TENSILE FABRIC FAÇADE - ARCHITECTURAL FUNCTIONS AND BENEFITS

Nitin Govila
Director - APAC & MEA
Serge Ferrari
Fabric-curtain wall – New Design Form of Building Skin

Tensile Facade – a New Style of Architecture

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Serge Ferrari’s Presence in Market Segments
Tensile Façade—a New style of Architecture

• Fabric curtain wall construction:  Tensile façade benefits

• Existing building facade renovation:  Façade Renovation

• Curtain wall fabric and installation form:  Mesh & Tensile Façade system
Curtain wall skin - the current popular material form

**Building Envelopes**

- Natural materials (materials that exist in nature such as soil, grass, bamboo, wood, and stone);
- Burnt soil materials (brick, glass, concrete, etc.);
- New materials (metal, polymer fabric materials, etc.).
Fabric curtain wall - new architectural skin representation
Mesh film lighting type: Translucent Mesh
Fabric curtain wall - new architectural skin representation
Flat film shading: **Opaque membrane**
Fabric curtain wall - new architectural skin representation
Flat film high light transmission type: High Translucent membrane
Fabric curtain wall - building efficiency: Tensile Façade benefits

- Building facade performance Freedom of shape

- Shading insulation Thermal comfort & Energy Saving

- Glare control and line of sight comfort: Visual comfort & Glare control
Tensile Façade benefits - *Freedom of shape*

- Three-dimensional modeling 3D Envelopes
- LED Lighting
- Textile Nature & Printing
B55, located in the center of the Airbus wing at the Airbus Headquarters, is a two-story building designed for a variety of functions, including a cafeteria on the first floor.
In order to avoid any viewing obstacles, the architectural design firm Calvo Van Tran decided to extend the building up to bring the restaurant to the canopy. The two facades of the building are equipped with a double skin, consisting of a glass wall and a 3D textured fabric curtain wall, and the glass is covered with a Frontside View 381 composite film (FT381).
The architect explained, “The two facades have a rhythm due to the three-dimensional geometric pattern, providing a green leaf effect. When the trees grow into large trees, the fabric curtain wall will blend harmoniously with the surrounding plants.”
The line-of-sight permeability of the FT381 mesh membrane ensures that it maintains visual contact with the external environment. “The surface coating and fabric texture of FT381 film has the special feature of deflecting the sun's rays. The inside is not visible from the outside during the day, but the outside is visible from the inside. This film satisfies the need to block external solar radiation and internals. The need for visual comfort”.
Shanghai Expo 2010 Germany covers an area of 6,000 square meters, designed and designed by Schmidhuber und Kaindl, Munich, Germany, and Shanghai Modern Architectural Design Institute with deepening design. The pavilion consists of two major parts: the natural scenic area and the main body of the pavilion above it. The façade of the film is made of Ferrari metal silver coated with a high-strength polyester film FT381 with a 28% open porosity. The façade reflects up to 80% of the solar radiation, significantly reducing the cooling load of the building itself. Does not affect natural lighting, which in turn improves the...
Three-dimensional film facade renderings
Three-dimensional structure diagram
Membrane welding
The entire main building is covered with a layer of coal-grey composite sandwich panels, hidden in the silver film facade, reflecting the different light and shades of the day. The plastic polygonal facade of the pavilion shines with silver. The semi-open space between the membrane facade and the inner building envelope acts as a wind-resistant character, ensuring an effective breathing function of the building.
The membrane façade also provides additional protection against heavy rain, thus reducing the building's own water resistance requirements and minimizing the risk of building leakage. At the same time, testing with large-scale membranes provided in the field proved that the permeability of air and smoke can be ensured in the case of a wide range of membrane facades.
In the sun, the facade of the building presents an opaque metallic feel. And when night falls, under the LED lighting, the hidden building structure can be realized.
Santa Lucia Hospital, Cartagena, Spain
Façade shape echoes the background mountain
Architects-Francesc Pernas. Casa Solo Arquitectos
FT381
Großhadern Clinic, Munich
• 3D shape
• Ludes Architekten & Ingenieure
• FT381
Office building, Jakada
- 3D shape
- FT381
YESHASWI Boutique hotel, Mysore
• 3D shape
• A.R. Dinesh Verma, ACE group Architects
• FT381

© Zak World of Façades Jakarta Conference
Vakifbank Sport Hall, – Turkey

- 3D shape
- FT381
Fabric Curtain Wall - Building Facade Performance

Tensile Façade benefits- *Freedom of shape*

- 3D Envelope
- LED Lighting
- Textile Nature & Printing
Markant Theatre, Uden – Netherlands

- Big span panels with LED lighting
- Architect: HH Architectuur studio
- FT381
Reconstruction project: The building’s façade consists of two large FT381 composite membranes stretched over the aluminum frame, hiding the multi-color lighting system installed by 3TAC. The microperforated structure of the membrane allows the LED to be subtly concealed while hanging the lamp.
Luanda Multisports Pavilion, – Angola
• Frame+ LED Lighting
• Berger Arquitectors
• FT381
Luanda Multisports Pavilion, – Angola
- Frame+ LED Lighting
- Berger Arquitectors
- FT381
Luanda Multisports Pavilion, Angola
Vanker Sales Center, Quanzhou
泉州万科城市之光营销中心
• Frame+ Printing+ LED Lighting
• Architect: Huayang Architects
• FT381
Fabric Curtain Wall - Building Facade Performance

Tensile Façade benefits - *Freedom of shape*

- 3D Envelope
- LED Lighting
- Textile Nature & Printing
Vanker Sales Center, Quanzhou
泉州万科城市之光营销中心
• Frame+, Printing+, LED Lighting
• Architect: Huayang Architects
• FT381
Day Care Center, Böblingen – Germany
One piece panel+printing+transparency
• Architect: (se)arch freie Architekten BDA
• FT381
La Tour du Pin Library, Lyon
• Printing
• Charon Rampillon Architecture
• FT381
RICE University Parking Garage, Houston

- Frame+ Printing
- Architects: Kieran Timberlake
- FT381
RICE University Parking Garage, Houston
• Frame+ Printing
• Architects-Kieran Timberlake
• FT381
Fabric curtain wall - building efficiency: Tensile Façade benefits

Building facade performance Freedom of shape

Shading insulation Thermal comfort & Energy Saving

Glare control and line of sight comfort: Visual comfort & Glare control
Textile Façade – Energy saving simulation

Same office building, Different locations
Energy-saving simulation of equivalent buildings and different locations
• Type C lowE insulating glass;
• Window and wall ratio is 40%;
• Metallic silver FT381 fabric;

• 40% of glazed surface. Glazing type C *
• Soltis FT381, Colour Silver Metal (3128)

*(insulating, slightly emissive double glazing in position 3 - 4 + 16 + 4; argon-filled)
### Complete building/整幢建筑

<table>
<thead>
<tr>
<th></th>
<th>With FT381 screens 安装FT381织物幕帘</th>
<th>Without screens 不安装遮阳帘</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy needs for heating 热能 需要</td>
<td>1 kWh/m²/an</td>
<td>1 kWh/m²/an</td>
</tr>
<tr>
<td>Energy needs for cooling 冷气 需要</td>
<td>23 kWh/m²/an</td>
<td>80 kWh/m²/an</td>
</tr>
<tr>
<td>variation节能比例</td>
<td>-72%</td>
<td></td>
</tr>
<tr>
<td>Net净节能</td>
<td>-57 kWh/m²/an</td>
<td></td>
</tr>
<tr>
<td>Combined needs总能源需要</td>
<td>24 kWh/m²/an</td>
<td>81 kWh/m²/an</td>
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<tr>
<td>variation节能比例</td>
<td>-70%</td>
<td></td>
</tr>
<tr>
<td>Net净节能</td>
<td>-57 kWh/m²/an</td>
<td></td>
</tr>
<tr>
<td>Thermal solar gains 得热</td>
<td>26 kWh/m²/an</td>
<td>98 kWh/m²/an</td>
</tr>
<tr>
<td>variation节能比例</td>
<td>-73%</td>
<td></td>
</tr>
</tbody>
</table>

![Bar chart of energy needs and solar gains](chart.png)

**Bar chart:**
- Energy needs for cooling 冷气 需要
- Energy needs for heating 热能 需要
- Thermal solar gains 得热
Textile Façade – Energy saving simulation

Energy performance of the buildings

<table>
<thead>
<tr>
<th>Complete building</th>
<th>Without Tensile facade</th>
<th>With Tensile facade</th>
<th>% energy saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal solar gains</td>
<td>98</td>
<td>26</td>
<td>-73%</td>
</tr>
<tr>
<td>Energy needs for heating</td>
<td>1</td>
<td>1</td>
<td>-72%</td>
</tr>
<tr>
<td>Energy needs for cooling</td>
<td>80</td>
<td>23</td>
<td>-72%</td>
</tr>
<tr>
<td>Combined needs</td>
<td>81</td>
<td>24</td>
<td>-70%</td>
</tr>
</tbody>
</table>

70% energy saving
HORIZONTAL LOUVERS

SOLTIS FT 381 - ISAE - Toulouse
– Fab : LAHILLE – France
3800 sqm -
527 elements 7,1 X 0,7 m

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FACADE SLIDING PANELS

SOLTIS 92
Eiffage · France
Fabric curtain wall - building efficiency: Tensile Façade benefits

Building facade performance  Freedom of shape

Shading insulation  Thermal comfort & Energy Saving

Glare control and line of sight comfort:  Visual comfort & Glare control
Brazilian Paralympic Center, São Paulo

- 3D shape + Transparency
- Architect: L+M Gets
- FT381
Brazilian Paralympic Center, São Paulo
• 3D shape + Transparency
• Architect: L+M Gets
• FT381
AIRBUS B55, Toulouse

- 3D
- Architect-Calvo Tran Van
- FT381
The line-of-sight permeability of the FT381 mesh membrane ensures that it maintains visual contact with the external environment. “The surface coating and fabric texture of FT381 film has the special feature of deflecting the sun's rays. The inside is not visible from the outside during the day, but the outside is visible from the inside. This film satisfies the need to block external solar radiation and internals. The need for visual comfort”.
Case Studies
Tensile façade for renovation

- Freedom of shape
- Thermal comfort & Energy Saving
- Visual comfort & Glare control
Sotheby’s International Realty Building
Façade Renovation (Los Angeles, 2005)

FACT FINDINGS (before Renovation)

• 3 storeys office building 三层办公楼
• Occupancy dropped 出租率下降
• 2 air conditioning devices running 24/7, 365 days
  2组空调每天24小时运转
• Alu/textile frame solution Proposed
  铝框架织物幕墙改造方案
Sotheby’s International Realty Building, Los Angeles

- Renovation: View through + shading + glare control
- X-Ten Architects
- FT371
膜材的珠光涂层根据太阳的位置而改变建筑物的外观。它变得连续不透明（间接光）、半透明（斜射线），并在夜间透明，揭示建筑物的框架和内部结构。
FINDINGS AFTER 10 YEARS of INSTALLATION 十年跟踪记录

- Energy savings = 60 000 US$ per year (air-conditioning) 每年节省空调电费6万美金
- Occupancy rate increased 出租率提升
- Return on investment after 3 years 三年回收改造投入
- Users’ comfort improved 用户舒适性提高
- Visibility on the outside preserved 视觉通透性得以保留
- Building’s aesthetics improved 建筑美观
Style Center?
Centro Stile Italmoda, ENDINE G., Italy
Renovation-Office/Showroom
FT381

The Tailor Makes The Man
What is your budget?
BAKU 2015 – SKK OLYMPIA SPORT COMPLEX  ARENA
Renovation
Circular façade: 370 long x 32 m high, 118 m diameter
LIGHTWEIGHT: 360 Panels (12 x 6 m) attached to an adapted steel frame, no ground anchoring
QUICK INSTALLATION: 5 weeks – 2 crew – 6 man crews
Arch. GC: A & A
When there is no enough budget

West Hills Medical Office, Los Angeles
West Hills Medical Office, Los Angeles

• Renovation: shading + glare control + privacy
• Michael W. Folonis Architects
• Structurflex: Aluminum frame + Steel
• FT381
West Hills Medical Office, Los Angeles
• Renovation: shading + glare control + privacy
• Michael W. Folonis Architects
• Structurflex
• FT381
High Rise Building Facades done by Façade Membranes
Other features of Frontside FT381 fabric in the renovation of existing buildings

- **Soft and strong**: the membrane is 0.55kg/m², the overall weight of the structure is small, but the membrane can reach 6 tons per square load!

- **Strong weather resistance**: moisture proof and mildew proof, easy to clean coating on the surface, easy to clean and maintain;

- **Communication is smooth**: the electrostatic shielding effect of the first cage cannot be pulled, and Communication is not disturbed;

- **No whistling sound**: in the windy environment, no whistling

- **Natural daylighting**: The light transmittance is 27%. Even in a cloudy environment (5000 lux), the indoor natural lighting intensity can reach 1350 lux, meeting the indoor lighting needs (500 lux).
SF Fabric Curtain Wall - Comfort and Sustainable Solutions

No faraday cage effect: avoids the Faraday cage effect and does not interfere with communication.

Compared with metal mesh plates, FT381 mesh film does not shield electronic models, ensuring smooth communication.
The German music school has undergone a curtain wall renovation after 40 years of use. At first the architect had considered the form of a metal mesh curtain wall, but after detailed certification, the scheme was rejected: the metal mesh produced a lot of noise in the wind, which was not suitable for music schools that were very sensitive to sound. The fabric curtain wall does not produce wind noise even in high winds.

Metal mesh curtain wall will generate loud noise in the wind, not suitable for sound sensitive places.
Soltis FT381 facade provides a reliable solution for all kinds of buildings thanks to:

- A patent technology, Precontraint providing high mechanical resistance over time
- All necessary Fire certification for all environments (public / private buildings)
- Additional treatments to enhance resistance to micro-organism and dust
### Fatigue & dynamic wind test on Précontraint® Panels 2.5 x 2.5 m:

<table>
<thead>
<tr>
<th>Number of wind cycles</th>
<th>83600 cycles</th>
<th>10720 cycles</th>
<th>3821 cycles</th>
<th>560 cycles</th>
<th>280 cycles</th>
<th>720 cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure daN/m²</td>
<td>65 daN/m²</td>
<td>26 daN/m²</td>
<td>131 daN/m²</td>
<td>164 daN/m²</td>
<td>197 daN/m²</td>
<td>230 daN/m²</td>
</tr>
<tr>
<td>Comments</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
</tbody>
</table>

#### Minimal extreme wind load in Europe

- 65 daN/m²

#### Near to maximal extreme wind load in Europe

- 230 daN/m²

### Impact resistance (CSTB, Building tech & scientific center)

<table>
<thead>
<tr>
<th>Energy (joules)</th>
<th>Soft Ball 50 kg</th>
<th>Soft Ball 3 kg</th>
<th>Steel ball 1 kg</th>
<th>Steel ball 0.5 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRECONTRAINT results</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
</tbody>
</table>

- 40 J
- 60
- 10
- 3
Micro – Organism growth proof / Easy maintenance

No micro-organisms development

Piece of fabric

SOLTIS FT381
Level 0 : Inert

Detergent

Maintenance: Serge Ferrari® detergent
To conserve the original aspect of its PVC-coated composite membranes, Serge Ferrari recommends using Serge Ferrari® DETERGENT approved by our laboratory. Non-aggressive, it will enable you to ensure optimum maintenance of your composite membranes while preserving all their technical features.
Serge ferrari DETERGENT is the only cleaning product authorized under the conditions of the Serge Ferrari® warranties.
Thermal properties – External Solar Protection

\[ T_s + R_s + A_s = 100\% \text{ of solar energy} \]

Which color provide the best thermal comfort?
Transparency, Natural light and productivity

Source: World Green Building Council
Profile Solutions
Fixing Systems – Proprietary Profiles

- Technical support available
- Complete and ready to use system
- Fabric Pre assembled in workshop

FTI by PTS

Texo by Tensoforma

BATenso by BAT Spain

KT+ by Isermatic
System offer – Standard Profiles and In-house Engineering

- Profiles locally available
- No special design constraints
- Cost Competitive solutions
Project video using BAT system

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Fire-Retardency vs Non-combustibility
Fire spread over façades

There are three typical scenarios of fire spread over façades (Figure 7):

1. Spread of the external fire onto combustible façade by radiation from the neighbouring, separate building,
2. Spread of the external fire onto combustible façade from the source of fire located next to the façade, with the consequence of radiation or direct exposure to fire (litter on the balcony, parked cars etc.),
3. An internal fire that has started in a space inside a building spreads through openings in the façade (windows, doors etc.) onto higher or lower floors.
Fire mechanism

- Ignition
- Combustion
- Drop
- Fire spread
- Heat increase
- Flash over
- Backdraft
- +O₂
Fire in commercial buildings: Main dangers

- Smoke density
- Toxicity of fumes
- Droplets
- High temperature

⇒ 80% of death are due to:
- Intoxication due to inhalation of toxic smoke
- Lack of visibility and high temperatures inducing a very difficult evacuation due to high smoke opacity
Long evacuation time is required in:
- hospitals,
- highrise buildings,
- retirement homes,
- schools,
- kindergardens…

Evacuation time is critical. Reducing smoke opacity and toxicity is key to allow people to evacuate rapidly.

In case of high density smoke, it is recommended to crawl when evacuating.

Long evacuation time is required in:
Material rating

Combustion

Flame

Fire spread

Heat Release

Radiated Heat

No Combustion

Combustion

F/E

D

C/B

A2/A1

Flashover

h = 150 mm in 20 sec / 60 sec

15 MJ / 7.5 MJ

1.4 MJ / sqm

4 MJ / sqm
## Euroclass system

<table>
<thead>
<tr>
<th>Category</th>
<th>Main Class</th>
<th>Burning Droplet Class</th>
<th>Smoke density class</th>
<th>Test method</th>
<th>Matériaux SF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NON COMBUSTIBLE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td></td>
<td></td>
<td></td>
<td><strong>EN ISO 1182 and EN ISO 1716</strong></td>
<td><strong>Fi 118, Pour ISO est inadapté et inaccessible aux support NC imprégnés</strong></td>
</tr>
<tr>
<td>A2</td>
<td></td>
<td><strong>s1, s2 or s3</strong></td>
<td><strong>d0, d1 or d2</strong></td>
<td><strong>EN ISO 1182 or EN ISO 1716 and EN 1382 SBI test</strong></td>
<td><strong>EN ISO 1716 est accessible avec support NC faiblement imprégné</strong> A2-s1,d0 : SK20, FTP 35, SF400, ..</td>
</tr>
<tr>
<td><strong>COMBUSTIBLE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td><strong>very limited</strong></td>
<td><strong>s1, s2 or s3</strong></td>
<td><strong>EN 11925-2 small flame and EN 13823 SBI test</strong></td>
<td><strong>Bs2d0 : 302, 502, 902 (légers)</strong></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td><strong>limited</strong></td>
<td><strong>s1, s2 or s3</strong></td>
<td><strong>EN 11925-2 small flame and EN 13823 SBI test</strong></td>
<td><strong>Cs2d0 : 1202, 1302, 1502 (lourds)</strong></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td><strong>medium</strong></td>
<td><strong>s1, s2 or s3</strong></td>
<td><strong>EN 11925-2 small flame and EN 13823 SBI test</strong></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td><strong>High</strong></td>
<td><strong>s1, s2 or s3</strong></td>
<td><strong>EN 11925-2 small flame</strong></td>
<td><strong>E: Stamskin Top, Stamsiol FA, COLOR, DW, ECO, Pack500, Stamisol 4802</strong></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td><strong>EN 11925-2 small flame</strong></td>
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</table>
SF has a specific products for different needs/ regulations: FT 381

<table>
<thead>
<tr>
<th>Technical properties</th>
<th>Soltis FT381</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front face</td>
<td>metallic steel finish</td>
<td>EN ISO 2286-2</td>
</tr>
<tr>
<td>Stack face</td>
<td>soft</td>
<td>EN ISO 598A</td>
</tr>
<tr>
<td>Yarn</td>
<td>100% POLYESTER</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>100 g/m²</td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>0.95 mm</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>267 cm</td>
<td></td>
</tr>
<tr>
<td>Physical properties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tensile strength</td>
<td>3300-3500 daN/5 cm</td>
<td>EN ISO 1421</td>
</tr>
<tr>
<td>Abrasion resistance</td>
<td>4500 daN</td>
<td>EN ISO 1875-3</td>
</tr>
<tr>
<td>Adhesion</td>
<td>9.4 daN/5 cm</td>
<td>EN ISO 2411</td>
</tr>
<tr>
<td>Density</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Extreme working temperatures</td>
<td>-30°C/ +70°C</td>
<td></td>
</tr>
</tbody>
</table>

Comparative analysis depending on end-of-life scenarios:

- Pyrolysis recycling
- Incineration
- Landfill

| Resource separation | 0.015 | 0.083 | 0.082 | kg CO₂ eq |
| Blood warming       | 1.29  | 3.46  | 3.21  | kg CO₂ eq |
| Energy Consumption  | 43.3  | 80.7  | 80.7  | Megawatt eq |
| Water consumption   | 317   | 233.5 | 233.5 | Litres |

Flame retardancy: MT/NFPA 701 • Method 1 et 2/NFPA 701 • Class A/AS/NZ 1915-1
13303/AS/NZ 1915-1 • Group 1/AS/NZ 3877 • BS 5837 • VKE 3.4/EN 13501-1

<table>
<thead>
<tr>
<th>Euroclass</th>
<th>0-12.40/EN 13501-1</th>
</tr>
</thead>
</table>

Management systems:
- Quality: ISO 9001
- Certifications, labels, guarantees, recycling
SF has a specific products for different needs/ regulations: FT P35

**Soltis FT P35 - A2 Level Fire Protection**

<table>
<thead>
<tr>
<th>Technical properties</th>
<th>Soltis FT P35</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yarn</td>
<td>Fibre glass</td>
<td>EN ISO 2286-2</td>
</tr>
<tr>
<td>Coating</td>
<td>PTFE</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>475 g/m² - 17.9 oz/4yd²</td>
<td></td>
</tr>
<tr>
<td>Total thickness</td>
<td>1.1 mm - 1100 microns</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>270 cm - 105.3 inches</td>
<td></td>
</tr>
<tr>
<td>Length of rolls</td>
<td>75 m/153m/82 yds/164 yds</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength beam/width</td>
</tr>
<tr>
<td>Tear strength beam/width</td>
</tr>
<tr>
<td>Extreme working temperatures</td>
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<tr>
<td>Flame retardancy</td>
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</table>

<table>
<thead>
<tr>
<th>Rating</th>
<th>A2/DIN 4102-1 · M0/EN ISO 1784 · ASTM E1356 · FR ISO 17534-1 · GI 20 057 302 344-74</th>
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<td>Management systems</td>
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<td>Quality</td>
<td>ISO 9001</td>
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<td>Environment</td>
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What’s New in 2019?

Stamisol Safe One
Stamisol Safe One / Applications

Stamisol Safe One now closes the gap for a consistent, non-combustible construction. If you want to create a curtain wall, ventilated façade with joints or open cladding:

- Curtain façades with up to 50 mm joints or an open area of 50%
- For stringent fire prevention requirements
Stamisol Safe One / Targets in terms of building types

- Skyscrapers
- Buildings higher than 5 floors
- Hospitals, retirement homes, rehab centers
- Schools, kindergarten, nursery schools
- Office buildings with high public traffic
- Transport facilities and hubs
- Top-floor extensions
- Photo-voltaic facades
Fire tests of different Fire Class Products

- Facade membrane
  - Stamisol Safe One
  - Non-combustible
  - Euroclass A2-S1,d0

- Facade membrane
  - Combustible
  - Easily flammable and unacceptable
  - Euroclass F

- Facade membrane
  - Combustible
  - Very limited contribution to fire
  - Euroclass B-S2,d0

- Facade membrane
  - Combustible
  - High contribution to fire
  - Euroclass E