



TÜRK STANDARDLARI ENSTİTÜSÜ
TÜRK STANDARDLARINA UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS



BELGE NUMARASI REFERENCE NUMBER OF LICENCE	007576-TSE-01/04
BELGENİN İLK VERİLİŞ TARİHİ DATE OF FIRST ISSUE OF LICENCE	27.05.2011
BELGENİN SON GEÇERLİLİK TARİHİ LICENCE VALID UNTIL	27.05.2025
BELGE SAHİBİ KURULUŞUN ADI NAME OF THE LICENCE HOLDER	PANELSAN ÇATI CEPHE SİSTEMLERİ SAN. VE TİC. A.Ş.
BELGE SAHİBİ KURULUŞUN ADRESİ ADDRESS OF THE LICENCE HOLDER	MUSTAFA KEMAL MAHALLESİ, 2118 CAD., A BLOK APARTMAN NO: 4 A/18 ÇANKAYA ANKARA/TÜRKİYE
ÜRETİM YERİ ADI NAME OF THE MANUFACTURING PLACE	PANELSAN ÇATI CEPHE SİSTEMLERİ SAN. VE TİC. A.Ş.
ÜRETİM YERİ ADRESİ ADDRESS OF THE MANUFACTURING PLACE	POLATLI ORGANİZE SANAYİ BÖLGESİ 3. CADDE NO. 3 POLATLI ANKARA / TÜRKİYE
İPTAL EDİLEN BELGE NUMARASI (Varsa) INDICATION OF SUPERSEDED LICENCE (if any)	007576-TSE-01/03
TESCİLLİ TİCARİ MARKASI REGISTERED TRADE MARK	panelsan
İLGİLİ TÜRK STANDARDI RELATED TURKISH STANDARD	TS EN 14509 / 02.04.2014
BELGE KAPSAMI SCOPE OF LICENCE	

SELF-SUPPORTING DOUBLE SKIN METAL FACED INSULATING PANELS

1) ALUMINUM FACED EPS ROOFING PANEL

Thickness: min. 40 mm, mak. 150 mm

Aluminum faces:

-Thickness Tolerance (TS EN 485 - 4):Nominal

- Yield Strength: min. 140 N / mm²

Properties of Core Material:

-EPS (Expanded Polystyren)

-Thermal Conductivity (λ): Max. 0,038 W/mK

-Density (Kg/m³) : 16 \pm 1 Properties of Panels:

-Shear Strength of Core Material (fcv): min. 0.065 MPa

e-imzalı/e-signed

21.05.2024

On Behalf Of The Head Of Certification Center
ŞİMA AKKAYA

DIRECTOR OF CONSTRUCTION MATERIALS
SECTOR

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Markanın Tanımı Description of the Mark
TSE veya/or  veya/or **TSE**

(007576-TSE-01/04nolu belge devamı) : **PANELSAN ÇATI CEPHE SİSTEMLERİ SAN. VE TİC. A.Ş.**
İLGİLİ TÜRK STANDARDI(RELATED TURKISH STANDARD) TS EN 14509 / 02.04.2014

- Shear Modulus of Core Material (G): min. 1,75 Mpa
- Shear Strength After Long-term Loading (Reduced Shear Strength) (fcv - long term):
 - t: 1.000 h, min. 0,033 MPa
 - t: 2.000 h, min. 0,041 MPa
 - t: 100.000 h, min. 0,020 MPa
- Bending Moment Capacity and Rigidity:
 - Roof / Normal: Min. 2,50 kNm / m
 - Roof / Reverse: Min. 1,5 kNm / m
- Wrinkling Stress:
 - Roof / Normal: Min. 70 Mpa
 - Roof / Reverse: Min. 55 Mpa
- Crawling / Spreading Coefficient Creeping Coefficient (Shear Strength of Panel) (Roof panel):
 - t: 200 h, Φ t: 0,72
 - t: 1.000 h, Φ t: 1,16
 - t: 2.000 h, Φ t: 1,62
 - t: 100.000 h, Φ t: 2,41
- Bending Moment Capacity over a Central Support:
 - Roof / Normal: Min. 2,25 kNm / m
 - Roof / Reverse: Min. 1,55 kNm / m
- Wrinkling Stress over a Central Support:
 - Roof / Normal: Min. 50 Mpa
 - Roof / Reverse: Min. 55 Mpa
- Compression Strength (σ_{10}): min. 0,080 MPa
- Latitudinal Tensile Strength of Panel (fct): Min. 0,085 MPa
- Reaction to Fire: Fire Class E

2) GALVANIZED STEEL FACED EPS WALL AND ROOFING PANELS

- Thickness: min. 40 mm, mak. 150 mm
- Steel Faces:
 - Thickness Tolerance (TS EN 10143):Nominal
 - Yield Strength: min. 220 N / mm²

Properties of Core Material:

- EPS (Expanded Polystyren)
- Thermal Conductivity (λ): Max. 0,038 W/mK
- Density (Kg/m³) : 16 \pm 1

Properties of Panels:

- Shear Strength of Core Material (fcv): min. 0.075 MPa
- Shear Modulus of Core Material (G): min. 2,5 Mpa
- Shear Strength After Long-term Loading (Reduced Shear Strength) (fcv - long term):

e-imzalı/e-signed

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İLGİLİ TÜRK STANDARDI(RELATED TURKISH STANDARD) TS EN 14509 / 02.04.2014

t: 1.000 h, min. 0,041 MPa
t: 2.000 h, min. 0,038 MPa
t: 100.000 h, min. 0,021 MPa
-Bending Moment Capacity and Rigidity:
Roof / Normal: Min. 4,0 kNm / m
Roof / Reverse: Min. 2,9 kNm / m
Wall / Normal: Min. 3,0 kNm / m
Wall / Reverse: Min. 1,50 kNm / m
-Wrinkling Stress:
Roof / Normal: Min. 90 Mpa
Roof / Reverse: Min. 85 Mpa
Wall / Normal: Min. 90 Mpa
Wall / Reverse: Min. 80 Mpa
-Crawling / Spreading Coefficient Creeping Coefficient (Shear Strength of Panel) (Roof panel):
t: 200 h, Φ t: 1,00
t: 1.000 h, Φ t: 1,33
t: 2.000 h, Φ t: 1,78
t: 100.000 h, Φ t: 2,29
-Bending Moment Capacity over a Central Support:
Roof / Normal: Min. 4,35 kNm / m
Roof / Reverse: Min. 2,85 kNm / m
Wall / Normal: Min. 2,50 kNm / m
Wall / Reverse: Min. 2,40 kNm / m
-Wrinkling Stress over a Central Support:
Roof / Normal: Min. 90 Mpa
Roof / Reverse: Min. 75 Mpa
Wall / Normal: Min. 65 Mpa
Wall / Reverse: Min. 70 Mpa
-Compression Strength (σ 10): min. 0,080 MPa
-Latitudinal Tensile Strength of Panel (fct): Min. 0,085 MPa
-Reaction to Fire: Fire Class E

3) GALVANIZED STEEL FACED MW (STONE WOOL) WALL AND ROOFING PANELS

Thickness: min. 40 mm, mak. 150 mm

Steel Faces:

-Thickness Tolerance (TS EN 10143):Nominal
- Yield Strength: min. 220 N / mm²

Properties of Core Material:

-Mineral Wool (MW)
-Thermal Conductivity (λ): Max. 0,038 W/mK

e-imzalı/e-signed

21.05.2024

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-Density (Kg / m³) : 100 ± %10

Properties of Panels:

-Shear Strength of Core Material (fcv): min. 0.015 MPa

-Shear Modulus of Core Material (G): min. 0,9 Mpa

-Shear Strength After Long-term Loading (Reduced Shear Strength) (fcv - long term):

t: 1.000 h, min. 0,015 MPa

t: 2.000 h, min. 0,014 MPa

t: 100.000 h, min. 0,012 MPa

-Bending Moment Capacity and Rigidity:

Roof / Normal: Min. 4,50 kNm / m

Roof / Reverse: Min. 2,55 kNm / m

Wall / Normal: Min. 2,10 kNm / m

Wall / Reverse: Min. 1,70 kNm / m

-Wrinkling Stress:

Roof / Normal: Min. 160 Mpa

Roof / Reverse: Min. 110 Mpa

Wall / Normal: Min. 80 Mpa

Wall / Reverse: Min. 70 Mpa

-Crawling / Spreading Coefficient Creeping Coefficient (Shear Strength of Panel) (Roof panel):

t: 200 h, Φ t: 0,90

t: 1.000 h, Φ t: 1,06

t: 2.000 h, Φ t: 1,41

t: 100.000 h, Φ t: 3,80

-Bending Moment Capacity over a Central Support:

Roof / Normal: Min. 3,80 kNm / m

Roof / Reverse: Min. 2,80 kNm / m

Wall / Normal: Min. 1,85 kNm / m

Wall / Reverse: Min. 1,35 kNm / m

-Wrinkling Stress over a Central Support:

Roof / Normal: Min. 130 Mpa

Roof / Reverse: Min. 130 Mpa

Wall / Normal: Min. 70 Mpa

Wall / Reverse: Min. 60 Mpa

-Compression Strength (σ_{10}): Min. 0,050 MPa

-Latitudinal Tensile Strength of Panel (fct): Min. 0,040 MPa

-Reaction to Fire: Fire Class A2 S1 d0 (K.D. 07.12.2021)

4) ALUMINUM FACED POLYURETHANE FILLED ROOFING PANELS

Thickness: min. 30 mm, mak. 120 mm

Aluminum Faces:

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- Thickness Tolerance (TS EN 485 - 4):Nominal
- Yield Strength: min. 140 N / mm²

Properties of Core Material:

- Polyurethane (PUR), self-adhesive
- Thermal Conductivity (λ): Max. 0,022 W / mK
- Density (Kg / m³) : 40 \pm 2
- Dimensional Stability (TS EN 13165 - Table 4)
Level DS (TH): 11

Properties of Panels:

- Shear Strength of Core Material (fcv): Min. 0.11 MPa
- Shear Modulus of Core Material (G): Min. 3 Mpa
- Straining Coefficient (Roof panel)
t: 2.000 hour (snow load), Φ t: Max. 2
t: 100.000 hour (free load), Φ t: Max. 3

-Compressive Strength (σ 10): Min. 0,11 MPa

- Shear Strength After Long-term Loading (Reduced Shear Strength) (fcv - long term):
t: 1.000 h, Min. 0,040 MPa
t: 2.000 h, Min. 0,030 MPa
t: 100.000 h, Min. 0,020 MPa

-Latitudinal Tensile Strength of Panel (fct) Min. 0,070 MPa

- Bending Moment Capacity (Mu)
Roof / Normal: Min. 2,3 kNm / m
Roof / Reverse: Min. 2,0 kNm / m
Wall / Normal: Min. 2,7 kNm / m
Wall / Reverse: Min. 1,4 kNm / m

-Wrinkling Stress (σ_w):

- Roof / Normal: Min. 115 Mpa
Roof / Reverse: Min. 100 Mpa
Wall / Normal: Min. 120 Mpa
Wall / Reverse: Min. 100 Mpa

-Bending Moment Capacity over a Central Support:

- Roof / Normal: Min. 3,0 kNm / m
Roof / Reverse: Min. 3,0 kNm / m
Wall / Normal: Min. 3,0 kNm / m
Wall / Reverse: Min. 1,26 kNm / m

-Wrinkling Stress over a Central Support:

- Roof / Normal: Min. 90 Mpa

e-imzalı/e-signed

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Roof / Reverse: Min. 90 Mpa
Wall / Normal: Min. 90 Mpa
Wall / Reverse: Min. 75 Mpa
-Reaction to Fire: Fire Class D S3 d0

5) GALVANIZED STEEL FACED POLYURETHANE FILLED WALL AND ROOFING PANELS
Thickness: min. 40 mm, mak. 200 mm
Steel Faces:
-Thickness Tolerance (TS EN 10143):Nominal
- Yield Strength: Min. 220 N/mm²

Properties of Core Material:
-Polyurethane (PUR), self-adhesive
-Thermal Conductivity (λ): Max. 0,022 W / mK
-Density (Kg / m³) : 40 \pm 2
-Dimensional Stability (TS EN 13165 - Table 4) Level DS (TH): 11

Properties of Panels:
-Shear Strength of Core Material (fcv): Min. 0.11 MPa
-Shear Modulus of Core Material (G): Min. 3 Mpa
-Straining Coefficient (Roof panel)
t: 2.000 hour (snow load), Φ t: Max. 2
t: 100.000 hour (free load), Φ t: Max. 3
-Compressive Strength (σ_{10}): Min. 0.11 MPa
-Shear Strength After Long-term Loading (Reduced Shear Strength) (fcv - long term):
t: 1.000 h, Min. 0,040 MPa
t: 2.000 h, Min. 0,030 MPa
t: 100.000 h, Min. 0,020 MPa

-Tensile Strength of Panel as Latitudinal (fct) Min. 0,070 MPa
-Bending Moment Capacity
Roof / Normal: Min. 2,3 kNm / m
Roof / Reverse: Min. 2,0 kNm / m
Wall / Normal: Min. 2,7 kNm / m
Wall / Reverse: Min. 1,4 kNm / m
-Wrinkling Stress (σ_w)
Roof / Normal: Min. 115 Mpa
Roof / Reverse: Min. 100 Mpa
Wall / Normal: Min. 120 Mpa
Wall / Reverse: Min. 100 Mpa
-Bending Moment Capacity over a Central Support:

e-imzalı/e-signed

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Roof / Normal: Min. 3,0 kNm / m
Roof / Reverse: Min. 3,0 kNm / m
Wall / Normal: Min. 3,0 kNm / m
Wall / Reverse: Min. 1,26 kNm / m
-Wrinkling Stress over a Central Support:
Roof / Normal: Min. 90 Mpa
Roof / Reverse: Min. 90 Mpa
Wall / Normal: Min. 90 Mpa
Wall / Reverse: Min. 75 Mpa
-Reaction to Fire: Fire Class B S2 d0

6) GALVANIZED STEEL FACED POLYURETHANE FILLED WALL AND ROOFING PANELS
Thickness: 40 mm
Steel Faces:
-Thickness Tolerance (TS EN 10143):Nominal
- Yield Strength: Min. 220 N/mm2

Properties of Core Material:
-Polyurethane (PUR), self-adhesive
-Thermal Conductivity (λ): Max. 0,024 W / mK
-Density (Kg / m3) : 32 \pm 4
-Dimensional Stability (TS EN 13165 - Table 4) Level DS (TH): 11

Properties of Panels:
-Shear Strength of Core Material (fcv): Min. 0.06 MPa
-Shear Modulus of Core Material (G): Min. 1,5 Mpa
-Straining Coefficient (Roof panel)
t: 2.000 hour (snow load), Φ t: Max. 1,6
t: 100.000 hour (free load), Φ t: Max. 2,3
-Compressive Strength (σ 10): Min. 0.060 MPa
-Shear Strength After Long-term Loading (Reduced Shear Strength) (fcv - long term):
t: 1.000 h, Min. 0,020 MPa
t: 2.000 h, Min. 0,020 MPa
t: 100.000 h, Min. 0,020 MPa

-Tensile Strength of Panel as Latitudinal (fct) Min. 0,030 MPa
-Bending Moment Capacity
Roof / Normal: Min. 1,0 kNm / m
Roof / Reverse: Min. 1,0 kNm / m
Wall / Normal: Min. 1,0 kNm / m
Wall / Reverse: Min. 1,0 kNm / m

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- Wrinkling Stress (σ_w)
Roof / Normal: Min. 75 Mpa
Roof / Reverse: Min. 75 Mpa
Wall / Normal: Min. 75 Mpa
Wall / Reverse: Min. 75 Mpa
- Bending Moment Capacity over a Central Support:
Roof / Normal: Min. 1,0 kNm / m
Roof / Reverse: Min. 1,0 kNm / m
Wall / Normal: Min. 1,0 kNm / m
Wall / Reverse: Min. 1,0 kNm / m
- Wrinkling Stress over a Central Support:
Roof / Normal: Min. 75 Mpa
Roof / Reverse: Min. 75 Mpa
Wall / Normal: Min. 75 Mpa
Wall / Reverse: Min. 75 Mpa
- Reaction to Fire: Fire Class D-s2,d0
- External fire performance (roofs): Broof (t1) (K.G. 02.11.2023)

- 7) GALVANIZED STEEL FACED POLYURETHANE FILLED WALL AND ROOFING PANELS
Thickness: 50 mm
Steel Faces:
-Thickness Tolerance (TS EN 10143):Nominal
- Yield Strength: Min. 220 N/mm²

- Properties of Core Material:
-Polyurethane (PUR), self-adhesive
-Thermal Conductivity (λ): Max. 0,024 W / mK
-Density (Kg / m³) : 32 \pm 4
-Dimensional Stability (TS EN 13165 - Table 4) Level DS (TH): 11

- Properties of Panels:
-Shear Strength of Core Material (fcv): Min. 0.06 MPa
-Shear Modulus of Core Material (G): Min. 1,5 Mpa
-Straining Coefficient (Roof panel)
t: 2.000 hour (snow load), Φ t: Max. 1,6
t: 100.000 hour (free load), Φ t: Max. 2,3
-Compressive Strength (σ_{10}): Min. 0.060 MPa
-Shear Strength After Long-term Loading (Reduced Shear Strength) (fcv - long term):
t: 1.000 h, Min. 0,020 MPa
t: 2.000 h, Min. 0,020 MPa
t: 100.000 h, Min. 0,020 MPa

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TÜRK STANDARDLARINA UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS



(007576-TSE-01/04nolu belge devamı) : **PANELSAN ÇATI CEPHE SİSTEMLERİ SAN. VE TİC. A.Ş.**
İLGİLİ TÜRK STANDARDI(RELATED TURKISH STANDARD) TS EN 14509 / 02.04.2014

- Tensile Strength of Panel as Latitudinal (fct) Min. 0,030 MPa
- Bending Moment Capacity
Roof / Normal: Min. 1,0 kNm / m
Roof / Reverse: Min. 1,0 kNm / m
Wall / Normal: Min. 1,0 kNm / m
Wall / Reverse: Min. 1,0 kNm / m
- Wrinkling Stress (σ_w)
Roof / Normal: Min. 75 Mpa
Roof / Reverse: Min. 75 Mpa
Wall / Normal: Min. 75 Mpa
Wall / Reverse: Min. 75 Mpa
- Bending Moment Capacity over a Central Support:
Roof / Normal: Min. 1,0 kNm / m
Roof / Reverse: Min. 1,0 kNm / m
Wall / Normal: Min. 1,0 kNm / m
Wall / Reverse: Min. 1,0 kNm / m
- Wrinkling Stress over a Central Support:
Roof / Normal: Min. 75 Mpa
Roof / Reverse: Min. 75 Mpa
Wall / Normal: Min. 75 Mpa
Wall / Reverse: Min. 75 Mpa
- Reaction to Fire: Fire Class C-s2,d0
- External fire performance (roofs): Broof (t1) (K.G. 02.11.2023)

e-imzalı/e-signed

21.05.2024

On Behalf Of The Head Of Certification Center
ŞİMA AKKAYA

DIRECTOR OF CONSTRUCTION MATERIALS
SECTOR

*This certificate also shows that the production place of the certified product meets the requirements of Institute.

*This certificate under any circumstances cannot be changed, duplicated partially or in a way that makes it difficult to read and erasure cannot be done.

*TSE CONSTRUCTION MATERIALS SECTOR DIRECTORATE * Address: Necatibey Cad.No:112 06100 Bakanlıklar/ANKARA * Telephone: 0312 416 63 79* Fax: 0312-416 66 17

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