE 275 / 276

- Insulation in the tray: 90 mm thick

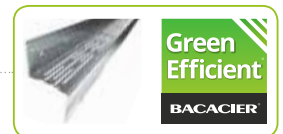
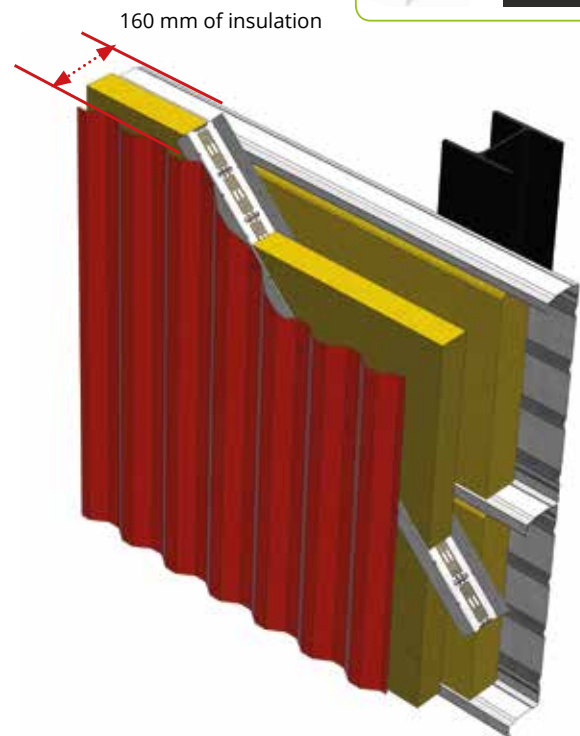
- Z Thermique® 70 (c)



- Insulation between spacers, thickness 70 mm

- Vertical cladding profile (a)

- (a) Min. thickness subject to mechanical verification
 (b) In the case of perforated or punctured profiles, a vapour barrier film should be used
 (c) If installed horizontally, there should be a continuous and ventilated air space of 20 mm



LESS INSULATION

With the use of Z THERMIQUE® in comparison to a equivalent system with full Z



WITH STANDARD FULL Z

Other systems are available for this thermal characteristic:

FOR VERTICAL CLADDING (d)

U_p	Tray	Z Thermique	total insulation thickness (mm)
0.30 W/m ² .K	TEMPO 450	Z Thermique® 80	150
	TEMPO 500	Z Thermique® 70	160
	TEMPO 400	Z Thermique® 80	170

NEW TRADITIONAL CLADDING WITH Z THERMIQUE®

The U_p vales (surface transmittance coefficient) and R_p values (wall thermal resistance) are estimated for:

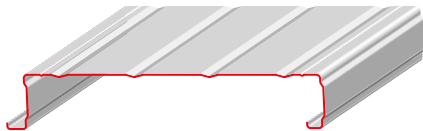
- A density of 2.5 fixtures m^2 o the external cladding
- Distance of 2.0 m between "Z thermique®" sub frame components
- Mineral wool insulation conductivity $\lambda = 0.040$ W/m.K maximum

U_p (W/m ² .K)	0.28	0.25	0:22
R_p (m ² .K/W)	3:40	3.80	4.40

B.25.TRADI WITH Z THERMIQUE®

Description of the system:

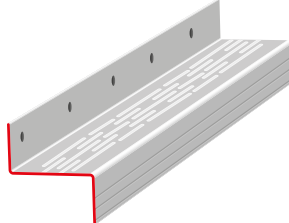
- Plateau Tempo 500 (a) (b)



TECHNICAL DATA SHEET - PAGE 275 / 276

- Insulation in the tray: 90 mm thick

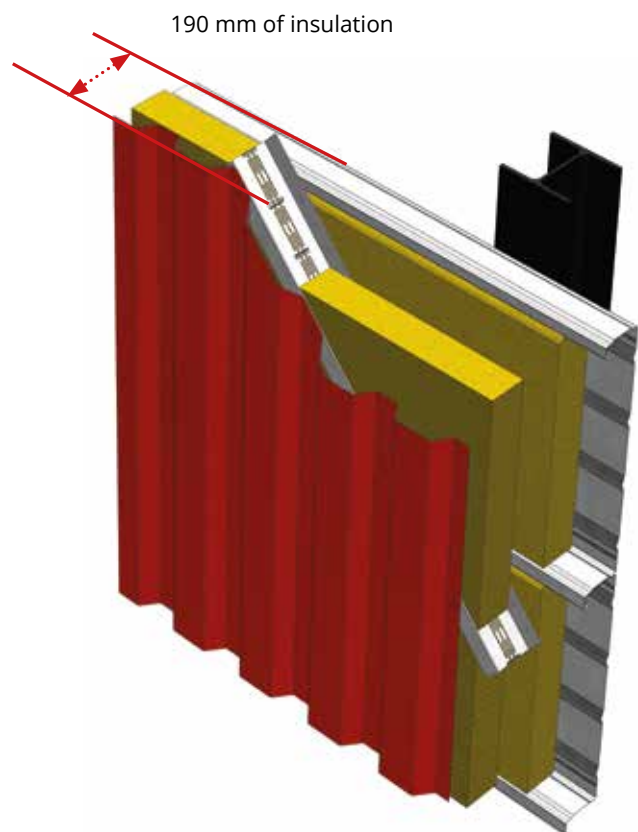
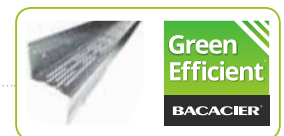
- Z Thermique® 100 (c)



- Insulation between spacers, thickness 100 mm

- Vertical cladding profile (a)

- (a) Min. thickness subject to mechanical verification
 (b) In the case of perforated or punctured profiles, a vapour barrier film should be used
 (c) If installed horizontally, there should be a continuous and ventilated air space of 20 mm



LESS INSULATION

With the use of Z THERMIQUE® in comparison to an equivalent system with full Z



WITH STANDARD FULL Z

Other systems are available for this thermal characteristic:

FOR VERTICAL CLADDING (c)

Up	Tray	Z Thermique	total insulation thickness (mm)
0.25 W/m ² .K	TEMPO 450	Z Thermique® 120	190
	TEMPO 500	Z Thermique® 100	190
	TEMPO 400	Z Thermique® 120	210

NEW TRADITIONAL CLADDING WITH Z THERMIQUE®

The U_p vales (surface transmittance coefficient) and R_p values (wall thermal resistance) are estimated for:

- A density of 2.5 fixtures m^2 o the external cladding
- Distance of 2.0 m between "Z thermique®" sub frame components
- Mineral wool insulation conductivity $\lambda = 0.040$ W/m.K maximum

U_p (W/m ² .K)	0.22	0.20	0.18
R_p (m ² .K/W)	4.40	4.80	5.40

B.20.TRADI WITH Z THERMIQUE®

Description of the system:

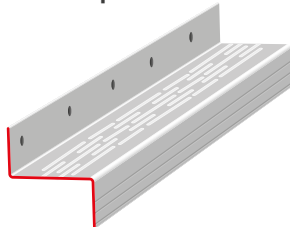
- Plateau Tempo 500 (a) (b)



TECHNICAL DATA SHEET - PAGE 275 / 276

- Insulation in the tray: 90 mm thick

- Z Thermique® 170 (c)



- Insulation between spacers, thickness 150 mm

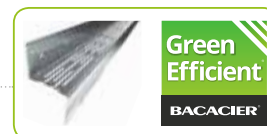
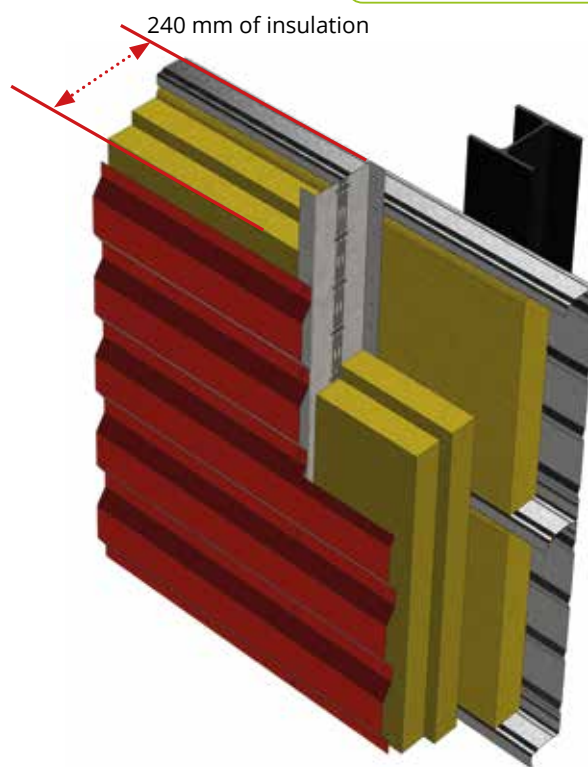
- Horizontal cladding profile (a)

(a) Min. thickness subject to mechanical verification

(b) In the case of perforated or punctured profiles, a vapour barrier film should be used

(c) If installed horizontally, there should be a continuous and ventilated air space of 20 mm

Perforated option



LESS INSULATION

With the use of Z THERMIQUE® in comparison to an equivalent system with full Z



WITH STANDARD FULL Z

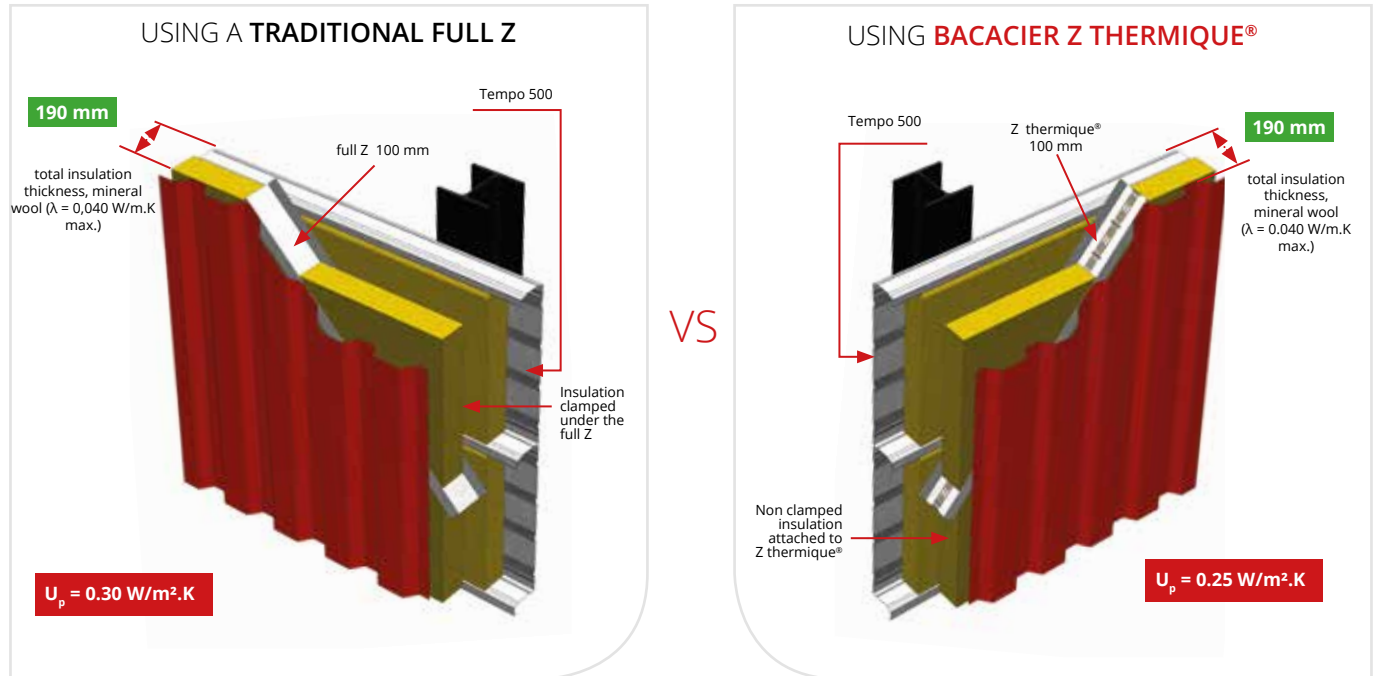
Other systems are available for this thermal characteristic:

FOR VERTICAL CLADDING (d)

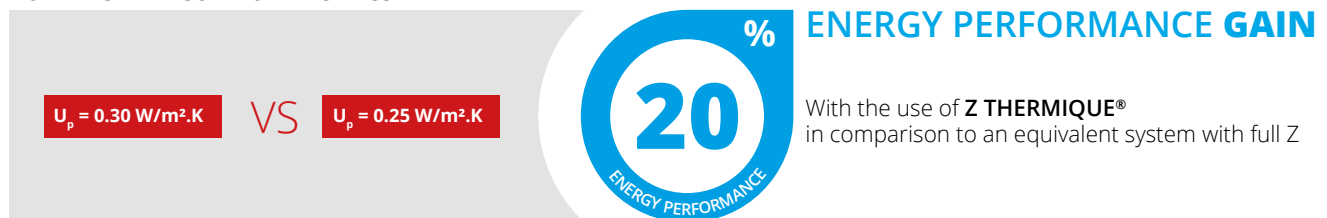
U_p	Tray	Z Thermique	total insulation thickness (mm)
0.20 W/m ² .K	TEMPO 450	Z Thermique® 170	240
	TEMPO 500	Z Thermique® 150	240
	TEMPO 400	Z Thermique® 170	260

NEW TRADITIONAL CLADDING WITH Z THERMIQUE®

ENERGY GAIN FOR THE SAME INSULATION THICKNESS EXAMPLE



FOR THE SAME INSULATION THICKNESS



A comprehensive range of **21 thermal systems:**

FOR VERTICAL CLADDING ⁽¹⁾

Insulation: mineral wool $\lambda = 0.040 \text{ W/m.K}$ Axial distance Z thermique® 2m		Type of tray			
		TEMPO 400	TEMPO 450	TEMPO 500	
Z Thermique® 70	$U_p \text{ (W/m}^2.\text{K)}$	0.32	0.33	0.30	> SEE PAGE 316
	Insulation thickness (mm)	160mm	140mm	160mm	
Z Thermique® 80	$U_p \text{ (W/m}^2.\text{K)}$	0.30	0.30	0.28	
	Insulation thickness (mm)	170mm	150mm	170mm	
Z Thermique® 90	$U_p \text{ (W/m}^2.\text{K)}$	0.28	0.28	0.26	
	Insulation thickness (mm)	180mm	160mm	180mm	
Z Thermique® 100	$U_p \text{ (W/m}^2.\text{K)}$	0.27	0.27	0.25	> SEE PAGE 317
	Insulation thickness (mm)	190mm	170mm	190mm	
Z Thermique® 120	$U_p \text{ (W/m}^2.\text{K)}$	0.24	0.24	0.23	
	Insulation thickness (mm)	210mm	190mm	210mm	
Z Thermique® 150	$U_p \text{ (W/m}^2.\text{K)}$	0.21	0.21	0.20	> SEE PAGE 318
	Insulation thickness (mm)	240mm	220mm	240mm	
Z Thermique® 170	$U_p \text{ (W/m}^2.\text{K)}$	0.20	0.19	0.18	
	Insulation thickness (mm)	260mm	240mm	260mm	

ROCKBARDAGE NEW CLADDING

The U_p vales (surface transmittance coefficient) and R_p values (wall thermal resistance) are estimated for:

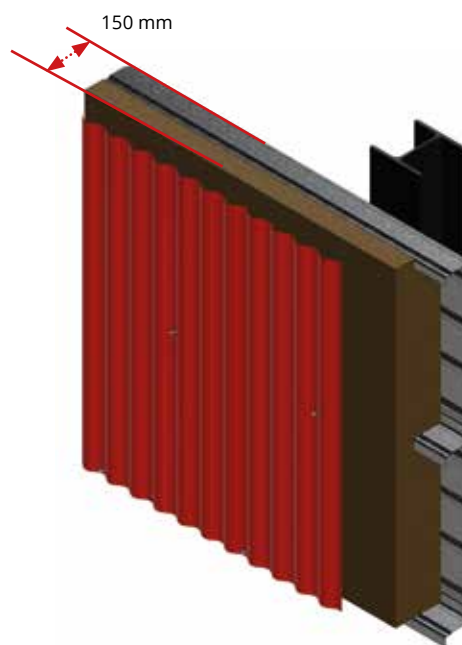
- 2.5 fixtures/m²
- Distance of 2.0 m between secondary framework elements

B.29.RB



Description of the system:

- **Tempo 500 Tray** ^{(a) (b)}
- ROCKBARDAGE ENERGY: thickness 150 mm/spacer 60 mm
- **Vertical cladding profile** ^(a)



U_p (W/m ² .K)	0.30	0.29	0.27	0.22
R_p (m ² .K/W)	3.20	3.30	3.50	4.40

U_p (W/m ² .K)	Type of tray		
	TEMPO 400	TEMPO 450	TEMPO 500
Rockbardage (spacer 40mm)	0.37	0.39	0.35
Rockbardage ENERGY (spacer 60mm)	0.30	0.32	0.29

(a) Min. thickness subject to mechanical verification

(b) In the case of perforated or punctured profiles, a vapour barrier film should be used

(c) If installed horizontally, there should be a continuous and ventilated air space of 20 mm

NEW TRADITIONAL CLADDING

B.20.RB

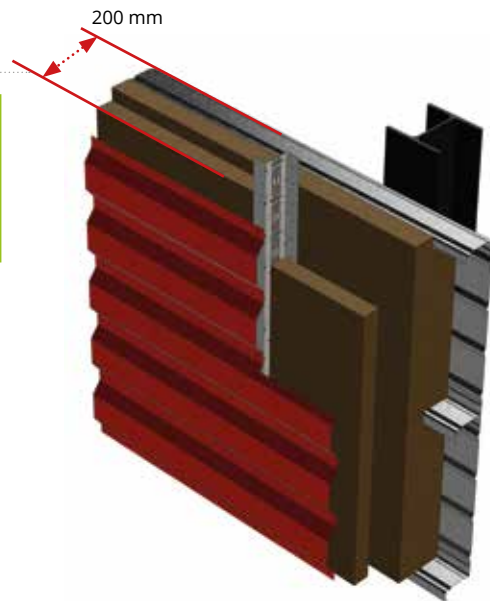


LESS INSULATION

With the use of Z THERMIQUE® in comparison to an equivalent system with full Z



WITH STANDARD FULL Z



Description of the system:

- Tempo 500 Tray ^{(a) (b)}
- ROCKBARDAGE ENERGY: thickness 150 mm/spacer 60 mm
- Z Thermique® 70 ^{(a) (c)}
- Rockfaçade, thickness 50mm
- Horizontal cladding profile ^(a)

0.20	0.19	0.17	0.15
4.80	5.10	5.70	6.50

FOR HORIZONTAL CLADDING

U _p (W/m².K) with 2m axial distance Z Thermique® 1 fixing per tray/spacer junction		Type of tray					
		TEMPO 400		TEMPO 450		TEMPO 500	
spacer Z thermique®	Rockfaçade (th. mm)	Rockbardage (spacer 40mm)	Rockbardage ENERGY (spacer 60mm)	Rockbardage (spacer 40mm)	Rockbardage ENERGY (spacer 60mm)	Rockbardage (spacer 40mm)	Rockbardage ENERGY (spacer 60mm)
Z Thermique® 70	50	0.24	0.21	0.23	0.20	0.23	0.20
Z Thermique® 80	60	0.22	0.20	0.22	0.19	0.21	0.19
Z Thermique® 90	70	0.21	0.19	0.21	0.18	0.20	0.18
Z Thermique® 100	80	0.20	0.18	0.20	0.18	0.19	0.18
Z Thermique® 120	100	0.18	0.17	0.18	0.16	0.18	0.16
Z Thermique® 150	130	0.16	0.15	0.16	0.14	0.16	0.15
Z Thermique® 170	150	0.15	0.14	0.15	0.14	0.15	0.14

NEW CLADISOL CLADDING

The U_p vales (surface transmittance coefficient) and R_p values (wall thermal resistance) are estimated for:

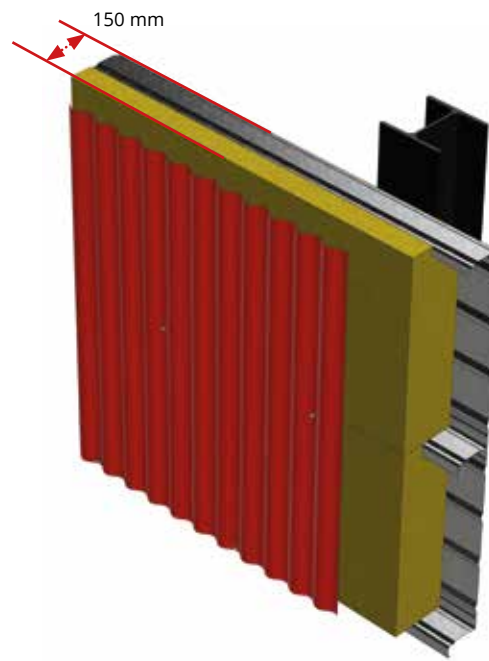
- 2.5 fixings/m²
- Distance of 2.0 m between secondary framework elements

B.28.CI



Description of the system:

- **Tempo 500 Tray** ^{(a) (b)}
- CLADIPAN 32: thickness 150 mm/spacer 60 mm
- **Vertical cladding profile** ^(a)



U_p (W/m².K)

0.30

0.28

0.27

0.22

R_p (m².K/W)

3.20

3.40

3.50

4.40

U_p (W/m ² .K)	Type of tray		
	TEMPO 400	TEMPO 450	TEMPO 500
Cladipan 32 (spacer 40 mm)	0.35	0.37	0.33
Cladipan 32 (spacer 60 mm)	0.29	-	0.28

(a) Subject to mechanical verification

(b) In the case of perforated or punched trays the airtight membrane is replaced with a watertight vapour barrier

(c) If installed horizontally, there should be a continuous and ventilated air space of 20 mm

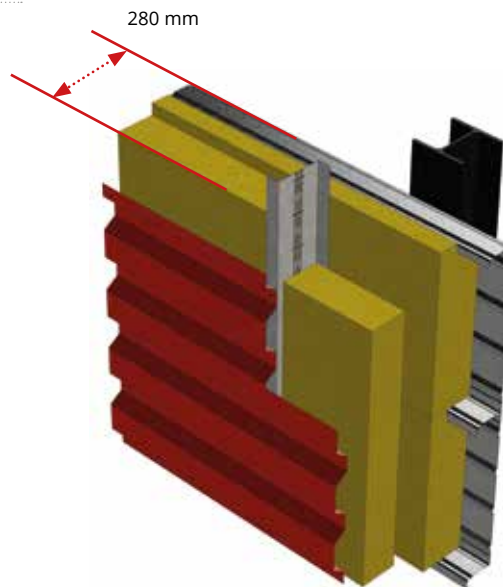
NEW CLADISOL CLADDING

B.15.CI



Description of the system:

- Plateau Tempo 500 ^{(a) (b)}
- CLADIPAN 32: thickness 130 mm/spacer 40 mm
- Z Thermique® 170 ^{(a) (c)}
- Cladding felt, 150mm thick
- Horizontal cladding profile ^(a)



0.20	0.19	0.17	0.15
4.80	5.10	5.70	6.50

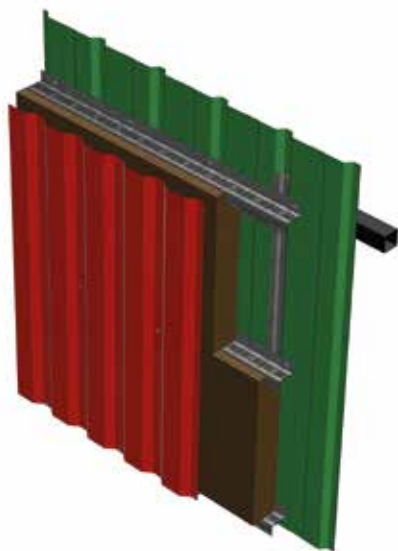
U _p (W/m².K) with 2m axial distance Z Thermique® 1 fixing per tray/spacer junction		Type of tray				
		TEMPO 400		TEMPO 450	TEMPO 500	
Spacer Z thermique®	Cladding felt th. mm (λ=0.040 W/m.K)	Cladipan 32 (spacer 40mm)	Cladipan 32 (spacer 60mm)	Cladipan 32 (spacer 40mm)	Cladipan 32 (spacer 40mm)	Cladipan 32 (spacer 60mm)
Z Thermique® 70	50	0.24	0.21	0.25	0.23	0.20
Z Thermique® 80	60	0.21	0.19	0.22	0.20	0.18
Z Thermique® 80	60	0.23	0.20	0.24	0.22	0.19
Z Thermique® 90	70	0.22	0.19	0.22	0.21	0.18
Z Thermique® 100	80	0.21	0.18	0.21	0.20	0.18
Z Thermique® 120	100	0.19	0.17	0.19	0.18	0.16
Z Thermique® 150	130	0.17	0.15	0.17	0.16	0.15
Z Thermique® 170	150	0.16	0.14	0.16	0.15	0.14

 The felt is replaced with ISO CLADDING 32 with conductivity of 0.32 W/m.K

SINGLE SKIN RENOVATED CLADDING: ROCKZED CLADDING

The U_p vales (surface transmittance coefficient) and R_p values (wall thermal resistance) are estimated for:

- Distance between Z thermique® of 600 mm
- 2.5 fixtures/m²
- Distance of 2.0 m between secondary framework elements
- Distance of 1.8 m between Z or omegas in rib base



B.32.RÉNO.SP

EXISTING
CLADDING

- Existing single skin cladding (min. thickness 0.63mm)

+

RENOVATION

- Z or oméga bottom of rib thickness 1.5mm
- Z Thermique® 70
- ROCKBARDAGE RENO (thickness 110 mm/spacer 40 mm)
- New vertical metal cladding ^(a)



U_p (W/m².K)

0.33

0.32

0.31

R_p (m².K/W)

2.90

2.96

3.00

B.31.RÉNO.SP

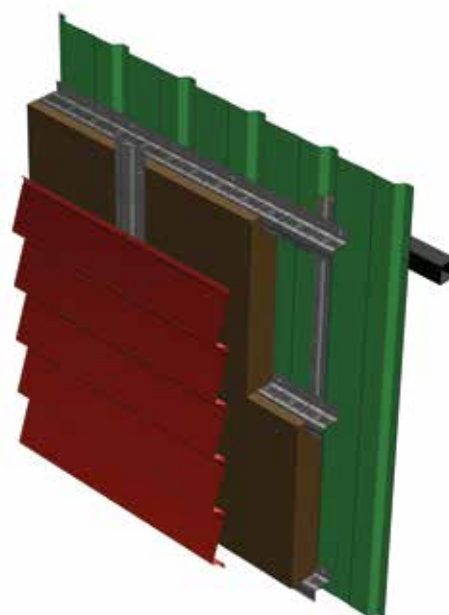
EXISTING
CLADDING

- Existing single skin cladding (min. thickness 0.63mm)

W

RENOVATION

- Z or oméga bottom of rib thickness 1.5mm
- Z Thermique® 70
- ROCKBARDAGE RENO (thickness 110 mm/strut 40 mm)
- Secondary framework Oméga 40/20/40/20/40, thickness 1.5 mm ^(a) ^(b)
- New horizontal metal cladding ^(a)



^(a) Min. thickness subject to mechanical verification

^(b) If installed horizontally, there should be a continuous and ventilated air space of 20 mm

SINGLE SKIN RENOVATED CLADDING: ROCKZED CLADDING

B.27.RÉNO.SP

EXISTING
CLADDING

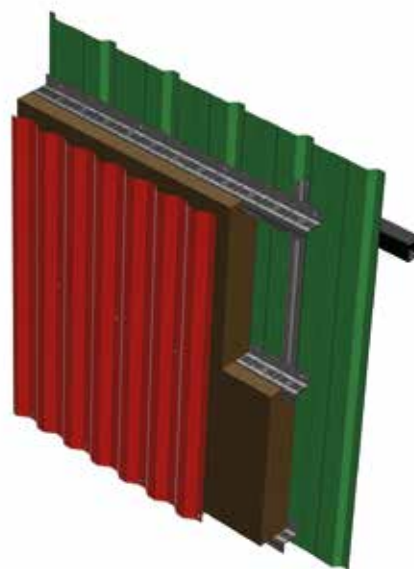
- Existing single skin cladding (min. thickness 0.63mm)

+

RENOVATION

- Z or oméga bottom of rib thickness 1.5mm
- Z Thermique® 70
- ROCKBARDAGE RENO (thickness 130 mm/spacer 60 mm)
- New vertical metal cladding ^(a)

 U_p
0.27
SURFACE TRANSMITTANCE COEFFICIENT

 R_p
3.50
THERMAL RESISTANCE OF THE WALL


0.29

0.27

0.26

3.30

3.50

3.70

B.26.RÉNO.SP

EXISTING
CLADDING

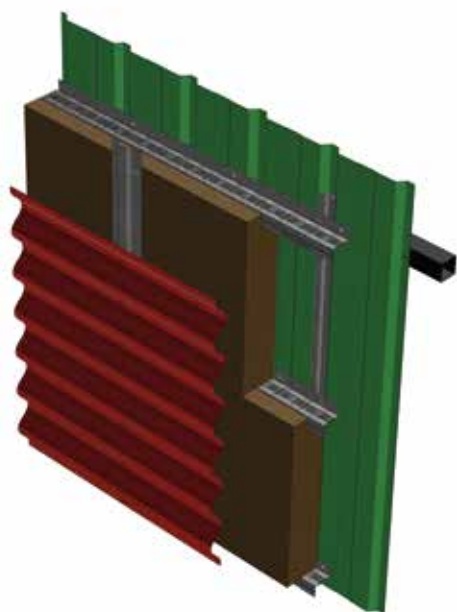
- Existing single skin cladding (min. thickness 0.63mm)

+

RENOVATION

- Z or oméga bottom of rib thickness 1.5mm
- Z Thermique® 70
- ROCKBARDAGE RENO (thickness 130 mm/spacer 60 mm)
- Omega sub-frame 40/20/40/20/40, thickness 1.5 mm ^{(a) (b)}
- New horizontal metal cladding ^(a)

 U_p
0.26
SURFACE TRANSMITTANCE COEFFICIENT

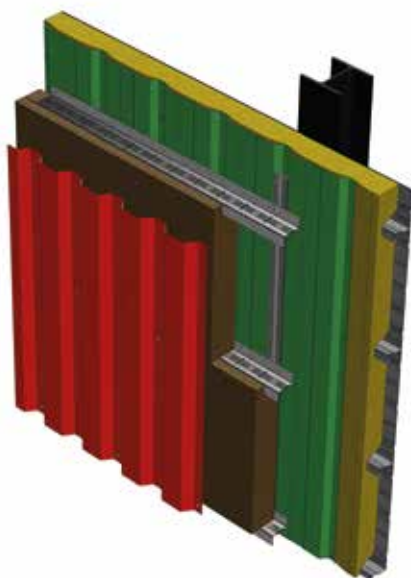
 R_p
3.70
THERMAL RESISTANCE OF THE WALL


DOUBLE SKIN RENOVATED CLADDING: ROCKZED CLADDING

The U_p vales (surface transmittance coefficient) and R_p values (wall thermal resistance) are estimated for:

- Distance between Z thermique® of 600 mm
- 2.5 fixings/m²
- Distance of 2.0 m between secondary framework elements
- Distance of 1.8 m between Z or omegas in rib base

B.27.RÉNO.DP



EXISTING CLADDING

$U_p = 1.20 \text{ W/M}^2.\text{K}$

- Tray 450.70
- Mineral wool insulation 70 mm thick ^(b)
- Metal cladding (min. thickness 0.63 mm)

+

RENOVATION

- Z or oméga bottom of rib thickness 1.5mm
- Z Thermique® 70
- ROCKBARDAGE RENO (thickness 110 mm/strut 40 mm)
- New vertical metal cladding ^(a)

U_p
0.27
SURFACE TRANSMITTANCE COEFFICIENT

R_p
3.50
THERMAL RESISTANCE OF THE WALL

$U_p \text{ (W/m}^2.\text{K)}$

0.28

0.27

0.26

0.25

$R_p \text{ (m}^2.\text{K/W)}$

3.40

3.50

3.70

3.80

B.26.RÉNO.DP

EXISTING CLADDING

$U_p = 1.20 \text{ W/M}^2.\text{K}$

- Tray 450.70
- Mineral wool insulation 70 mm thick ^(b)
- Metal cladding (min. thickness 0.63 mm)

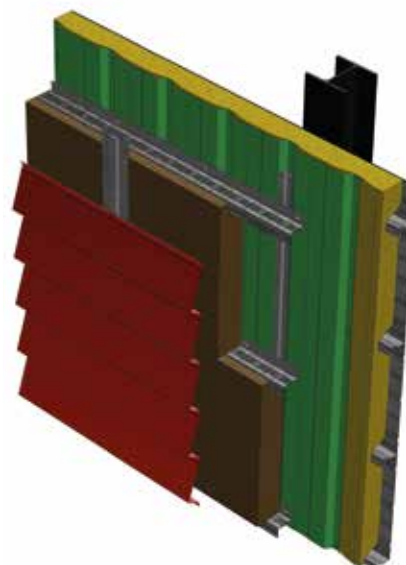
+

RENOVATION

- Z or oméga bottom of rib thickness 1.5mm
- Z thermique® 70
- ROCKBARDAGE RENO (thickness 110 mm/spacer 40 mm)
- Omega secondary framework 40/20/40/20/40, 1.5 mm thick
- New horizontal metal cladding ^(a)

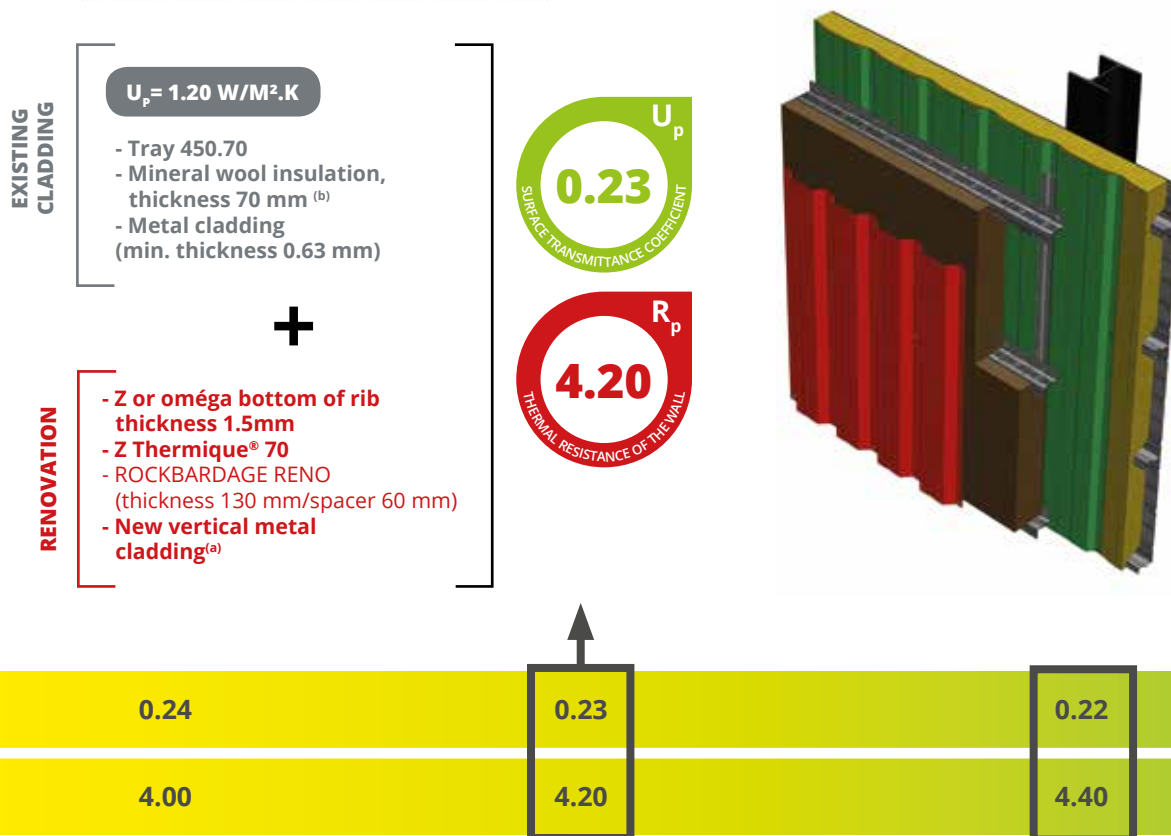
U_p
0.26
SURFACE TRANSMITTANCE COEFFICIENT

R_p
3.70
THERMAL RESISTANCE OF THE WALL

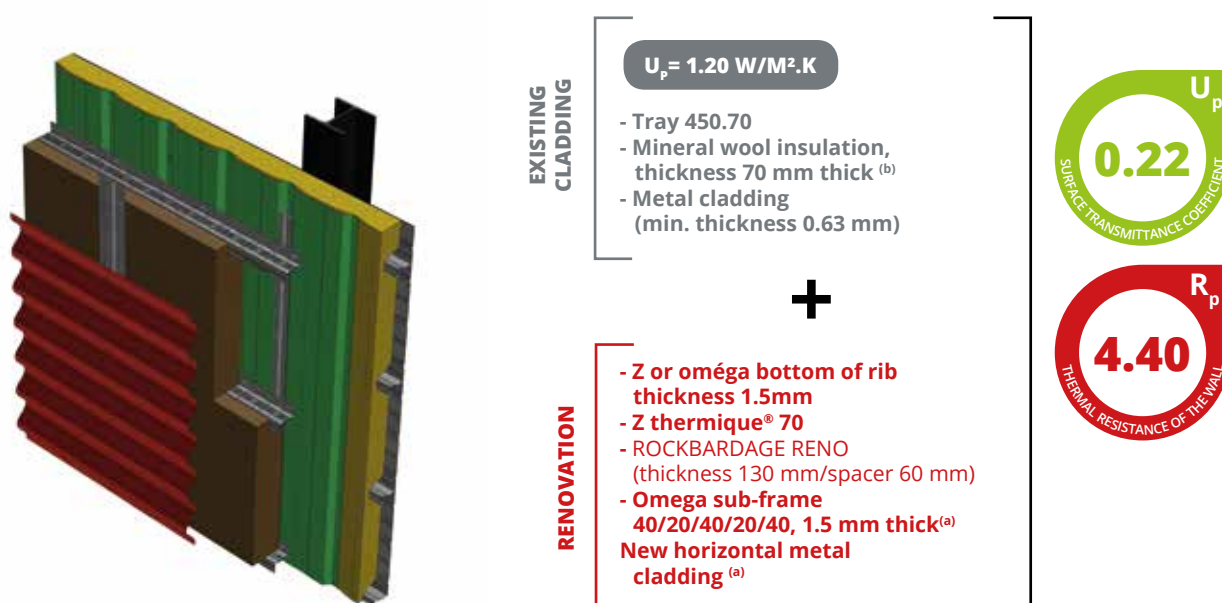


DOUBLE SKIN RENOVATED CLADDING: ROCKZED CLADDING

B.23.RÉNO.DP



B.22.RÉNO.DP



(a) Subject to mechanical verification

(b) As old mineral wool is difficult to characterise, a degraded conductivity of 0.065 w/m.K is assumed instead of 0.040 W/m.K maximum

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